Introduction To Compliant Emergency Lighting

Written By Ian Watts

Presented By Llumarlite Ltd

BS5266

Standards and Legislation Overview

Risk, Responsibility and Competence

System Documentation and Records

LLUMARLITE Lighting Solutions

FIA Fire Industry Association

Our lighting services help deliver the best solutions for your projects.

Inception to completion

Llumarlite provides business a complete service that delivers the best emergency lighting solution for your needs that is in full compliance with BS 5266. Our emergency lighting experts work with you through the complete process; by understanding the needs of your business along with detailed site surveys, we guide you through the lighting scheme design phase before delivering the final installation with our project management team and engineers.

Our team of experts can assist at every stage of the project to deliver energy efficient, ergonomic, and sustainable lighting schemes.

- Lighting surveys
- Lighting design
- Local manufactured solutions
- Bespoke, remanufactured & upcycled Luminaires
- Installation and Refurbishment
- Lighting controls
- Emergency lighting
- Central Battery Systems

About Llumarlite

Llumarlite is an independent lighting solutions company established to help clients reduce their energy consumption and environmental impact through high quality design and engineering.

Our independence enables us to work with all leading manufacturers and bring our customers the optimum solution and products to their projects.

We have been providing our services to companies and organisations for over 30 years across a range of projects and sectors. Companies include Tesco plc, AT&T, Bank of England, Coutts & Co, Deutsche Bank, West Middlesex University Hospital, Marks & Spencer and FM providers CBRE, ENGIE, and Bouygues.

We active members of the LIA, ICEL, the Fire Industry Association and CIBSE, with members of the Llumarlite team sitting as Vice Chairs on technical boards of these organisations.

We provide a range of CPDs accredited by The Royal Institute of British Architects (RIBA) and the Fire Industry Association (FIA)

Ian Watts
Business Development Manager
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30 years in Lighting and Fire Safety
BSI – Guide to Emergency Lighting (2020) - Co-Author
CEN169 Working Group 3 - Convenor

Fire Industry Association (FIA) BS5266 Part 1 Representative -Trainer

CIBSE, FIA, British Fire Consortium (BFC) Lighting Industry Association (LIA)

Emergency Lighting TC/ICEL	Vice Chair
Technical Board	Member

Kevin Stubbs
Technical Sales Manager
Kevin.Stubbs@llumarlite.co.uk

43 years in Lighting, Controls, Bespoke, M&E Integration, Repair & Replacement

Fellow - Society of Light & Lighting

CIBSE

Knowledge Management Committee	Member

Lighting Industry Association (LIA)

Technical Board	Member
Connected Lighting TC	Vice Chair
Building Regs TC	Vice Chair
Emergency Lighting TC/ICEL	Member
Circular Economy TC	Member
Lighting Remanufacture	Member

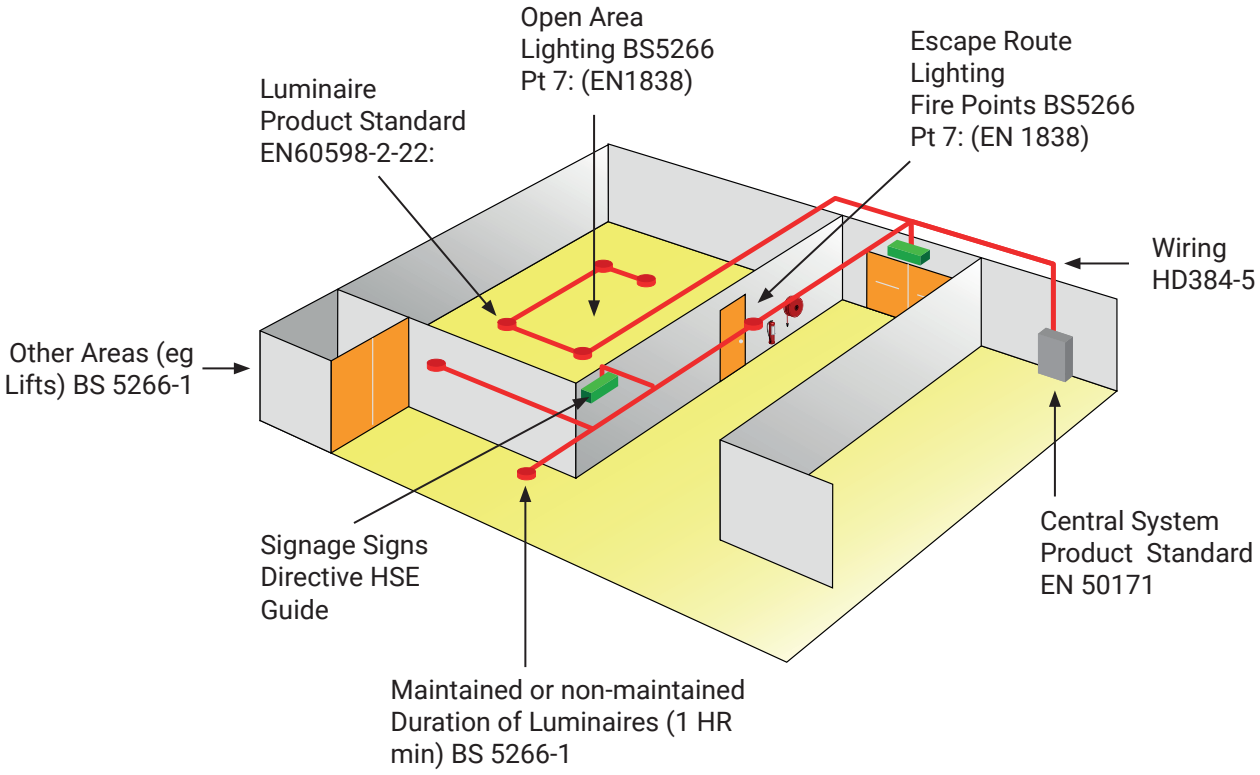
A Guide to Emergency Lighting

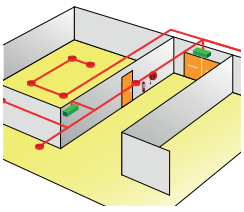
This is guide is taken from the FIA accredited CPD presented by Ian Watts. The CPD covers all this and more in further detail. If you would like to part take in the CPD contact Ian Watts for more details on upcoming events.

