ICEL 1008

EMERGENCY LIGHTING

RISK ASSESSMENT GUIDE

ICEL

For ICEL Members | Revised April 2001

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Foreword - What is ICEL?

The Industry Committee for Emergency Lighting (ICEL) was originally formed in the UK in 1978 by the Emergency Lighting sections of the British Electrical and Allied Manufacturers Association (BEAMA) and the Lighting Industry Federation (LIF). It was formed as an industry committee to respond to a demand for national standards for Emergency Lighting equipment and is now an independent division of the LIF.

Since its inception, ICEL has been publishing guidance documents and standards for Emergency Lighting Products and Installations to ensure the best practices available are employed. ICEL continues to provide expert advice and guidance to all specifiers and users on the requirements for Emergency Lighting.

Formed with an independent regulatory committee of representatives from government departments, public authorities and larger end users, ICEL exists to help and guide users, specifiers and contractors in all matters which touch upon the Emergency Lighting Industry world-wide. ICEL has become the foremost UK authority on Emergency Lighting and its representatives serve on BSI committees and represent UK interests within European Committees dealing with Emergency Lighting.

The guides and standards published by ICEL since 1978 are well known and respected world-wide and form the basis of many National Standards prior to the harmonisation of European Standards.

ICEL is the leading UK authority on Emergency Lighting and is also probably the most experienced authority on the subject in Europe.

June 2000

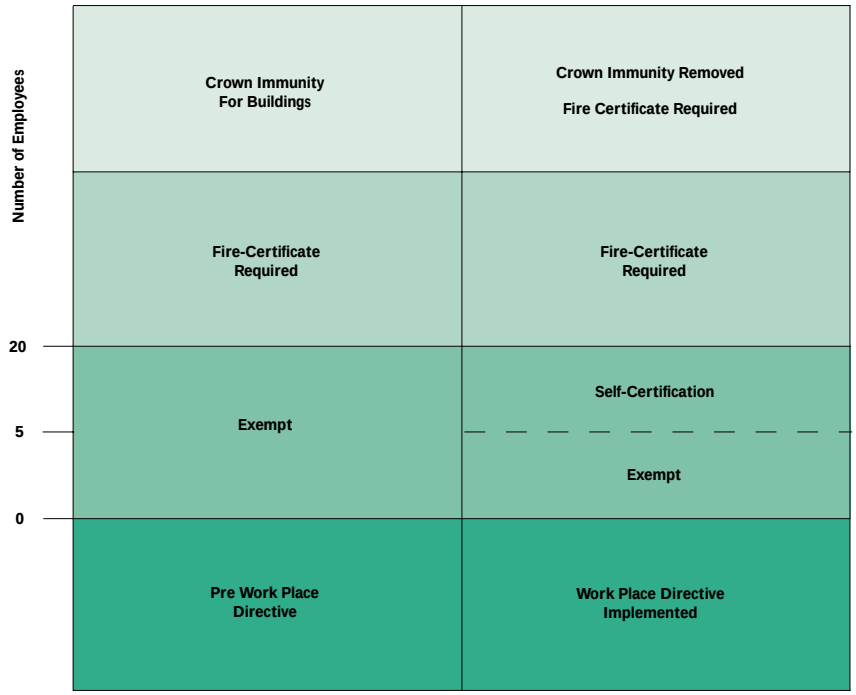


Figure.1 - Major Changes Due To The Implementation Of The Work Place Directive.

1 The Need to Carry Out and Document Risk Assessments

The implementation of the Fire Precautions (Workplace) Regulations 1997 in the UK as detailed in the Employers guide to Fire & Safety 1999 will lead to the requirement to carry out risk assessments of all premises. Emergency lighting is one of the life safety systems required to be provided, where necessary, in premises where people are employed. The requirement for emergency lighting, its type and location all being defined through the risk assessment.

Owners or occupiers of all premises in which people are employed must carry out fire precautions risk assessments even when the premises have a current fire certificate or are currently being assessed for a fire certificate.

For premises in which 5 or more persons are employed there is a legal requirement to document significant findings of the risk assessment together with details of the measures taken to deal with risks identified. If less than 5 persons are employed, there is still a requirement to carry out a risk assessment, although it may not need to be formally recorded.

All staff, or their representatives must be told of risk assessment findings and, if documented, staff must be able to see the report upon request.

1.1 Premises Covered by Fire Certificates

Certain premises will continue to be covered by fire certification or other regulations as listed in Appendix A.

Where this is the case the risk assessment will have been carried out by the inspecting authority, normally the local fire authority, however there is still a requirement for an additional risk assessment to be carried out by the employer.

1.2 Areas of Premises Controlled by Others

Where areas of premises are controlled by others, such as common access areas controlled by a landlord, it is the responsibility of the landlord to ensure compliance with the fire precautions requirements including carrying out a risk assessment if required.

2 What is a Risk Assessment?

The HSE's publication Fire-Safety – An employer's guide, details the "risk assessment" procedure to be used, in Parts 1 and 2 of that Guide.

Fire risk assessment is a five-fold process:-

Step 1 *Identify Fire Hazards.*

Step 2 *Identify People at Risk in Fire.*

Step 3 Evaluate the risks including-
Is Means of Escape adequate?
Is Employee Training adequate?
Is Maintenance & Testing adequate?
Carry Out Improvements Necessary

Step 4 *Record Findings and Action*

Step 5 *Keep Assessment under Review*

There are no hard and fast rules as to how the assessment should be carried out. The important thing is that it should be both practical and systematic to ensure that the whole of the workplace is examined - every room or area, particularly any not often in use.

