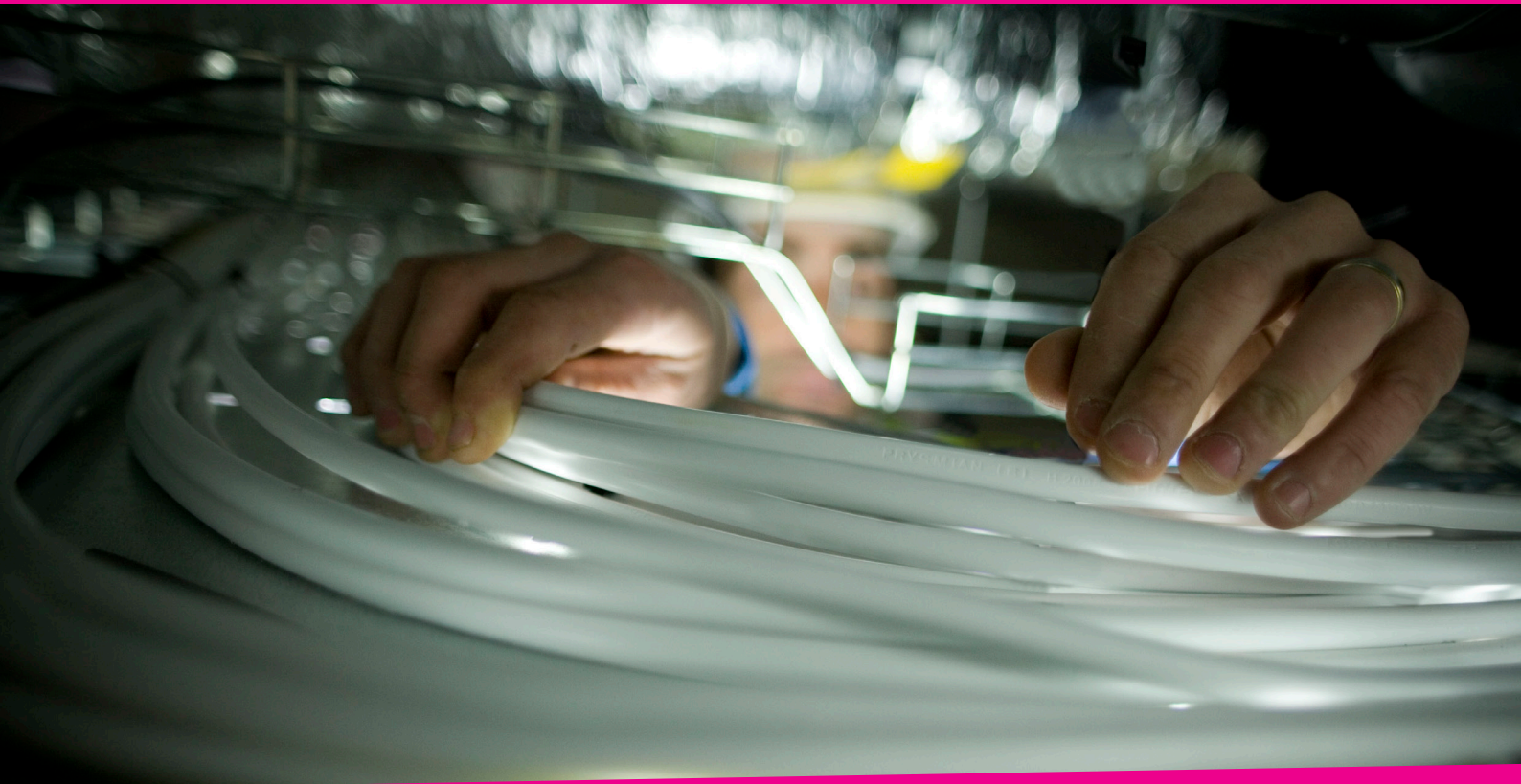


FP Guide to BS 5266-1:2011



A guide

to the selection of cable types for particular building applications in accordance with the recommendations of **BS 5266-1:2011** “Emergency lighting – Part 1: Code of practice for the emergency escape lighting of premises”

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Introduction

BS 5266-1:2011 is a full revision and replaces the 2005 edition of BS 5266-1. It gives recommendations and guidance on the design, installation and wiring of electrical emergency escape lighting systems.

The standard recognizes that one important function of emergency lighting is to enable the location of fire alarm call points and fire fighting equipment. Some changes have been made to more closely align recommendations for wiring with those given in BS 5839-1:2002+A2:2008 "Fire detection and fire alarm systems for buildings – Part 1: Code of practice for system design, installation, commissioning and maintenance".

Compared with the 2005 edition, some significant changes affecting cable selection have been made:

- > The different requirements for the wiring of self-contained systems (not requiring fire protected cable and for central power supply systems (requiring cables or systems with an inherently high resistance to the effects of fire) have been clarified.
- > Two different performance levels for emergency lighting cables or cable systems with an inherently high resistance to attack by fire are recognised: a) Emergency lighting cables with an inherently high resistance to attack by fire (standard) and b) Enhanced emergency lighting cables with an inherently high resistance to attack by fire (enhanced). Recommendations for the application for each type are provided.
- > Withdrawal of the option to use ordinary cables or cable systems with additional fire protection due to the impossibility of adequately verifying the performance of such wiring methods.
- > New guidance on methods of cable support and fixings
- > Updating of the guidance for joints and segregation

The new standard was published in November 2011 and became effective immediately.

Requirements for "standard" and "enhanced" emergency lighting cables and systems

The new standard introduces the concept of two different performance levels for emergency lighting cables for central power supply systems based upon the particular building application, following the concept already established in BS 5839-1.