Contents

Standards

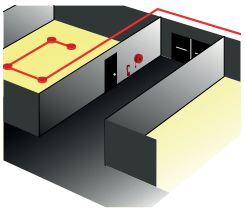
Highlighting the specific standard criteria and areas of focus.





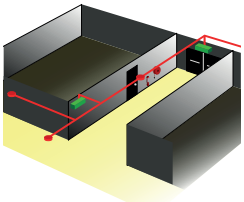
Cabling requirements

Central power supply FP cabling for centrally supplied luminaires.



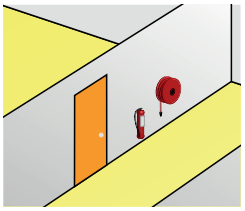
Open area

Open area lighting BS5266 Pt 7: (EN1838)Emergency Lighting needs to meet 0.5 Lux minimum



Escape route lighting

Escape Route Lighting in line with BS 5266 Pt1 2016 Emergency Lighting needs to meet 1 Lux minimum and focus attention to achieve luminaires at change of direction, intersections, changes in level and specific points of emphasis.



Safety devices

Lighting at fire safety devices needs to be 5 lux minimum

Advice on Safety Lighting Levels as annex D1

Task	Level	Examples of the application
Open Area	0.5 Lux	Flat open areas as escape lighting
Escape routes	1 Lux Centre Line	Corridors and stairwells as escape lighting
Low Difficulty	5 Lux	Identifying clear signs and equipment, exit signs, fire alarm and refuge call points Panic bolts and manual control of exit doors The perimeter of swimming pools
Medium Difficulty	15 Lux	Reading Ariel 10pt print and LCD screens(not back lit) Fire alarm control Panels and Diagrams First aid rooms, Kitchens Plant rooms and operating switches Reception areas for communications.
High Difficulty	50 Lux	Medical centre minor operations Dentists operating chair

Format of Emergency Exit Signs BS 5266-1 5.4.2

The ISO 3864 format is intended to be the new common format and should be used where possible

Signs should be illuminated to EN 1838/BS 5266-7

Signs should be located at final exits and anywhere that the route may be in doubt

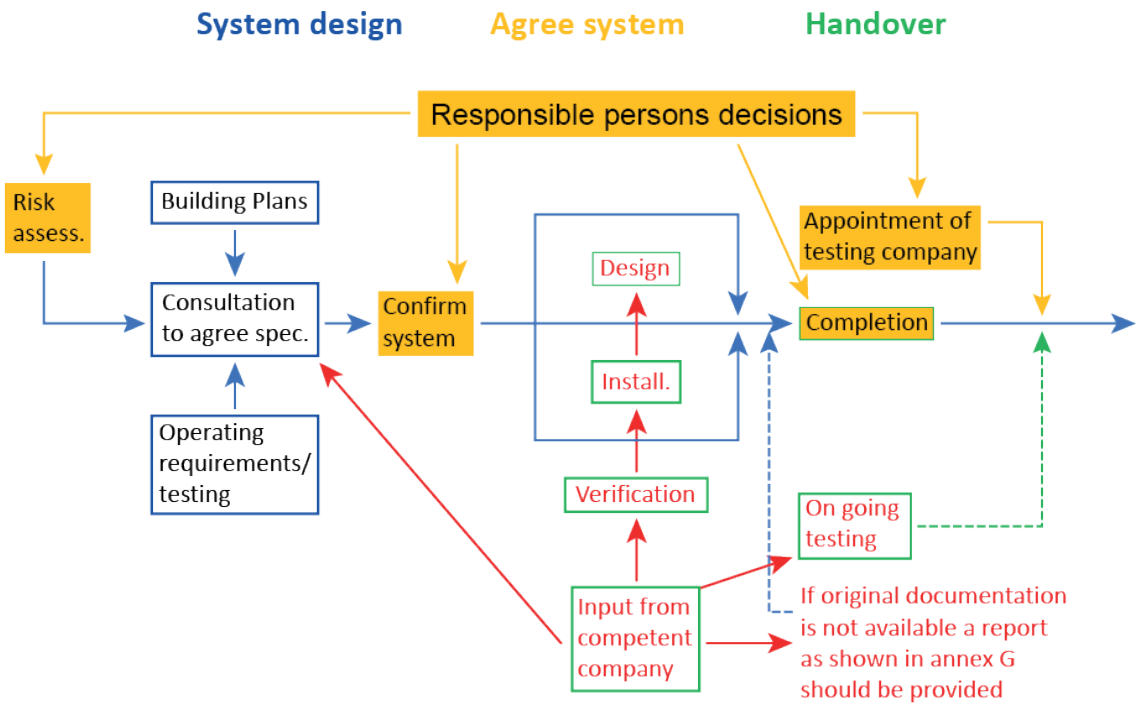
To make the signs more visible at all times in premises where occupants are unfamiliar with the building it is recommended that maintained operation is used

Illuminances for Specific Locations

Location	Resp. Time	Min. lx	Min. Duration	Reference plane
Kitchens	0.5s	15 lx	30 mins	Horizontal on working plane, switches and cut - outs readily visible
First aid rooms	5s	15 lx	30 mins	Horizontal on working plane
Treatment rooms	0.5s	50 lx	30 mins	Horizontal on working plane
Refuges	5s	5 lx	Full rated	Horizontal on floor, vertical at wall mounted communication devices
Plant rooms, switch rooms and winding facilities for lifts	5s	15 lx	Full rated	In plane of visual task
Fire alarm control and indicating equipment	5s	15 lx	Full rated	In plane of visual task
Reception areas	5s	15 lx	Full rated	In plane of visual task
Panic bars and pads or security devices	5s	5 lx	Full rated	Horizontal on plane of panic bar/pad; vertical at vertically mounted/wall mounted security devices
Swimming pool / diving areas	0.5s	5 lx	Full rated	Horizontal on floor and treads

System Documentation

The enforcing authority will look for evidence that systems have been designed, installed are being maintained correctly to minimise the risks too occupants in the event of a supply failure or fire.



