



TECHNICAL STATEMENT

TRACK/TRUNKING SYSTEMS WITH CENTRAL POWER SUPPLY (CPS) FOR EMERGENCY LIGHTING

1.0 Introduction 2

2.0 Product Design & Use 3

3.0 Typical Installation(s) 4

4.0 Design Considerations 6

5.0 Risk Identification 7

6.0 Risk Mitigation 8

7.0 Risk Mitigation - Examples..... 10

8.0 Installation Considerations 11

ANNEX A – List of Referenced Documents 12

TECHNICAL STATEMENT

1.0 INTRODUCTION

The Lighting Industry Association (The LIA) has prepared this Technical Statement to support lighting manufacturers, designers, installers, and specifiers working with modern track and trunking lighting systems connected to central power supplies (CPS) for emergency lighting, see figure 1, 2 and 3 for an example installation.

Whilst a wide range of standards, regulations and guidance documents exist to regulate both product safety and emergency lighting installations, the combined application of these can leave designers and installers uncertain about how to apply them in practice. The primary purpose of this document is not to repeat the full content of each standard, but to provide clear, practical advice on the considerations that should be taken into account when using track/trunking systems with centrally supplied emergency lighting.

This Technical Statement outlines considerations from relevant standards and regulations relating to emergency lighting systems used with track/trunking lighting in the UK. The standards/regulations listed throughout this document are not considered to cover all requirements for UKCA/CE compliance.

This Technical Statement does not provide any additional considerations for AEELS (Adaptive Emergency Escape Lighting Systems); these shall be covered under the risk assessment.

This Technical Statement is not a replacement for the standards and regulations which are currently valid and should be referenced, prior to design or installation of emergency lighting products and systems.

It should be emphasised that this guidance is specific to the UK. Installation practices and regulatory requirements vary significantly across Europe and globally, particularly with respect to fire compliance and installation wiring.

Note: This document shall be read in its entirety, extracts should not be referenced or used in isolation.

TECHNICAL STATEMENT

2.0 PRODUCT DESIGN & USE

Track and trunking lighting systems are increasingly common in warehouses, industrial facilities, and large retail premises. These systems often combine the functions of a wiring containment system and a luminaire, running continuously and covering large floor areas and multiple fire compartments. These systems may incorporate standard wiring and terminal blocks which, as separate components, may not be fire-resistant, unless specified.

Where self-contained emergency luminaires are mounted to these systems the design is the same as for emergency lighting without the track/trunking system, as each luminaire carries its own emergency power source. When the emergency lighting is supplied from a CPS system, the integrity of the electrical supply circuits is critical. A fault in one location may otherwise disable emergency luminaires at multiple points, creating safety risks. For a simple installation within a single fire compartment no additional consideration may be required. For complex installations or installations spanning several fire compartments the guidance given in this document should be considered. The fire risk assessment will define if the guidance given in this document is applicable.

Product standards that may apply to such systems include:

- **BS EN 60598-1:** Luminaires – General requirements and tests.
- **BS EN 60598-2-22:** Luminaires – particular requirements for emergency lighting.
- **BS EN 60598-2-1:** Requirements for fixed, General purpose luminaires.
- **BS EN 60570:** Electrical supply track systems for luminaires.
- **BS EN 50171:** Central safety power supply systems

Manufacturers, system designers and installers should ensure compliance with the relevant standards, regulations and codes of practice where applicable.

BS 7671 clause 133.1.1 states: “Every item of equipment shall comply with the appropriate British or Harmonized Standard. In the absence of such a standard, reference shall be made to the appropriate International (IEC) standard or the appropriate standard of another country.