For general use, Emergency lighting cables with an inherently high resistance to attack by fire (standard) are recommended based upon a duration of survival of 60 minutes. This is the same as recommended in the 2005 edition but additionally a water spray test requirement (as for standard cables in BS 5939-1) is now required.

Some cables meeting the BS 5266-1:2005 requirement, for example FP200 Gold, also meets the new BS 5266-1:2011 requirement for "standard" emergency lighting cables.

For use in certain large and complex buildings in which cables might need to operate during a fire for longer periods, Enhanced emergency lighting cables with an inherently high resistance to attack by fire (enhanced) are recommended based upon a duration of survival of 120 minutes. Such a requirement was not included in the 2005 edition. The requirement is the same as for "enhanced" fire detection and alarm cables required by BS 5839-1 and products, for example FP PLUS, are readily available to meet this new requirement.

As in BS 5266-1:2005, the use of cable systems with inherently high resistance to attack by fire comprising fire-resistant single core (or multi-core cables) enclosed in screwed steel conduit is also allowed. As for cables, "standard" (60 minute) and "enhanced" (120 minute) cable systems are defined with updated requirements based upon the recent IEC 60331-3 test method. Some cables already meeting the BS 5266-1:2005 cable system requirement, for example FP100, also meet the new BS 5266-1:2011 requirement for both "standard" and "enhanced" emergency lighting cable systems.

New test requirements for "standard" and "enhanced" emergency lighting cables and systems

"Standard" emergency lighting cables are required to meet the following fire test requirements:

- a) a 60 minute duration of survival when tested to BS EN 50200 (PH 60) and
- b) a 30 minute duration of survival when tested to BS EN 50200:2006 Annex E

This requirement is more onerous (PH60 vs. PH30) than that required for "standard" fire alarm cables complying with BS 5839-1.

"Enhanced" emergency lighting cables are required to meet the following fire test requirements:

- a) a 120 minute duration of survival when tested to BS EN 50200 (PH120) and
- b) a 120 minute duration of survival when tested to BS 8434-2

This requirement is identical to that required for "enhanced" fire alarm cables complying with BS 5839-1

Neither the "standard" or "enhanced" requirements directly relate to the minimum fire survival time categories given in BS 8519 which does not give recommendations for installations covered by BS 5266-1. As a general comparison, "standard" emergency lighting cables fall between the requirements given in BS 8519 for Category 1 and Category 2 control cables and "enhanced" emergency lighting cables fall between those for Category 2 and Category 3 control cables.

Cables for "Standard" emergency lighting cable systems are required to meet the following fire test requirement;

- a) a 60 minute duration of survival when tested to IEC 60331-3

Cables for "Enhanced" emergency lighting cable systems are required to meet the following fire test requirement;

- a) a 120 minute duration of survival when tested to IEC 60331-3

Guidance on methods of cable support and fixings

New guidance recommends that methods of cable support and fixings should be non combustible and such that circuit integrity will not be reduced below that afforded by the cable used, and should withstand a similar temperature and duration to that of the cable, whilst maintaining adequate support. This guidance is consistent with that of BS 5839-1 and means that plastic cable clips, ties or conduit and trunking are not suitable as the means of cable support.

This guidance on fixings also applies to conduit and trunking where that provides the method of support.

Updated guidance on joints and segregation

Although the recommendation remains that joints in cables should only be made when circuit rewiring is not practicable, it has been updated to include advice on the type of insulating material and enclosure needed. Metal terminal components mounted in ceramic terminal blocks housed in steel enclosures are noted as a suitable joint type.

The recommendation regarding segregation of emergency escape lighting installations from the wiring of other circuits is essentially unchanged but further guidance on achieving adequate segregation where circuits are installed in a common containment system has been added.

Applications for "standard" and "enhanced" emergency lighting

Recommendations for the use of "standard" or "enhanced" systems follow those given in BS 5839-1;

- > the use of "standard" systems is recommended for general use
- > the use of "enhanced" systems is recommended for certain large and complex buildings in which cables might need to operate during a fire for longer periods

BS 5266:2011 makes recommendations as to where "enhanced" systems might generally be used:

- > unsprinklered buildings involving evacuation in four or more phases
- > unsprinklered buildings of greater than 30m in height
- > unsprinklered premises in which a fire in one area could effect cables associated with areas remote from the fire in which it is envisaged people will remain during the course of the fire

In reality, it would be expected that in a building using "enhanced" cables for the fire alarm and detection systems in accordance with BS 5839-1, then "enhanced" emergency lighting cables in accordance with BS 5266-1:2011 would be used.

Key issues for specifiers

- > A choice between "standard" and "enhanced" emergency lighting cables must now be made for any particular building based upon the recommendations of BS 5266-1 and a fire risk assessment.
- > "Standard" cables should satisfy many applications including large and complex buildings protected by sprinklers.
- > "Enhanced" cables may be necessary for certain large and complex buildings, particularly if they are unsprinklered.
- > Existing cable types, already well established on the market, are available to meet the new requirements, such as FP200 Gold for "standard" applications and FP PLUS for "enhanced" applications.
- > For arduous conditions requiring a higher level of mechanical protection, armoured fire resistant cable types are such as FP600S may be considered.
- > The use of appropriate non-combustible "fire resistant" methods of cable support and fixing is now required.
- > The duration of survival required for emergency lighting cables under fire conditions should not be confused with the minimum duration requirements given for the emergency lighting in particular premises (normally 1 h or 3 h classification) which essentially relate to battery capacity.

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