Enforcing authority

The enforcing authority will look for evidence that systems have been designed, installed are being maintained correctly to minimise the risks too occupants in the event of a supply failure or fire.

Documentation

BS 5266-1 recommends that this is achieved by documentation on the installed system supported by a logbook certificate to show that it operated correctly when tested.

Engineers inspection

If the original documentation is not available a substitute record can be provided by a competent engineers inspection. This can not be as complete as records correctly produced at installation but it will check the most important aspects of the emergency lighting system.

System Integrity BS 5266 -1 6.3

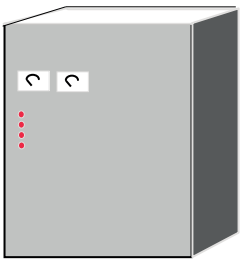
Failure of emergency lighting luminaire
The risks of occupants being in total darkness in the event of failure of individual emergency lighting luminaires should be compensated for by ensuring that illumination from at least two luminaires is visible in each room or zone of the escape route or protected rooms.

Previous wording in BS 5266-1 2005 -System integrity is specified in BS EN 50172:2004/BS 5266-8:2004, 5.3.

NOTE: The term “compartment” in BS EN 50172:2004/BS 5266-8:2004, 5.3 is used to mean a part of the escape route reliant on illumination located within it. This term is not used in the sense of compartmentation under the Building Regulations as part of the fire precautions.

Central Power Supply Systems Product Standard EN 50171

Enclosures must be resistant to fire with lockable doors.



Ventilation requirements must be met

While the standard mainly relates to Emergency Lighting it also covers power supplies for other safety applications

Centrally Supplied Power Systems Product Standard EN 50171

The standard covers central power supply systems that use batteries as an alternative power source

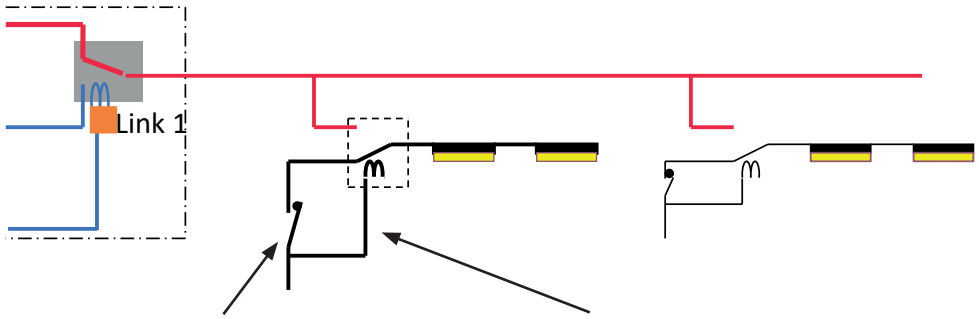
If a UPS style of system is to be used for emergency lighting, it must comply with the requirements of this standard in addition to the requirements of EN50091-1

The systems are intended for emergency lighting use but may be suitable for use with other safety equipment such as fire extinguishing installations, paging and safety signaling equipment, smoke extraction equipment and carbon monoxide warning systems.

Fire alarm power supplies are excluded from this standard - they should comply with the EN 54

Control of output. EN 50171 4.1 - 4.5

Automatic Transfer
Switch (ATS)



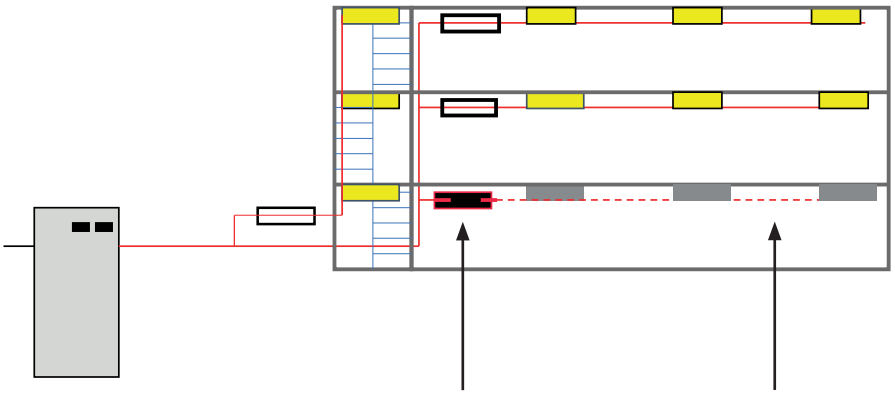
Local light switch
Controls luminaires only while final circuit is healthy, upon failure luminaires are automatically connected to maintained emergency output

Control Relay
Changes luminaires supply to the Central Power Unit in the event of failure of local final circuit

EN 50171-6.5.8 Component - Inverters

6.5.8 Inverters must be able to clear any distribution fuses.

If a short on the circuit occurs during an emergency the system must be able to clear the protective device to isolate the fault.



Distribution fuse/ MCB must isolate the fault

Wiring short circuit

System Documentation BS 5266 –1

Completion certificates should consist of –
General Declaration supported by declarations that;

Design meets BS 5266-1

Installation meets the design

Verification the systems operates

Or for small new installations completed by a single engineer or as a report on an existing installation.

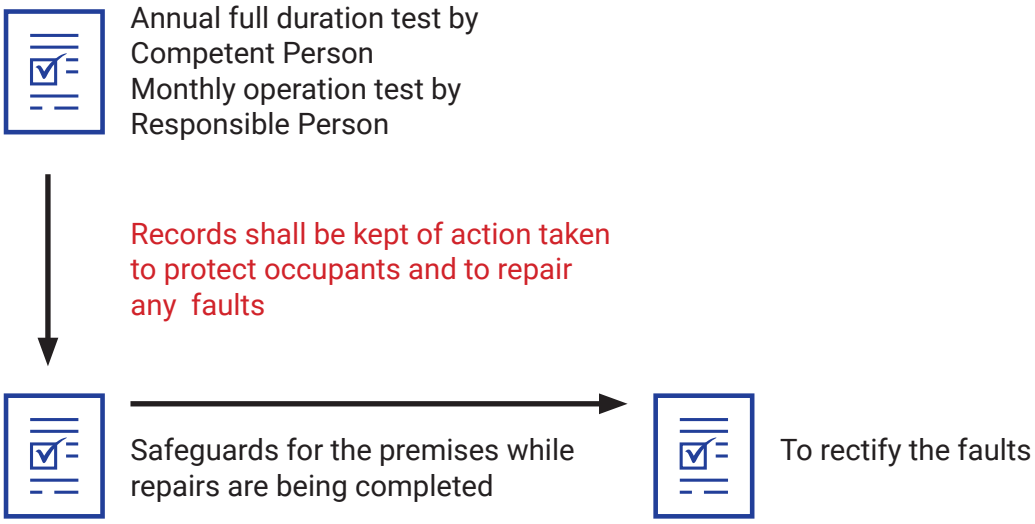
Single combined report

To be completed by responsible person
- ie Competent emergency lighting engineer.