TECHNICAL STATEMENT

3.0 TYPICAL INSTALLATION(S)

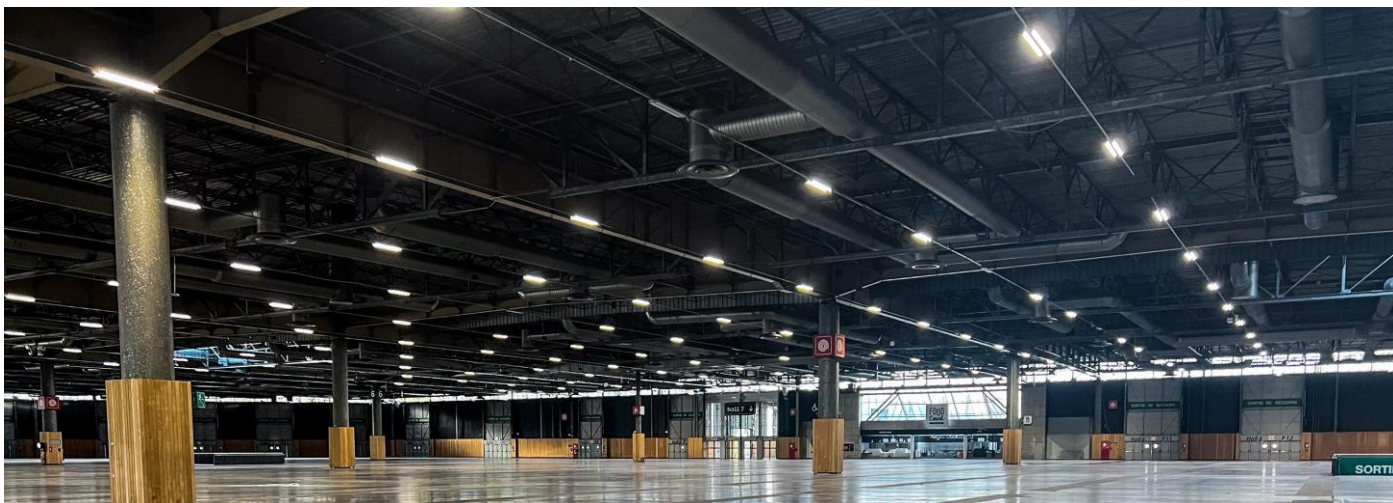


Figure 1: Example Installation – Open Plan



Figure 2: Example Installation – Production

TECHNICAL STATEMENT

3.0 TYPICAL INSTALLATION(S) – CONTINUED

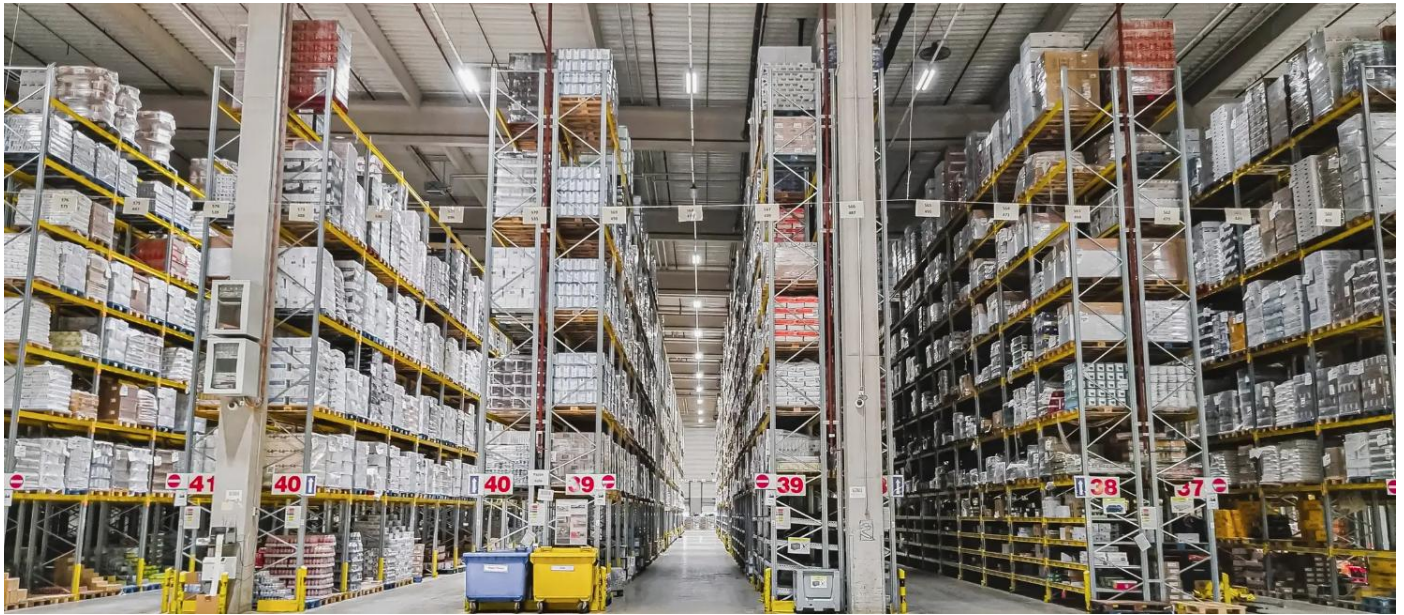


Figure 3: Example Installation – Warehouse Racking



Figure 4: Example Installation – Data Centre

TECHNICAL STATEMENT

4.0 DESIGN CONSIDERATIONS

In order to reduce risk, the following design considerations should be taken into account:

Emergency lighting schemes should be designed in accordance with BS EN 1838 and BS 5266-1.

Simple CPS installations which comprise of short runs in a single fire compartment may not require any additional considerations for the trunking system itself. If the trunking system does not have provision for fire resistant terminals and a circuit protective device this would normally be situated separately but within one metre of the trunking feed.

For larger length of runs, the use of fire resistant cables in accordance with BS 7671, flame resistant terminal blocks and circuit protective devices to protect the integrity of supply to downstream luminaires may be required to meet the requirements of BS 5266-1 and BS 7671.

Wiring to self-contained luminaires fitted to a trunking system does not require any additional requirements to a non-trunking application.

BS 7671 clause 560.8.1 states:

“Examples of a system maintaining the necessary fire and mechanical protection could be:

- (a) with construction enclosures to maintain fire and mechanical protection, or*
- (b) wiring systems in separate fire compartments.”*

The appropriate type of power source should be operated, tested and serviced in accordance with the manufacturer's instructions. Central Power Supplies (CPS) used as a source for emergency luminaires should be in accordance with EN 50171.

The relevant standards, regulations and codes of practice to be consulted include:

- **BS 5266-1:** Emergency lighting – Code of practice for the emergency lighting of premises
- **BS 7671:** IET Wiring Regulations.
- **EN 1838:** Lighting applications – Emergency lighting for buildings.
- **EN 50172:** Emergency escape lighting systems.

TECHNICAL STATEMENT

5.0 RISK IDENTIFICATION