A comprehensive fire precautions risk assessment – including assessment of possible sources of ignition of a fire, assessment of combustible materials, assessment of people at significant risk, assessment of fire spread as a result of structural features of the premises and assessment of risks during maintenance and refurbishing – should have already been carried out.

Other fire precautions such as passive fire protection, active fire detection and alarm requirements of the premises must also have been considered.

3 The Need for Emergency Lighting

The procedures described here deal specifically with the requirements for emergency lighting and should be considered as a part of an assessment of the means of escape in case of fire.

Emergency lighting is a primary life safety system to assist the occupants of premises to evacuate in case of an emergency. Emergency lighting should be constructed in accordance with appropriate standards, correctly installed in accordance with authenticated performance data, regularly tested and maintained as specified.

Emergency lighting can and does save lives.

If artificial lighting is installed in the workplace, some form of Emergency Lighting is a mandatory requirement.

The effectiveness of the escape routes can be very much affected by the provision of correct emergency lighting which is properly maintained and so as a part of the overall fire precautions risk assessment, the emergency lighting installation(s) must be examined.

4 What does the Law Require for Escape Routes?

The basic risk to be assessed is that of fire and the means of escape in case of fire. During a fire the lighting is likely to fail, so emergency lighting should be provided to facilitate escape.

A fire detection and alarm system may be required to alert people in the early stages of a fire prompting a rapid escape.

The law requires that at least a minimum of emergency lighting is installed, for example:-

	Regulation or Guide	**Compliance demonstrated by:**
a)	The Fire Precaution *(Workplace)* Regulations 1997 prescribe as follows: *Emergency routes and exits must be indicated by signs and emergency routes and exits requiring illumination shall be provided with emergency lighting of adequate intensity in the case of failure of their normal lighting.* also: *.....devices provided in respect of the workplace (for the above) shall be subject to a suitable system of maintenance and be maintained in good repair.*	**Risk Assessment**
b)	BS5266 Part 1 is the *'Code of practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment'.* Compliance to this standard is a requirement of various Government documents such as the Building Regulations *(see also Appendix A).*	**Completion Certificate**
c)	Home Office guides *(see Appendix A).*	**Completion Certificate**
d)	The Health and Safety *(Safety Signs and Signals)* Regulations require that: *Permanent signboards must be used to indicate the location and direction of emergency escape routes.....* and clarifies: *"Signboard" means a sign which is rendered visible by lighting of sufficient intensity.* *Signs requiring a power source must be provided with a guaranteed emergency supply.....*	**Completion Certificate**

For a complete guide to designing emergency lighting see ICEL 1006: Emergency Lighting Design Guide.

5 Main Points regarding Emergency Lighting (from the HSE's Fire / Safety, "An employer's guide")

- **Means of Escape** – Checklist – (p16)
  'Are all escape routes easily identifiable, free from obstructions and adequately illuminated.'
- **Maintenance and Testing** – (p17)
  'Emergency lighting must have regular checks and maintenance – any defects should be put right quickly.'

  This is best done using a Competent Person who is someone 'who has the necessary knowledge, training, experience and abilities to carry out the work'.
- **Maintenance and testing Checklist** – (p18)
  'Do you regularly check escape routes and associated lighting and signs?'

  'Are those who test and maintain the equipment properly trained to do so?'
- **Table 1: Maintenance of Emergency Lighting** – (p18)
  MONTHLY – Check all systems and units for state of repair and test for apparent working order.

  ANNUALLY – Full check and test of systems and units by a competent service engineer.

6 Reducing the Risk using Engineering Solutions

Many situations in premises increase the risk of fire and threaten the escape route for people in these situations. ICEL recommends that engineering solutions are provided to reduce that risk, for example:-

a) If the incoming mains electrical supply to the premises is not in an area of low risk, then staff may be exposed to unacceptable risk from lighting failure and emergency lighting should be provided in any area of the premises (not just the escape routes) to reduce that risk.

b) If the lighting final circuits do not correspond with the fire compartmentation, then the non-maintained emergency lighting may not operate when required and maintained emergency lighting should be used to reduce that risk.

c) The normal level of illuminance for emergency lighting to cover all risks, including use by older people and the presence of obstructions is a minimum of 1Lux* along the centre line of escape routes (0.2 Lux is still allowable in the UK, as an A deviation in BS5266 Pt.7:BSEN 1838, for permanently unobstructed escape routes).

d) If there are potential obstructions on the escape route such as stair treads, barriers and walls at right angles, then BS5266 advises that they should be light in colour against a contrasting background. This contrast may not be appropriate, therefore higher emergency illuminances of greater than 1 Lux* can be installed to reduce the risk due to obstructions.

e) If there is likely to be a presence of high physical risk, then a further increase in emergency illuminance and a rapid response time will reduce that risk. The illuminance on the reference plane (Note this is not necessarily the floor), shall be not less than 10% of the normal illuminance or 15 Lux, whichever is the greater. It shall be provided within 0.5 seconds of failure of the normal lighting supply and continue for as long as the hazard exists. (see ICEL 1006 and Section 6).

f) If there is the possibility of arson, then intruder and fire detection and alarm systems in addition to appropriate emergency lighting will reduce that risk.

g) If the length of the escape route is excessive, taking into account the fire risk involved and the number of people using the escape route, then the emergency lighting and signage should be assessed.