Test Records BS 5266 –1

Appropriate test records must be kept and be available for inspection if required by the Fire Authorities

They should consist of Test results:



Does your emergency lighting system comply with current legislation, and can you prove it? The following questions form part of the Emergency lighting completion certificate.

Do you know the answers for your system?

Are plans of the system available, and correct?

The plans should show the location and details of the luminaires and other emergency lighting equipment?

Is a completion certificate available with photometric design data? Is a test log book available and are the entries up to date?

Do the luminaires conform to BS EN60598-2-22 if it is not marked?

If it is not marked it is not compliant and judgement on its suitability should be made.

Does the installation conform to the good practice defined in BS 7671?

If a central power supply unit is used, does it conform to BS EN50171?

If it is not marked it is not compliant and judgement on its suitability should be made.

If an automatic test system is installed, does it conform to BS EN62034?

For centrally powered systems, is the wiring fire-resistant?

Are there luminaires sited at the “points of emphasis”?

The key to compliance is appropriate documentation.

BS-5266 Emergency Lighting Completion Certificate

The completion and test log referenced H,I,K,L & M from BS 5266 part 1 2016. If no existing documents are available for your site, then K document is acceptable as an overview and ability to verify deviations with all involved parties.

If you would like further guidance on using the BS-5266 Emergency Lighting Completion Certificate or assistance with emergency lighting please contact Ian Watts.

H1 Model completion certificate

Serial Number:……...

EMERGENCY LIGHTING COMPLETION CERTIFICATE

For New Installations

Occupier/owner.....

Address of premises .....

……

Declaration of Conformity

In consequence of acceptance of the appended declarations, I/we* hereby declare that the emergency lighting system installation, or part thereof, at the above premises conforms, to the best of my/our* knowledge and belief, to the appropriate recommendations given in BS 5266-1:2016, *Emergency lighting – Part 1: Code of practice for the emergency lighting of premises*, BS EN 1838:2013 *Lighting applications – Emergency lighting* and BS EN 50172:2004, *Emergency escape lighting systems*, as set out in the accompanying declarations, except as stated below/overleaf.

* Delete as appropriate.

Signed, on behalf of owner/occupier .....

Name.....

Deviations from standards

Declaration (Design, installation or verification)	**Clause number**	**Details of deviation**

This Certificate is only valid when accompanied by current:

a) Signed declaration(s) of design, installation and verification, as applicable (see overleaf).

b) Photometric design data. This can be in any of the following formats but in all cases appropriate de-rating factors must be used and identified to meet worst case requirements.

- Authenticated spacing data such as ICEL 1001 registered tables**.
- Calculations as detailed in Annex G and CIBSE/SLL Guide LG12***.
- Appropriate computer print of results.

c) Test log book.

**Available from Industry Committee for Emergency Lighting, Stafford Park 7, Telford, Shropshire, TF3 3BQ

***Available from Chartered Institution of Building Services Engineers, Delta House, 222 Balham High Road, London SW12 9BS.

Note **The general declaration shown in H.1 is to be completed by the responsible person, after the separate design, installation and verification certificates shown in H.2, H.3 and H.4 have been completed by the competent person who carried out the work.**

Figure 1 – Model completion certificate – Design – Declaration of conformity

BS 5266-1: 2016 clause ref.	Recommendations Any failures of conformity should be covered by a deviation	System conforms		
		YES	NO	N/A
4.2	**D1** Accurate plans available showing escape routes, fire alarm control panel, call points and fire extinguishers			
5.2.9	**D2** Escape route signs in accordance with BS EN ISO 7010 and BS 5499-4 and other safety signs in accordance with BS EN ISO 7010 and BS 5499-10, clearly identifiable and adequately illuminated			
6.7	**D3** The luminaires conform to BS EN 60598-2-22			
5.2.8.1	**D4** Luminaires located at following positions: NOTE Near means within 2 m horizontally. a) At each exit door intended to be used in an emergency b) Near stairs so each tread receives direct light c) Near any other change in level d) externally illuminated escape route signs, escape route direction signs and other safety signs needing to be illuminated under emergency lighting conditions e) At each change of direction f) at intersections of corridors g) Near to each final exit and outside the building to a place of safety h) Near each first aid post i) Near each piece of fire-fighting equipment and call point j) Near escape equipment provided for disabled people k) Near refuges and call points, including include two-way communication systems and disabled toilet alarm call position l) Near manual release controls provided to release electronically locked doors			
6.3	**D5** At least two luminaires illuminating each compartment of the escape route			
 5.2.8.3 5.2.8.4 5.2.8.5 5.2.8.6 5.2.8.7	**D6** Additional emergency lighting provided where needed to illuminate: a) Lift cars b) Moving stairways and walkways c) Toilet facilities larger than 8 m^2 floor area or without borrowed light, and those for disabled use d) Motor generator, control and plant-rooms e) Covered car parks			
6.7.3	**D7** Design duration adequate for the application			
10.6; **10.7**; Clause **11**	**D8** Operation and maintenance instructions and a suitable log book produced for retention and use by the building occupier			
5.2.5; 5.2.6; 5.2.7 5.3.2	**D9** At least the minimum illuminance provided for escape routes, open areas and high risk task areas **D10** At least the minimum illuminance provided for emergency safety lighting			

Deviations from standards (to be entered on Completion Certificate)

Clause number	Details of deviation

Signature of person making design conformity declaration..,,,

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

2 – Model completion certificate – Installation – Declaration of conformity

Serial Number:……...