Not all installations carry the same level of risk. Some building designs and their use may present different or additional risks that must be taken into account during the design stage. The fire risk assessment shall identify the risks for the site. Fire risk assessments shall only be performed by a qualified person.

Risks to be considered when using track/trunking systems incorporating a central power supply include:

- **Loss of circuit integrity:** A fire or fault at one point could compromise emergency lighting across a large run or multiple fire compartments. BS 5266-1 requires that emergency lighting circuits maintain integrity across fire compartments so that a fire in one area does not disable escape lighting in another. Long track/trunking runs crossing multiple compartments introduce additional design considerations such as fire-rated cable and connections. The optical distribution and building layout may play a role in mitigating loss of light in case of a fault condition.
- **Product definition issues:** Trunking systems may be defined as a single luminaire for the purpose of simplifying the wiring requirements for CPS applications. However, the relevant code of practice should still be applied for the application.
- **Fire vulnerability:** Plastic components and standard connectors often lack the fire resistance traditionally provided by porcelain terminals and fire-rated cables.
- **Product Standards:** Whilst documents such as BS 5266-1 do not take into account internal wiring of luminaires from certain fire integrity requirements, applying this logic to a long track/trunking installation may not be valid. Products should still comply with their relevant product standards such as BS EN 60598-2-22.
- **Other fire mitigation measures:** The presence of sprinklers, detection systems, or structural fire protection may influence the fire risk assessment and the design, but they should not be relied upon as substitutes for appropriate protection of circuit integrity from fire.
- **Number and location of fittings:** The number and location of emergency luminaires shall be suitable for the risks as identified by the fire risk assessment.

BS 5266-1 (sections 8.2.1–8.2.6) require designers to ensure fire resistance of the supply to centrally supplied emergency luminaires, proper segregation, and adequate joint integrity. These requirements should be applied to track/trunking systems, even where product standards cover both luminaire and wiring containment system.