To assess the escape route it may be helpful if the people are timed in escaping from the building during a fire practice in mains failure conditions. If necessary higher illuminance or repeat signage may reduce the escape time.

h) If people such as the public or temporary workers unfamiliar with the layout of the building are likely to be present then higher illuminance or more signs may be required.

i) If the escape route passes through open areas, emergency lighting and signage should be installed (see ICEL 1006). A minimum emergency illuminance of 1 Lux* should be provided along the centre line of the escape route.

j) If an area is larger than 60m^2, emergency lighting and signage should be installed (see ICEL 1006). A minimum emergency illuminance of 0.5 Lux* is required for the core area.

k) If 5 or more people are employed in the premises, it is recommended that the emergency lighting should be provided by an installation of fixed luminaires which are automatically switched on upon failure of the normal lighting supply.

Advice on the suitability and location of the escape routes can be obtained from the local fire authority or by consulting the appropriate Home Office guide.

** Is the requirement in the European standard BSEN 1838 (BS5266 Pt.7:BSEN1838) Higher Levels of Illumination may be Appropriate. See BS5266 Pt.1*

Publications Providing Further Guidance on Fire Precautions in the Workplace:

- Guide To Fire Precautions In Existing Places Of Work That Require A Fire Certificate: Factories, Offices, Shops And Railway Premises - ISBN 0-11-341079-4
- Guide To Fire Precautions In Premises Used As Hotels And Boarding Houses Which Require A Fire Certificate - ISBN 0-11-341005-0
- Fire Safety Management in Hotels and Boarding Houses - ISBN 0-11-340980X
- Guide to Health, Safety and Welfare at Pop Concerts and Similar Events - ISBN 0-11-341072-7
- Guide to Fire Precautions in Existing Places of Entertainment and Like Premises - ISBN 0-11-340907-9
- Approved Document B: The Building Regulations 1991: Fire Safety - ISBN 0-11-752313-5
- The Technical Standards of the Building Standards (Scotland) Regulations 1990 - ISBN 0-11-495866-1
- Fire and the Design of Educational Buildings: Building Bulletin 7 - ISBN 0-11-270585-S
- FIRECODE (and FIRECODE Scotland) - A suite of documents aimed at healthcare premises - ISBN 0-11-321734-X
- Heritage Under Fire - A guide to the protection of historic buildings - ISBN 0-902167-90-1

For further details see Appendix A.

7 Emergency Lighting in High Risk Task Areas

Failure of the normal lighting supply in an area of high risk (e.g. areas in which there is moving machinery, moving vehicles, flammable materials or control rooms for potentially dangerous processes) may not mean that the supply to the hazard(s) has also failed. The hazard(s) may continue after failure of the normal lighting supply or may take a long period to subside.

In these areas, known as High Risk Task Areas, at least 10% of the normal mains lighting level or 15 Lux shall be provided within 0.5 seconds of failure of the normal supply. This emergency illuminance level is to be maintained as long as the hazard(s) continue. High Risk Task area lighting shall be provided to enable the safe termination of processes and to enable the evacuation of persons from the area without undue risk from the processes.
(Refer to ICEL 1006 for further information).

8 Risk Assessment of Signs

Assessing the compliance of signs to current UK regulations will ensure that they are of a suitable format and are positioned correctly. See also the HSE guidance document 'Safety Signs and Signals - Guidance on Regulations' (See Appendix A1) and ICEL 1006.

BS5266 requires signs at all exits, emergency exits and on escape routes, such that the position of any exit or route to it, is easily recognised and followed in an emergency.

Installed signs shall carry legends which comply with the Health and Safety (Safety Signs and Signals) Regulations 1996. This required all text only, EXIT, EMERGENCY EXIT and FIRE EXIT signs to be replaced by 24 December 1998 with pictogram signs complying with the formats shown in the Directive.

Figure 2 - Examples of the Format of Signs

Text only sign - should have been replaced by 24th December1998

Signs Directive Format complying with Health and Safety Regulations for all installations

8.1 Maximum Viewing Distances of Signs

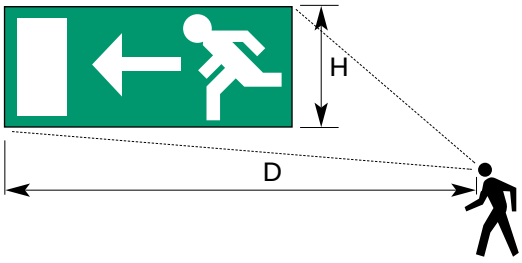
The maximum allowable viewing distances (D) for BS5499 signs and signs of the Signs Directive format are:-

- 200 x Legend panel height (H) if internally illuminated

  or

- 100 x Legend panel height (H) if externally illuminated

Figure 3 - Maximum Viewing Distances of Signs



9 Adequacy of Emergency Lighting Installations

Installations of emergency lighting and signs are deemed to comply with the requirements of the Fire Precautions (Workplace) Regulations 1997 if installed in accordance with BS5266, the current national code of practice for the installation of such systems.

Emergency lighting luminaires should be permanently connected to unswitched supply circuits to maintain the batteries in a state of charge in readiness for operation. Maintained operation circuits may be switched but must not affect the supply to the battery charging circuits.

An easy to follow guidance document ICEL 1006, describing how to install emergency lighting in accordance with BS5266 requirements is available from ICEL. Some of the key points are dealt with in the following sections, but for full compliance refer to ICEL 1006 and BS5266.