Installation – Declaration of conformity

BS 5266-1: 2016 clause reference	Recommendations	System conforms (if NO, record a deviation)		
		YES	NO	N/A
Clause **5**	**IN1** The system installed conforms to the agreed design			
6.1	**IN2** All non-maintained luminaires fed or controlled by the final circuit supply of their local normal mains lighting			
6.4	**IN3** Luminaires mounted at least 2 m above the floor			
6.4	**IN4** Luminaires mounted at a suitable height to avoid being located in smoke reservoirs or other likely area of smoke accumulation			
5.2.9 **5.2.9.1** **5.2.9.2**	**IN5** Safety signs provided as follows: a) Escape route signs in accordance with BS EN ISO 7010 and BS 5499-4, adequately illuminated and identifiable b) Other safety signs in accordance with BS EN ISO 7010 and BS 5499-10, adequately illuminated and identifiable			
8.2	**IN6** The wiring of central power systems has adequate fire protection and is appropriately sized			
8.3.5	**IN7** Output voltage range of the central power system is compatible with the supply voltage range of the luminaries, taking into account supply cable voltage drop			
8.2.12	**IN8** All plugs and sockets protected against unauthorized use			
8.3.3	**IN9** The system has suitable and appropriate testing facilities for the specific site			
Clause **11**	**IN10** The equipment manufacturers' installation and verification procedures satisfactorily completed			
Clause **8**	**IN11** The system conforms to BS 7671			

Deviations from standards
(to be entered on Completion Certificate)

Clause number	Details of deviation

Signature of person making installation conformity declaration.....

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

3 – Model completion certificate – Verification – Declaration of conformity

Serial Number:……...

Verification – Declaration of conformity

BS 5266-1: 2016 clause reference	Recommendations	System conforms (if NO, record a deviation)		
		YES	NO	N/A
4.2	**V1** Plans available and correct			
8.3.3	**V2** System has a suitable test facility for the application			
5.2.9	**V3** All escape route safety signs and fire-fighting equipment location signs, and other safety signs identified from risk assessment, visible with the normal lighting extinguished			
Clause **5**	**V4** Luminaires correctly positioned and oriented as shown on the plans			
6.7.1 and Annex F	**V5** Luminaires conform to BS EN 60598-2-22			
6.7.1 and Annex F	**V6** Luminaires have an appropriate category of protection against ingress of moisture or foreign bodies for their location as specified in the system design			
Clause **12**	**V7** Luminaires tested and found to operate for their full rated duration			
Clause **12**	**V8** Under test conditions, adequate illumination provided for safe movement on the escape route and the open areas, paths under emergency safety lighting, and operations within high risk task areas NOTE This can be checked by visual inspection and checking that the illumination from the luminaires is not obscured and that minimum design spacings have been met.			
Clause **12**	**V9** After test, the charging indicators operate correctly			
8.2	**V10** Fire protection of central wiring systems satisfactory			
8.2.6	**V11** Emergency circuits correctly segregated from other supplies			
10.6; **10.7**; Clause **11**	**V12** Operation and maintenance instructions together with a suitable log book showing a satisfactory verification test provided for retention and use by the building occupier			

Deviations from standards
(to be entered on Completion Certificate)

Clause number	Details of deviation

Signature of person making verification conformity declaration.....

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

I 1– Model certificate for completion of small new installations – General declaration

Serial Number:……...

EMERGENCY LIGHTING SMALL* NEW INSTALLATIONS AND EXISTING SITE COMPLIANCE CERTIFICATE
For Small New Installations up to 25 Self-contained luminaires

Occupier/owner.....

Address of premises .....

.....

Declaration of Conformity

In consequence of acceptance of the appended declarations, I/we* hereby declare that the emergency lighting system installation, or part thereof, at the above premises conforms, to the best of my/our* knowledge and belief, to the appropriate recommendations given in BS 5266-1:2016, *Emergency lighting – Part 1: Code of practice for the emergency lighting of premises*, BS EN 1838:2013 *Lighting applications – Emergency lighting* and BS EN 50172:2004, *Emergency escape lighting systems*, as set out in the accompanying declarations, except as stated below/overleaf.

* Delete as appropriate.

Signed, on behalf of owner/occupier .....

Name.....

Deviations from standards

Declaration (Design, installation or verification)	**Clause number**	**Details of deviation**

This Certificate is only valid when accompanied by current:

a) Signed declaration(s) of design, installation and verification, as applicable (see overleaf).

b) Photometric design data. This can be in any of the following formats but in all cases appropriate de-rating factors must be used and identified to meet worst case requirements.
   - Authenticated spacing data such as ICEL 1001 registered tables**.
   - Calculations as detailed in Annex G and CIBSE/SLL Guide LG12***.
   - Appropriate computer print of results.

c) Test log book.

*New works are deemed to be small when involving installations of up to 25 new emergency lighting luminaires

**Available from Industry Committee for Emergency Lighting, Stafford Park 7, Telford, Shropshire, TF3 3BQ

***Available from Chartered Institution of Building Services Engineers, Delta House, 222 Balham High Road, London SW12 9BS.

Note **The general declaration shown in I.1 is to be completed by the responsible person, after the separate design, installation and verification certificate shown in I.2, has been completed by the competent person who carried out the work.**

4 – Model certificate for completion of small new installations – Checklist /report