TECHNICAL STATEMENT

6.0 RISK MITIGATION

A range of installation measures may be adopted to address the risks identified. Depending on the length of the trunking run, building use, and results of a fire risk assessment, one or several of the following may be appropriate:

- **Multiple emergency supply feeds:** CPS may need to be supplied to both ends of the track/trunking to provide redundancy.
- **Fire protection of emergency supplies:** Fire-rated supply cables and terminals protected along their full length of the track/trunking may be required.
- **Interweaving of supplies:** Wiring of alternate luminaires or banks of luminaires from separate emergency circuits to maintain partial lighting if one feed fails.
- **Electrical separation:** Track/trunking runs may need to be separated across their length into discrete sections at intervals to limit fault propagation across fire compartments.
- **Design limits:** Practical caps may need to be applied on the number of emergency luminaires supplied by a single feed, and on the total trunking length connected to one circuit.
Note: BS 5266-1 clause 8.2.1 g) states: "The maximum number of emergency lighting luminaires that is affected by a single fault on a final circuit should not exceed 20"
- **Downstream protective devices:** The use of suitable over-current protection devices throughout the electrical circuit.
- **Circuit segregation:** Emergency lighting circuits should be segregated from other electrical services. Segregation should be in accordance with the requirements of BS 7671 and BS 5266-1.

BS 5266-1:2025 Clause 8.2.1 states:

"Cables or cable systems used for the connection of an emergency lighting luminaire to a central safety power supply should adequately resist the effects of fire and mechanical damage and retain circuit integrity.

- a) For a cable or cable system, protective measures (see 8.2.5) should also be taken to prevent mechanical damage to a cable or cable system where foreseeable, including from flora or fauna.*
- b) A cable or cable system should be routed through an area of low fire risk, wherever practicable (see BS 7671).*
- c) Each emergency lighting luminaire(s) should be in accordance with BS EN IEC 60598-2-22:2022, as these are required to have a flame-resistant terminal block and incorporate a protective device that isolates the luminaire in the event of an internal luminaire fault.*
- d) The central safety power supply unit and associated remote control switches should be in accordance with BS EN 50171:2021.*

TECHNICAL STATEMENT

- e) The selection and use of protective devices downstream of the central safety power supply should be in accordance with BS EN 50172:2024, to maintain continuity of supply to other emergency lighting luminaires.*
- f) Emergency lighting luminaires should be wired alternately or in another arrangement from at least two separate circuits so that some illuminance is maintained in the event of a supply failure to one of the circuits.*
- g) The maximum number of emergency lighting luminaires that is affected by a single fault on a final circuit should not exceed 20."*

TECHNICAL STATEMENT

7.0 RISK MITIGATION – EXAMPLES

Option One

- Supply one
- Supply two
- Interleaved supplies
- Max. 20 luminaires per circuit
- Limited distance (depending on risk assessment)
- Fire-resistant cable must be used up to the flame-resistant terminal block
- Earthing not shown for clarity