9.1 Siting of Luminaires

BS5266 Pt1 provides detailed guidance on where luminaires shall be installed, what minimum levels of illuminance shall be achieved on escape routes and in open areas and what minimum period of duration shall be achieved after failure of the normal mains lighting. Further details are available in ICEL 1006.
In any 'lighting compartment' on the escape route a minimum of 2 luminaires should contribute to the illuminance level required to ensure that the area is not plunged into darkness in case of failure of one of the luminaires (see ICEL 1006 - Stage 4; Illuminance requirements for escape routes).

9.2 Verification of Luminaire Performance

Illuminance levels should be checked, either by taking measurements or by calculation from authenticated data (ie ICEL 1001). The data is usually presented in the form of spacing tables similar to the examples shown in Appendix C.

If photometric data is not available the tables shown in Figures 3, 4 and 5 in Appendix C may be used to provide typical data.

Light output from signs shall not be considered unless verified photometric data is available.

For mains lighting luminaires converted for emergency use, the organisation responsible for the conversion should provide photometric data. If this is not available use the data contained in figs. 3 and 5 of Appendix C.

Luminaire performance will be adversely affected by the buildup of dirt and inadequate maintenance.

Existing luminaires should be checked to ensure lamps and lighting controllers are clean, undamaged and not blackened.

Luminaire markings should be checked to establish certification marking and ambient temperature limits, as well as any stated IP rating of the luminaire.

9.3 System Type and Duration

The required system type and minimum duration of the emergency lighting after the supply to the normal lighting has failed is specified in BS5266. The system type and duration required will depend upon the type of premises and the associated risks.

Luminaires should be assessed for system type (Non Maintained / Maintained / Combined) and subjected to a discharge test to establish their full duration capability.

9.4 Luminaire Quality and the ICEL Product Registration Scheme

ICEL provides a scheme of product registration through which luminaire performance is authenticated and assured. All ICEL registered luminaires, as well as being photometrically verified, are approved for safety and performance by an accredited test laboratory such as BSI.

Emergency lighting luminaires used on escape routes are required to be fire retardant (850°C glow wire tested). Registration of products through the ICEL Product Registration Scheme assures compliance with this requirement. It also assures the user that the products have been certified to EN 60598-2-22: 1999 and are manufactured within a facility operating a scheme of quality assurance approved to BSEN ISO 9001 or BSEN ISO 9002.

Details of the ICEL product registration schemes are provided within ICEL 1001. Brief details are included in section A3 of Appendix A.

9.5 Conversions of Mains Lighting Luminaires

To provide assurance of the suitability and quality of converted mains lighting luminaires, ICEL operates a registration scheme, ICEL 1004. Brief details are provided in Section A4 of Appendix A.

9.6 Central Power Supply Systems (Central Battery Systems)

Central Power Supply Systems (Central Battery Systems) provide the emergency power to a number of connected (slave) luminaires. The Central Power Supply Systems (Central Battery Systems) should be connected to the luminaires via a fire protected cable as specified in BS5266.

Due to the complex nature of Central Power Supply installations (Central Battery installations) it is strongly recommended that the complete installation is reviewed by a competent person, fully trained in such installations.

Central Power Supply Systems (Central Battery Systems) are deemed to comply with the requirements of the Fire Precautions (Workplace) Regulations 1997 if:

1) They are designed and manufactured in accordance with the appropriate product standard prEN 50171.

   or

2) Checked and validated by a competent person as fit for purpose and installed in accordance with the requirements of BS5266.

ICEL provides a scheme of product registration for Central Power Supply Systems (Central Battery Systems), ICEL 1009, assuring users that products carrying the ICEL registration mark, produced by the registered organisation, have been designed in accordance with the requirements of prEN 50171, batteries are correctly specified to achieve the full rated discharge for their design life and that the equipment has been manufactured in a facility operating a suitable scheme of quality assurance. See Section A6 of Appendix A.

10 Routine System Testing

All emergency lighting systems should be regularly inspected and tested. Results obtained and details of any corrective action should be entered into a log book which is held on site. An appropriate printout of computer data from an automatic testing device also meets this requirement.

Test procedures in accordance with the recommendations of the Fire Precautions (Workplace) Regulations and the code of practice are detailed in Appendix D.
Risk assessment of an existing installation should include a full system test and the results should be entered on assessment sheets.

When carrying out a test, simulating a mains failure, safe procedures must be followed:-

a) Do not switch off other essential services or equipment.

b) Do not fully discharge a system if the building has to be re-occupied before re-charge is completed (typically 24 hours).

c) Do not test by removing fuses. This practice is not acceptably safe. Purpose designed test switches or systems should be utilised.

11 Routine Maintenance

Existing luminaires should be regularly checked to ensure lamps and lighting controllers are clean, undamaged and not blackened. Clean as required and lamps should be replaced as required.

For Central Power Supply Systems (Central Battery Systems), batteries should regularly be cleaned and inspected. Electrolyte levels must also be checked and topped up within the cells, if appropriate.

12 Declaration of Conformity

If the emergency lighting system is found fully compliant, an installation declaration of conformity should be produced as a part of the risk assessment documentation.

A model declaration form can be found in Appendix F.