Site Address			Responsible Person		
BS 5266-1: 2016 clause ref.	Engineer Function D-Designer, I-Installer, V-Verifier		Inspection Date		
	D,I,V	**Check of categories and documentation**	**YES**	**NO**	**N/A**
4.2	D,V	Are plans of the system available and correct?			
6.7	D,V	Has the system been designed for the correct mode of operation category?			
6.7	D,V	Has the system been designed for the correct emergency duration period?			
Clause **11**	D,V	Is a completion certificate available with photometric design data?			
Clause **11**	D,I,V	Is a test log book available and are the entries up to date?			
		Check of design			
4.1; 5.2.8	D,I,V	Are the correct areas of the premises covered to meet the risk assessment?			
5.2.8	D,I,V	Are all hazards identified by the risk assessment covered?			
5.2.8	D,I,V	Are there luminaires sited at the “points of emphasis”?			
5.2.2	D,I,V	Is the spacing between luminaires compliant with authenticated spacing or design data?			
5.2.9	D,I,V	Are the emergency exit signs and escape route direction signs correct and the locations of other safety signs to be illuminated under emergency conditions identified?			
6.1	D,I,V	Do all non-maintained luminaires operate on local final circuit failure?			
6.3	D,V	Is there illumination from at least two luminaires in each compartment?			
6.4	I,V	Are luminaires at least 2 m above floor and avoiding smoke reservoirs?			
5.8.2.5; **5.8.2.6**	D,V	Are additional luminaires located to cover toilets, lifts, plant rooms, etc.?			
		Check of the quality of the system components and installation			
6.7	D,I,V	Do the luminaires conform to BS EN 60598-2-22?			
6.7	D,I,V	Do any converted luminaires conform to BS EN 60598-2-22?			
6.7	D,I,V	Do luminaires have a suitable degree of protection for their location?			
Clause **8**	I,V	Does the installation conform to the good practice defined in BS 7671?			
8.2.12	D,I,V	Are any plugs or sockets protected against unauthorized use?			
		Test facilities			
8.3.3	D,V,I	Are the test facilities suitable to test function and duration?			
8.3.3	D,I,V	Are the test facilities safe to operate and do not isolate a required service?			
8.3.3	D,I,V	Are the test facilities clearly marked with their function?			
8.3.3	D,I,V	If an automatic test system is installed, does it conform to BS EN 62034?			
10.7	D,V	Are the user’s staff trained and able to operate the test facilities and record the test results correctly?			
		Final acceptance to be conducted at completion			
Clause **12**	D,I,V	Does the system operate correctly when tested?			
10.7	D,I,V	Has adequate documentation been provided to the user?			
10.7	D,I,V	Is the user aware of action they should take in the event of a test failure?			

Action recommended or deviation to be reported:

Name of competent person making the declaration of conformity (please print)

……..

Signature of the competent person ……

For and on behalf of……..……Date……

5 – Model certificate for completion of existing installations – General declaration

Serial Number:……...

EMERGENCY LIGHTING EXISTING SITE COMPLIANCE CERTIFICATE
For Verification of Existing Installations

Occupier/owner.....

Address of premises .....

.....

Declaration of Conformity

In consequence of acceptance of the appended declarations, I/we* hereby declare that the emergency lighting system installation, or part thereof, at the above premises conforms, to the best of my/our* knowledge and belief, to the appropriate recommendations given in BS 5266-1:2016, *Emergency lighting – Part 1: Code of practice for the emergency lighting of premises*, BS EN 1838:2013 *Lighting applications – Emergency lighting* and BS EN 50172:2004, *Emergency escape lighting systems*, as set out in the accompanying declarations, except as stated below/overleaf.

* Delete as appropriate.

Signed, on behalf of owner/occupier .....

Name.....

Deviations from standards

Declaration (Design, installation or verification)	**Clause number**	**Details of deviation**

This Certificate is only valid when accompanied by current:

d) Signed declaration(s) of design, installation and verification, as applicable (see overleaf).

e) Photometric design data. This can be in any of the following formats but in all cases appropriate de-rating factors must be used and identified to meet worst case requirements.
   - Authenticated spacing data such as ICEL 1001 registered tables**.
   - Calculations as detailed in Annex G and CIBSE/SLL Guide LG12***.
   - Appropriate computer print of results.
   - Site test light readings

f) Test log book.

*New works are deemed to be small when involving installations of up to 25 new emergency lighting luminaires

**Available from Industry Committee for Emergency Lighting, Stafford Park 7, Telford, Shropshire, TF3 3BQ.

***Available from Chartered Institution of Building Services Engineers, Delta House, 222 Balham High Road, London SW12 9BS.

Note **The general declaration shown in K.1 is to be completed by the responsible person, after the separate design, installation and verification certificate shown in K.2, has been completed by the competent person who carried out the work.**

6 – Model certificate for verification of existing installations – Checklist and report					
Site Address			Responsible Person		
BS 5266-1: 2016 clause ref.	Engineer Function D-Designer, I-Installer, V-Verifier		Inspection Date		
	D,I,V	**Check of categories and documentation**	**YES**	**NO**	**N/A**
4.2	D,V	Are plans of the system available and correct?			
6.7	D,V	Has the system been designed for the correct mode of operation category?			
6.7	D,V	Has the system been designed for the correct emergency duration period?			
Clause **11**	D,V	Is a completion certificate available with photometric design data?			
Clause **11**	D,I,V	Is a test log book available and are the entries up to date?			
		Check of design			
4.1; 5.2.8	D,I,V	Are the correct areas of the premises covered to meet the risk assessment?			
5.2.8	D,I,V	Are all hazards identified by the risk assessment covered?			
5.2.8	D,I,V	Are there luminaires sited at the “points of emphasis”?			
5.2.2	D,I,V	Is the spacing between luminaires compliant with authenticated spacing or design data?			
10.3; **10.7**	D,I,V	If authenticated spacing data is not available for existing installations, are estimates attached and acceptable?			
5.2.9	D,I,V	Are the emergency exit signs and escape route direction signs correct and the locations of other safety signs to be illuminated under emergency conditions identified?			
6.1	D,I,V	Do all non-maintained luminaires operate on local final circuit failure?			
6.3	D,V	Is there illumination from at least two luminaires in each compartment?			
6.4	I,V	Are luminaires at least 2 m above floor and avoiding smoke reservoirs?			
5.8.2.5;,**6**	D,V	Are additional luminaires located to cover toilets, lifts, plant rooms, etc.?			
		Check of the quality of the system components and installation			
6.7	D,I,V	Do the luminaires conform to BS EN 60598-2-22?			
6.7	D,I,V	Do any converted luminaires conform to BS EN 60598-2-22?			
6.7	D,I,V	Do luminaires have a suitable degree of protection for their location?			
Clause **8**	I,V	Does the installation conform to the good practice defined in BS 7671?			
8.2.1	D,I,V	For centrally powered systems, is the wiring fire-resistant?			
8.2.12	D,I,V	Are any plugs or sockets protected against unauthorized use?			
7.2	D,I,V	If a central power supply unit is used, does it conform to BS EN 50171?			
8.3.3	D,V,I	Are the test facilities suitable to test function and duration?			
8.3.3	D,I,V	Are the test facilities safe to operate and do not isolate a required service?			
8.3.3	D,I,V	Are the test facilities clearly marked with their function?			
8.3.3	D,I,V	If an automatic test system is installed, does it conform to BS EN 62034?			
10.7	D,V	Are the user’s staff trained and able to operate the test facilities and record the test results correctly?			
		Final acceptance to be conducted at completion			
Clause 12	D,I,V	Does the system operate correctly when tested?			
10.7	D,I,V	Has adequate documentation been provided to the user?			
10.7	D,I,V	Is the user aware of action they should take in the event of a test failure?			
10.7	D,I,V	Are any deviations fully documented and are they still acceptable?			
Action recommended or deviation to be reported:					
Results of the inspection ……..... ……...			Signed…… ……		