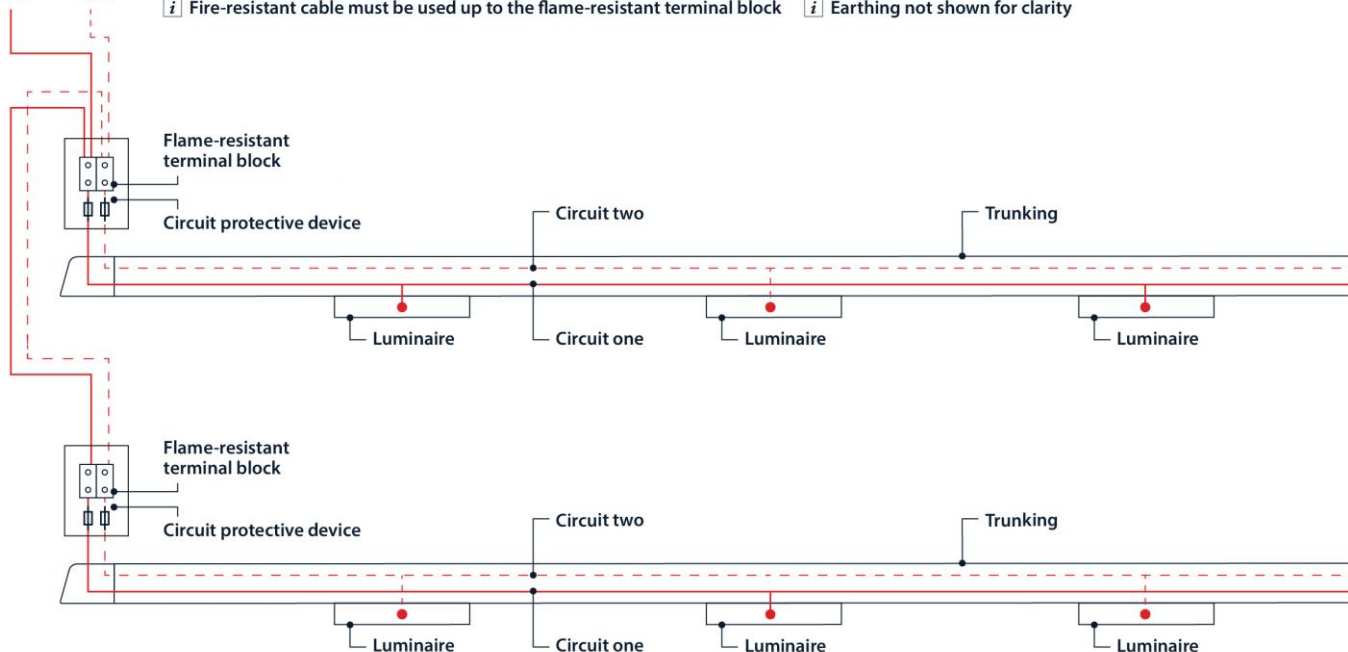


Figure 5: Example of Mitigation

TECHNICAL STATEMENT

8.0 INSTALLATION CONSIDERATIONS

To ensure compliance and reduce risk, installations should follow the requirements of BS 7671 (IET Wiring Regulations) alongside emergency lighting standards and codes of practice, such as EN 1838 and BS 5266-1. All equipment should conform to the relevant British or Harmonized Standards, or, where these do not apply, provide an equivalent level of safety.

Circuits for safety services must remain independent of other systems so that faults or modifications elsewhere do not compromise emergency lighting. This may require fire-resistant wiring routes, alternative enclosures, or use of suitable protective materials. BS 5266-1 clause 8.2.2 and BS 7671 clause 560.8.1 outline suitable safety measures for protection of wiring.

Cable installation shall preserve circuit integrity for the rated duration as defined in the fire risk assessment.

Further guidance for complex buildings is available in BS 5839-1, BS 5266-1, and BS 8519.

TECHNICAL STATEMENT

ANNEX A – LIST OF REFERENCED DOCUMENTS

- **BS 7671:** Requirements for Electrical Installations – IET Wiring Regulations
- **BS 5266-1:** Emergency lighting – Code of practice for the emergency lighting of premises
- **BS EN 1838:** Lighting applications – Emergency lighting
- **BS EN 50172:** Emergency escape lighting systems
- **BS EN 60570:** Electrical supply track systems for luminaires
- **BS EN 60598-1:** Luminaires – General requirements and tests
- **BS EN 60598-2-1:** Requirements for fixed, General purpose luminaires
- **BS EN 60598-2-22:** Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting
- **BS EN 50171:** Central safety power supply systems
- **BS EN 60702-1:** Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 1: Cables
- **IEC 60331:** Tests for electric cables under fire conditions – Circuit integrity
- **BS EN 50200:** Method of test for resistance to fire of unprotected small cables for use in emergency circuits
- **BS 8434:** Methods of test for resistance to fire of cables required to maintain circuit integrity
- **BS 8491:** Method for assessment of fire integrity of large diameter power cables for use as components for fire-resisting wiring systems
- **BS 5839-1:** Fire detection and fire alarm systems for buildings – Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises
- **BS 5266-1:** Emergency lighting – Part 1: Code of practice for the emergency lighting of premises
- **BS 8519:** Selection and installation of fire-resistant power and control cable systems for life safety and fire-fighting applications – Code of practice