Appendix A - Legislative Requirements Standards, ICEL Registration Schemes

A1 *Emergency Lighting Legislative Requirements*

In the UK the following documents refer to legislation affecting emergency lighting and provide information about the interpretation of legislation:

- Fire Precautions Act 1971 - ISBN 0-10-544071
- Guide to fire precautions in existing places of work that require a fire certificate - Home Office / The Scottish Office ISBN 0-11-341079-4
- Guide to fire precautions in premises used as hotels and boarding houses which require a fire certificate - ISBN 0-11-341005-0
- Fire Safety at Work - Home Office / The Scottish Office - ISBN 0-11-341161-8
- Building Regulations 1991- Approved Document B - ISBN 0-11-752313-5 (in process of revision)
- The Workplace (Health, Safety and Welfare) Regulations - S.I. 1992 / 3004 - ISBN 0-11-034049-3
- Workplace Health, Safety and Welfare - Approved code of practice - ISBN 0-7176-04313-6
- Management of Health and Safety at Work - Approved code of practice - ISBN 0-7176-0412-8
- The Health and Safety (Safety signs and signals) Regulations S.I. 1996 / 341-ISBN 0-11-054093-X
- Safety Signs and Signals - Guidance on Regulations - ISBN 0-7176-0870-0
- Guide to Safety at Sports Grounds - ISBN 0-11-300095-2
- 16th Ed. Wiring Regulations - Protection Against Fire - Guidance Note 4-ISBN 0-85296-868-X
- Fire Precautions (Workplace) Regulations 1997 - S.I. 1997 / 1840 - ISBN 0-11-064738-6
- Fire Precautions in the Workplace - Information for Employees - ISBN 0-11-341169-3
- Fire Risk Management in the Workplace - The Loss Prevention Council - ISBN 0 902167 73-1
- Fire Safety - An Employer's Guide - ISBN 0-11-341229-0
- Fire Precautions (Workplace) (Amendments) - Regulations 1999 - SI 1999/1877 - ISBN 0-11-082882-8

A2 *Standards Applicable to Emergency Lighting*

In order to ensure compliance with legislative requirements appropriate current standards for the installation and maintenance of Emergency Lighting must be used. In addition installed equipment must also comply with current standards to ensure full compliance to requirements.

Current installation and product standards applicable to emergency lighting in the UK are:

- BS5266 Pt.1: 1999 - Code of practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment
- BS5266 Pt.2: 1998 - Emergency Lighting - Code of Practice for electrical, low mounted way guidance systems for emergency use.
- BS5266 Pt.4: 1999 - Emergency Lighting - code of practice for design, installation, maintenance and use of optical fibre systems
- BS5266 Pt.5: 1999 - Emergency Lighting - specification for component parts of optical fibre systems
- BS5266 Pt.6: 1999 - Emergency Lighting - code of practice for non-electrical, low mounted way guidance systems for emergency use - Photoluminescent Systems
- BS5266 Pt.7:BSEN1838: 1999 - European standard - lighting applications - emergency lighting
- CP1007: 1955 Code of practice for the emergency lighting of cinemas, theatres and certain other specified places of entertainment

- BSEN60598-2-22: 1999 European standard specification for luminaires for emergency lighting
- BS5499 Pt.1: 1990(1995) Specification for self- luminous fire safety signs
- BS5499 Pt.3: 1990 Specification for internally illuminated fire safety signs

Future installation and product standards applicable to emergency lighting, to be adopted in UK are:

prEN50171 - Central Power Supply Systems for Essential Safety Equipment (draft standard)

prEN50172 - Emergency Escape Lighting Systems (draft standard)

A3 *The ICEL 1001 Scheme of Product and Photometric Registration for Emergency Lighting Luminaires*

The Harmonised European Emergency Lighting Luminaire product standard EN 60598-2-22 covers most points of safety and performance of Emergency Luminaires. However because of the difficulties in obtaining international agreement, two important elements are not yet covered. Therefore ICEL provides a scheme of product registration which requires additional testing to provide evidence of satisfactory compliance with the following items:-

- Fire retardancy of external parts of Luminaires - For luminaires to be suitable for use on defined escape routes the housings should be manufactured in fire retardant materials.
- Photometric Data - To enable the positioning of luminaires to achieve the required illuminance, the relevant photometric data and third party authenticated spacing tables are required.

Developments and changes in the product standard have adopted the 850°C glow wire test for fire retardancy with the publication of BSEN 60598-2-22: 1999.

The scheme provides confidence that the product tested and data provided is also representative of production.

Products registered under the scheme may be marked with the ICEL 1001 Product and Photometric Registration Scheme label, including a unique Registration Scheme number.

A4 *The ICEL 1004 Scheme of Registration of Modified Mains Luminaires for Emergency Lighting Applications*

The modification of mains luminaires has become a common method of providing an emergency lighting facility. Here too ICEL offers a scheme of registration covering this important area.

The Scheme registers manufacturers' ability to modify mains lighting luminaires for emergency lighting applications to demonstrate compliance with the requirements of the ICEL 1004 guide entitled 'The Use or Modification of Mains Luminaires for Emergency Lighting Applications'.

Luminaires modified within the requirements of the scheme, may be marked with the distinctive ICEL 1004 label which will carry a unique registration number. As with the ICEL Scheme of Product Registration, the aims of the ICEL 1004 Scheme of Registration are to direct users to products which are of assured reliability, quality and performance, through the adoption of suitable practices during the process of luminaire modification.

A5 *The ICEL 1006 Emergency Lighting Design Guide*

This design guide is prepared to promote a wider understanding of different types of emergency lighting and to give guidance on their correct application. The guide considers the requirements of all current emergency lighting standards and codes of practice.

It also considers new European standards that are to be adopted in the near future. Although some of these standards are in draft form, their content is reasonably well established and it is thought, unlikely to materially, change.