Annex I (informative)
Additional guidance on the compliance checklist and report for an existing site
I.1 General

Responsible persons are required to demonstrate that emergency lighting is appropriate to protect occupants. New buildings are well provided for; the checklist and report in Annex G covers existing premises where current valid documentation is not available.

Typical reasons for use of this substitute system documentation include the following.

a. The use of the building might have changed, for example, equipment that was satisfactory for a warehouse would probably not be adequate if the premises were turned into a bar, so the original documentation would not be relevant.
b. Small premises that previously did not require a fire certificate might now need to be assessed as safe for their occupants.
c. Equipment ages and no longer might no longer perform as well as it needs to. Correct design builds in reasonable degradation factors but these can be exceeded.
d. With improved knowledge and understanding of risks, safety standards have improved. Emergency lighting levels now highlight specific hazard areas, and equipment requirements take advantage of improved products such as fluorescent luminaires and the use of fire resistant cables.
e. The original documentation might never been provided or could have become lost.
f. The following sections give advice on the procedures to be used to fill in the checklist report.

I.2 Design

The location of escape routes has to conform to guidance given in the relevant risk assessment guide.
Prior to this edition of BS 5266 1, a reduced light level of a minimum of 0.2 lx on the centreline of escape routes was allowable for routes that were permanently unobstructed. They now need to be reported to the responsible person to assess if they are acceptable or if they need to be upgraded to the current value of 1 lx.
Prior to 1988, open areas were not clarified as needing coverage. However, since then BS 5266-1 has recommended that rooms should have emergency lighting if:

a. they are larger than 60 m2;
b. they have an escape route passing through them; or
c. they have a hazard that is identified by the site risk assessment.

If these routes and areas are not provided with adequate emergency lighting, the report needs to recommend that this omission be defined in the risk assessment.
Safety signs have to be adequately illuminated, either as an internally illuminated sign or by having an emergency luminaire within 2 m (measured horizontally) of an externally illuminated sign.

NOTE Attention is drawn to the Health and Safety (Safety Signs and Signals) Regulations 1996 [37].

Emergency luminaires have to be located at specific hazard and safety locations, i.e. “points of emphasis”.

The original site design data will ideally contain the design spacing calculations, which can be checked against the installation. In practice, getting the data for existing installations can be difficult. If authenticated spacing tables are not available, the nearest luminaire format with a similar battery voltage/A.H. capacity and diffuser type can be used to estimate acceptability. Authenticated spacing tables are produced by test houses and the products checked for conformity under BS EN ISO 9000; this is preferable to verifying actual levels on site, which is difficult and time consuming. Failures or estimations in this area need to be reported and, depending on the site, the installation rectified by adding luminaires or replacing them with better performing units.

Care has to be taken when testing units that do not have approved luminaires installed, as they often ignore derating factors and can therefore fail prematurely.

I.3 Quality of the system components and installation

If the non maintained luminaires are not supplied from the final lighting circuit, a failure of the lighting circuit will not activate the emergency lighting. In this case, either the wiring needs to be corrected or the fittings changed for the maintained type.

If the central system wiring does not offer adequate fire resistance, either the cable can be supplied with additional fire protection, or the cores of a conduit system can be withdrawn and replaced by appropriate silicon insulated cable.
If self contained luminaires fail to reach their rated duration, they or their batteries need to be replaced. It is essential that replacement batteries are of the correct type, or they could cause sudden premature failure. Central battery systems need to be checked first, to see that the system has not been overloaded. If this is not the case, the battery needs to be replaced.

If luminaires are dirty, they need to be cleaned. If the diffusers are badly discoloured (i.e. yellow or brown), this is likely to be a result either of ageing or of excessive exposure to ultra violet light; modern diffusers use plastics that are highly UV stable, so it tends to apply to old style luminaires. Either the diffuser or the complete luminaire needs to be replaced.

If a luminaire fluorescent lamp shows signs of serious blackening at the tube ends, this is either because it is old and needs replacing, or it can be a sign that the luminaire is subject to excessive switching. Either condition needs rectifying.

I.4 Records, test facilities and training

If site plans and test log records (see 4.2 and 4.3) are not available, blank record sheets can be used. If site plans cannot be provided, blank drawings can be marked up.

It is important that testing and maintenance is carried out regularly to identify any possible faults at an early stage (see 8.3.3 and 12.3).

The test facilities recommended in 8.3.3 might not be available in existing sites. If the procedures do not enable the system to be tested completely and safely, additional facilities will be needed.
Operators need to be trained to:

a. perform their testing function;
b. keep the premises safe; and
c. obtain action to rectify any faults found.