A6 *The ICEL 1009 Scheme of Product Registration for Central Power Supply Systems (Central Battery Systems)*

ICEL provides a scheme of product registration for Central Power Supply Systems (Central Battery Systems) for emergency lighting. The scheme, ICEL 1009, is intended to assure specifiers and users of the good design practices and full compliance to relevant standards incorporated into registered systems.

Systems designed in accordance with the requirements of prEN 50171, incorporating batteries designed to provide the full rated performance for a design life of at least 10 years and manufactured in a facility operating an appropriate system of quality assurance, approved to BSEN ISO 9001 or BSEN ISO 9002, may be marked with the ICEL 1009 mark to demonstrate compliance.

ICEL 1009 marks are unique to the registered company who are responsible for maintaining comprehensive design and manufacturing records for all registered systems in addition to the mandatory technical files for CE marking.

Details of the ICEL product registration schemes can be obtained from the ICEL Technical Manager on Telephone 020 8675 5432 / E-mail info@icel.co.uk

Appendix B - List of Areas Where the Regulations do Not Apply and Special Requirements

Workplaces to which the Fire Precautions (Workplace) Regulations 1997 do not apply or which are exempt from their requirements include:

- Workplaces used only by the self employed
- Private dwellings

The following areas are also covered by their own specific requirements:

- Workplaces to which Fire Certificates (Special Premises) Regulations 1976 apply
- Mine shafts and mine galleries
- Workplaces covered by a safety certificate issued under the Safety of Sports Grounds Act 1975 or the Fire Safety and Safety of Places of Sport Act 1987 whilst they are being used for a purpose covered by the certificate (See EN12193 for special requirements for safety of occupants)
- Sub-surface railway stations [any workplace to which the Fire Precautions (Sub-surface Railway Stations) Regulations 1989 apply]
- Construction sites [any workplace to which the Construction (Health, Safety and Welfare) Regulations 1996 apply]
- Ships within the meaning of the Docks Regulations 1988 (including those under construction or repair)
- Means of transport used outside of the workplace and workplaces in means of transport
- Agricultural or forestry land situated away from the undertaking's main buildings
- Offshore installations [workplaces to which the Offshore Installations and Pipelines Work (Management and Administration) Regulations 1995 apply]

Appendix C - Luminaire Spacing Tables - For use when authenticated spacing tables are not available

In the absence of authenticated specific data the maximum luminaire spacings shown in the following tables should be used.

Escape Route Luminaire Maximum Spacing - Fluorescent Non Maintained Luminaire

For Maintained multiply distances by 0.9 (Table based on luminaire using 2 cells, 4Ah)

For all 6W and 4W luminaires, multiply distances by 0.75.

	Permanently Clear and Unobstructed Escape Routes Only Spacing Distances (metres) for 0.2 Lux minimum illuminance					**All Escape Routes** Spacing Distances (metres) for 1 Lux minimum illuminance				
Mounting Height	**Transverse to Wall**	**Transverse to Transverse**	**Transverse to Axial**	**Axial to Axial**	**Axial to Wall**	**Transverse to Wall**	**Transverse to Transverse**	**Transverse to Axial**	**Axial to Axial**	**Axial to Wall**
2.5 Metres	3.8	10.0	9.0	8.0	3.0	1.5	5.0	4.5	4.0	1.0
4 Metres	4.0	10.5	9.7	9.0	2.8	n/a	3.8	3.6	3.4	n/a
6 Metres	3.1	10.6	9.8	9.0	2.8	n/a	n/a	n/a	n/a	n/a

Figure 4 - Luminaire Spacing Table for Emergency Escape Routes - Fluorescent Luminaires

Escape Route Luminaire Maximum Spacing - Tungsten Lamp Non Maintained Luminaire

For Maintained multiply distances by 0.9.

	Permanently Clear and Unobstructed Escape Routes Only Spacing Distances (metres) for 0.2 Lux minimum illuminance					**All Escape Routes** Spacing Distances (metres) for 1 Lux minimum illuminance				
Mounting Height	**Transverse to Wall**	**Transverse to Transverse**	**Transverse to Axial**	**Axial to Axial**	**Axial to Wall**	**Transverse to Wall**	**Transverse to Transverse**	**Transverse to Axial**	**Axial to Axial**	**Axial to Wall**
2.5 Metres	0.4	2.8	2.6	2.4	0.4	n/a	n/a	n/a	n/a	n/a

Figure 5 - Luminaire Spacing Table for Emergency Escape Routes - Tungsten Lamp Luminaires

Open Area Luminaire Maximum Spacing - Fluorescent Non Maintained Luminaire

Maintained multiply distances by 0.9 (Table based on luminaire using 2 cells, 4Ah).

4W luminaires generally not suitable for Open Areas.

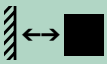
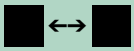
	Spacing Distances (metres) In Open Areas for 0.5 Lux minimum illuminance (Inc. 0.5m Border Area)	
Mounting Height	**Luminaire to Wall** 	**Luminaire to Luminaire** 
2.5 Metres	1.8	5.5
4 Metres	1.3	5.0
6 Metres	n/a	n/a

Figure 6 - Example of Luminaire Spacing Table for Open Areas

Tungsten lamp luminaires may not provide sufficient light output to achieve an average of 0.5 Lux minimum illuminance in open areas. In the absence of any other data the spacings shown in Figure 3 and Figure 5 should be utilised for conversions of mains lighting luminaires.

Appendix D - Routine Testing and Maintenance of Emergency Lighting

It is important that equipment is properly tested and maintained if it is to function correctly when required in an emergency.

All emergency lighting should be regularly checked and maintained by a competent person in accordance with manufacturers' recommendations. The following table shows the routine testing of emergency lighting equipment that should take place.

Daily	• Visually check that all maintained lamps are operating and that all system healthy indicators on Central Power Supply Systems (Central Battery Systems) are illuminated. • Check that any system fault recorded is given urgent attention and record all corrective actions in the log book provided.
Monthly	• Check all luminaires and other emergency lighting equipment is in a good condition, all lamps and light controllers are clean, undamaged and not blackened. • Briefly test all emergency lighting equipment by simulating a failure of the normal lighting supply. The test should not exceed a quarter of the equipment rated duration. Check that all equipment functions correctly. • Check that, upon restoring the mains supply, all supply healthy indicators are again illuminated.
Six monthly	• Carry out the inspection and testing as described in the monthly test schedule, but conduct a test of the equipment for one third of its rated duration.
Annually *	• A full system test should be conducted by a competent service engineer including a full rated duration test of the system. • Compliance of the installation and system with the requirements of BS5266/BSEN 1838 should be considered and documented.

The results of all testing and any necessary corrective action should be recorded in a log record held on site which shall be available if required, for inspection by any authorised person.

*The publication of prEN50172 will change the requirements of BS5266 Part1. prEN50172 changes the requirements for the first three years of self-contained luminaires to be annual full duration tests.

Appendix E - Risk Assessment Checklist for Emergency Lighting Installations

Risk assessment of the following parameters to provide the required level of emergency lighting when the occupants of premises evacuate in an emergency could mean the difference between life and death.

E1 Assessment of Escape Routes

Section Ref	BS5266Pt1 Clause Ref		Complies	Not Applicable	Does Not Comply
3		Where artificial lighting is installed, is emergency lighting fitted on the escape routes and in open areas ?	☐		☐
6.g), 6.h)		Is emergency lighting and fire safety signage on the existing escape routes adequate to permit occupants to reach a place of safety within 2-3 minutes ?(for further guidance see Home Office guides - Appendix A1)	☐		☐
6.j		Is emergency lighting installed in all open areas of greater than 60m^2 ?	☐	☐	☐
6.d), 6.e), 7		If there are special risks e.g. flammable materials used in processes, or areas having restricted access, is emergency lighting fitted ?	☐	☐	☐

E2 Assessment of Existing Emergency Lighting Luminaires and Escape Route Signs

Section Ref	BS5266Pt1 Clause Ref		Complies	Does Not Comply
11		Are the existing luminaires clean, undamaged and are all lamps intact, operational and unblackened ?	☐	☐
9.4	6.10.2	Are luminaire housings on escape routes fire retardant in accordance with BS5266 ? ICEL Registered products automatically comply, for others refer to original equipment manufacturer.	☐	☐
9.3	9.1	Do the luminaires operate for the required emergency duration ? The minimum duration is 1 hour, however in premises where evacuation is not immediate, following a normal mains failure, 3 hours is required. Note: After fully discharging the system allow 24 hours to recharge before re-occupying the building.	☐	☐
9.2	6.10.1	Are the fittings sited in their correct operating environment, e.g. for temperature and I.P. rating ?	☐	☐
9.3	9.2	Are the luminaires of the correct system type (e.g. Non maintained / maintained / combined) ?	☐	☐

E3 Assessment of Fire Safety Signs

Section Ref	BS5266Pt1 Clause Ref		Complies	Does Not Comply
8		Do the sign legends comply with the Health and Safety (Safety Signs and Signals) Regulations 1996 ?	☐	☐
6.g), 8	5.6, 6.9.3	Are there signs that clearly show the emergency escape routes from any position within the premises ?	☐	☐
6.i), 4	5.6	Are all exits marked and directions of travel indicated ?	☐	☐
4	6.9.3	Are the signs illuminated internally or from an external source when the normal lighting supply fails ?	☐	☐
8.1	5.6	Is the size of each sign correct for the viewing distances ?	☐	☐

E4 Siting of Luminaires

Section Ref	BS5266Pt1 Clause Ref		Complies	Not Applicable	Does Not Comply
9.1	6.7	Are the luminaires positioned at all points of emphasis -			
ICEL1006		Near stairs, such that all treads receive direct light ?	☐	☐	☐
ICEL1006		Near changes of level ?	☐	☐	☐
ICEL1006		Near each change of direction ?	☐	☐	☐
ICEL1006		Near each intersection of corridors ?	☐	☐	☐
ICEL1006		To illuminate Exit doors ?	☐		☐
ICEL1006		Near each piece of fire fighting equipment or manual call point ?	☐		☐
ICEL1006		Outside and near to each final exit to a point of safety ?	☐		☐
ICEL1006		Near each first aid point ?	☐	☐	☐
6.c), 9.1	5.3.2	Are luminaires sited along the permanently unobstructed escape routes at the correct spacings, positioned to achieve the required minimum level of illuminance of 0.2 Lux ?	☐		☐
6.d), 9.1	5.2, 5.3 + BS5266Pt7/ BSEN 1838	Are luminaires sited along escape routes which may become obstructed, positioned to achieve a minimum level of illuminance of 1 Lux ?	☐	☐	☐
6.c), 9.1	5.2 + BS5266Pt7/ BSEN 1838	Are luminaires sited along the escape routes which may be utilised by the very young, elderly, disabled or partially sighted, positioned to achieve a level of illuminance of at least 1 Lux (possibly significantly higher, depending on the degree of impairment) ?	☐	☐	☐
6.j), 9.1	5.3.3 + BS5266Pt7/ BSEN 1838	Are luminaires in the open areas of greater than 60m^2, at the correct spacing to achieve the illuminance level of 0.5 Lux minimum ?	☐	☐	☐
9.1 .	6.3	Are a minimum of 2 luminaires contributing to the emergency illumination in each 'lighting compartment' on the escape route, to ensure that the area is not plunged into darkness if a luminaire fails ?	☐	☐	☐