A.1 – Model emergency lighting inspection and test certificate

Emergency Lighting Inspection and Test Certificate For systems designed to BS 5266-1 and BS EN 50172/BS 5266-8			
WARNING **Full duration tests involve discharging the batteries, so the emergency lighting system will not be fully functional until the batteries have had time to recharge. For this reason, always carry out testing at times of minimal risk, or only test alternate luminaires at any one time.**			
System manufacturer Contact phone number			
System installer Contact phone number			
Competent engineer responsible for verification and annual tests			Phone number
Site address			
Responsible person			
Date the system was commissioned			
Details of system mode of operation	Non-maintained		
	Non-maintained luminaires, maintained signs		
	Maintained		
	Other		
Duration of system	..... Hours	Is automatic test system fitted?	Y/N

Details of additions or modifications to the system or the premises since original installation			
Addition or modification			**Date**

Action to be taken on finding a failure

- The supplier of the system or a competent engineer should be contacted to rectify the fault.
- A risk assessment of the failure should be conducted; this should evaluate the people who will be at increased risk and the level of that risk. Based on this data and, if necessary, advice from the Fire Authority, the appropriate action should be taken.
- Action may be:

  To warn occupants to be extra vigilant until the system is rectified

  To initiate extra safety patrols

  To issue torches as a temporary measure

  In a high-risk situation, to limit use of all or part of the building

NOTE Test programs for identifying early failures can reduce the chances of failure of two adjacent luminaires at the same time.

M2 Model emergency lighting inspection and test record

Emergency Lighting Inspection and Test Record **Site:**			**Sheet number:**	
Test types:	C = Commissioning and verification test			
	M = Monthly test (see BS EN 50172:2004/BS 5266-8:2004, **7.2.3**)			
	A = Annual test (see BS EN 50172:2004/BS 5266-8:2004, **7.2.4**)			
Date of test	**Test type**	**Result – Test Passed No action needed**	**Result – Test Failed see M3**	
			Need for repair of system notified	**Need for safeguarding of premises notified**
		Sign below *	Sign below*	Sign below*
	C			
	M – 1st month			
	M – 2nd month			
	M – 3rd month			
	M – 4th month			
	M – 5th month			
	M – 6th month			
	M – 7th month			
	M – 8th month			
	M – 9th month			
	M – 10th month			
	M – 11th month			
	A – 1st year			
	M – 1st month			
	M – 2nd month			
	M – 3rd month			
	M – 4th month			
	M – 5th month			
	M – 6th month			
	M – 7th month			
	M – 8th month			
	M – 9th month			
	M – 10th month			
	M – 11th month			
	A – 2nd year			
	M – 1st month			
	M – 2nd month			
	M – 3rd month			
	M – 4th month			
	M – 5th month			
	M – 6th month			
	M – 7th month			
	M – 8th month			
	M – 9th month			
	M – 10th month			
	M – 11th month			
	A – 3rd year			

A.2 – Model emergency lighting fault action record

Emergency Lighting Fault Action Record		**Sheet number:**	
Contact references	**Contact name**	**Phone number**	
Equipment supplier:			**For replacement parts**
Maintenance engineer:			**Competent engineer**
Responsible person:			**Site control**

Date of failure	**Action taken to safeguard the premises** (Details and signature)	**Action taken to rectify the system** (Details and signature)	**Date system repaired**

Central Battery Systems Services and Solutions

The power systems team at Llumarlite provide expertise at every stage of a project, delivering power solutions that are fully compliant to EN 50171. The power systems technical design team can undertake a project from the initial survey, through the system design process, to the final installation phase as a standalone project or as part of a larger lighting scheme. From single phase compact units covering 240 < 2,400 Watts of connected load, to hot swappable 4kVA < 24kVA modular units and larger scale three phase from 10 kVA < 250kVA units, our team have your project needs covered.

Central Battery Systems (CBS)

Providing the correct unit to support your Emergency Lighting System is essential. To meet the demands of our users Llumarlite have a wide range of Static Inverters available. From single phase compact units covering 240 < 2,400 Watts of connected load, hot swappable4kVA < 24kVA modular units to larger scale three phase ranging from 10 kVA< 250kVA units.

Life Safety Systems

In addition to emergency lighting battery systems Llumarlite offers systems to power other essential Life safety equipment, for example:• Electrical circuits of automatic fire extinguishing installations• Paging systems and signalling safety installations• Smoke extraction equipment• Carbon monoxide warning systems• Specific safety installations related to specific buildings, e.g. High-risk areas.• Firefighting Lifts

Specifying

To deliver successful projects it is critical that the components and features will last for the life of the system. To provide clients with the best solutions we undertake regular reviews of all the products we specify to make sure they meet with our high standards. The information below provides an insight into some of the criteria we use when designing our systems.

Rating

Our systems are designed to provide total connected emergency lighting load and will have a battery capable of providing either 1 or 3 hours autonomy for the life of the system. The units will be sized in accordance with BS EN 50171. We also make sure that in accordance with BS 50171:2001 section 6.5.3. that inverters can start the lighting load in the mains failed mode and that they are capable of permanently handling 120% of the load requirement for the rated duration.

Batteries

At the end of the rated duration the battery voltage is designed to be no less than 90% of the nominal voltage. All of the batteries we specify will have a minimum 10 year design life and they will be sized to meet the declared performance for the life of the system.

Fault Clearance Capability

We design all our systems to provide clearance of downstream protective devices when operating from batteries. If this is not taken in considered there is potential that in the event of a main failure the unit may not supply the load.

Recharge Time

Our systems are designed to recharge the batteries at the minimum rated voltage in 12 hours with the batteries able to discharge at 80% of the rated duration period of the system after a 12 hour recharge.

Further Information

For further information we recommend BIP 2081:2020 companion guide to BS 5266-1:2016 Emergency lighting. Code of practice for the emergency lighting of premises. The guide gives comprehensive information and guidance on the choice, design and application of emergency lighting based on the latest versions of the appropriate standards and regulations, helping designers optimise a system for specific applications.

https://shop.bsigroup.com/products/a-guide-to-emergency-lighting-third-edition/standard

An Introduction to Emergency Lighting (BS5266/EN1838) CPD

A 1h CPD session providing an introduction to Emergency Lighting in compliance with BS5266/EN1838, accredited by the FIA

The session is presented by Ian Watts who is the convenor of CEN 169 WG3 leading the revision of EN 1838. This standard will set the light levels and process for the revision of BS 5266 part 1 due over the next 18 months. Ian is the UK representative for the Fire Industry Association on BS 5266 part 1 and from this role delivers training for the FIA, CIBSE and the British Fire Consortium.

www.llumarlite.co.uk/cpds

Introduction To Compliant Emergency Lighting

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Fire Industry Association