E4 Siting of Luminaires continued

Section Ref	BS5266Pt1 Clause Ref		Complies	Not Applicable	Does Not Comply
		Are additional luminaires provided in the following locations -			
ICEL1006	6.8.3	Lift cars ?	☐	☐	☐
ICEL1006	6.8.5	Toilet facilities and other open tiled areas exceeding 8m² floor area and all toilets for the disabled ?	☐	☐	☐
ICEL1006	6.8.4	Escalators ?	☐	☐	☐
ICEL1006	6.8.4	Motor generator, control or plant rooms ?	☐	☐	☐
ICEL1006	6.8.7	Covered car parks along pedestrian routes ?	☐	☐	☐
6.e), 7		Are high risk areas illuminated at 10% of normal illuminance or at least 15 Lux, in an emergency, with a response time of 0.5 seconds or less ?	☐	☐	☐

E5 Self-Contained Emergency Luminaires and Signs

Section Ref	BS5266Pt1 Clause Ref	**Section not applicable** ☐	Complies	Does Not Comply
App. D	12.4	Are the batteries being charged (indicator lamp on) ?	☐	☐
9.4	6.10.1 6.10.2	Do the luminaires comply with all relevant product standards for escape routes ? ICEL marked luminaires automatically comply. In particular ICEL signifies fire retardant housings and verified photometric data.	☐	☐

E6 Central Power Supply Systems (Central Battery Systems)

Section Ref	BS5266Pt1 Clause Ref	**Section not applicable** ☐	Complies	Does Not Comply
9.6		Do the Central Power Supply Systems (Central Battery Systems) comply with prEN 50171 or does a competent person declare the systems are working correctly ?	☐	☐
App.D	12.4	Is the battery charger functioning correctly ?	☐	☐

E7 Wiring of Luminaires

Section Ref	BS5266Pt1 Clause Ref		Complies	Not Applicable	Does Not Comply
9	8.2.13	Are luminaires permanently wired?	☐		☐
9	6.2	Are the non maintained luminaires fed from the same final sub-circuit as the local lighting ? (A qualified electrician can usually check by removing the local lighting fuse and verifying the emergency lighting operation)	☐	☐	☐
9.6	8.3.5.2 + IEE Regs	Is the volt drop to Central Battery luminaires within 10% of the nominal voltage and are luminaires connected in fire protected cable as defined in BS5266 ?	☐	☐	☐

E8 Records and Documentation

Section Ref	BS5266Pt1 Clause Ref		Complies	Does Not Comply
App.E		Has a risk assessment verification certificate been provided ?	☐	☐
10	11.3	Are the entries made in the log book correct ?	☐	☐
10	3.3	Are up-to-date drawings available and correct ?	☐	☐

E9 Routine Maintenance

Section Ref	BS5266Pt1 Clause Ref		Complies	Not Applicable	Does Not Comply
		Is a procedure in place to rectify test failures and provide spares ?	☐		☐
10	8.3.3, 12.4	Is a regime of regular testing set up ?	☐		☐
10	12.4	Are routine tests completed according to the requirements in BS5266 ?	☐		☐
App.D		Central Power Supply Systems (Central Battery Systems) Where applicable, are the battery electrolyte levels and specific gravities satisfactory ?	☐	☐	☐

I/We confirm that the above checklist has been completed to the best of our knowledge and belief in accordance with BS5266 Part 1 and BS5266 Part7 / BSEN1838:1999

(Insert site name and address if unaccompanied by Completion Certificate)

Occupier/owner .....

Address of premises .....

.....

Signature of Competent person responsible for completion of checklist .....

For and on behalf of ..... Date .....

Note: a Competent person is someone who has the necessary knowledge, training, experience and abilities to carry out the work

BS5266: Part 1
EMERGENCY LIGHTING

Completion Certificate -
New Installations and Verification of Existing Installations

Occupier/owner .....

Address of premises .....

.....

Installation Declaration of Conformity

I/We** hereby certify that the emergency lighting system or part thereof, installed, at the above address conforms, except as stated in the deviations (†), to the best of my/our** knowledge and belief, to the appropriate recommendations given in BS5266 'Emergency Lighting' Part 1 'Code of Practice for the emergency lighting of premises other than cinemas and certain other specified premises used for entertainment', published by BSI.

New Installations

Signature of Competent person responsible for acceptance of check list declaration

.....

For and on behalf of ..... Date .....

Signature of Competent person responsible for the installation of the system

.....

For and on behalf of ..... Date .....

Signature of Competent person responsible for the commissioning / verification .....

For and on behalf of ..... Date .....

Existing Installation

Signature of **Competent** person responsible for accepting the conformity of the design and installation. Also for verifying the completion of a full rated duration discharge test

.....

For and on behalf of ..... Date .....

Has Checklist been completed and Conformity demonstrated ? YES / NO**

† Relevant comments / deviations (continued overleaf)

This Certificate is only valid when accompanied by relevant Declaration(s) of Design, Installation, Commissioning, Photometric Design Calculations, Test Log Book and Checklist (for existing premises). ** *Delete as appropriate*

Relevant comments / deviations continued

Relevant comments / deviations continued

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