

Category 1 Standard

1-081 Design and installation of fire protection systems and compartmentation measures



Please read the Written Notices
attached to this standard

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1 Purpose

- 1.1 The purpose of this Standard is to define the parameters that control the design and installation of active and passive fire protection systems.

2 Scope

- 2.1 This Standard applies to all London Underground. (LU) premises and all work taking place within the boundary of those premises, including railway facilities, (but not trains).
- 2.2 The active fire protection systems within the scope of this document include those for fire detection, fire suppression, fixed firefighting equipment, portable firefighting equipment, fire warning systems, smoke management systems, and all other active systems that may be installed to promote fire safety and secure means of escape in the event of a fire.
- 2.3 The passive fire protection systems within the scope of this document include all fire resisting elements of construction comprising, doorsets, shutters, floors, walls, ceilings, glazing, fire stopping, ductwork, dampers, structural fire protection, cavity barriers, escape doors, door furniture and signs associated with escape doors and fire resisting doors, and fire safety signs.
- 2.4 This standard replaces 1-081 A1.

3 Requirements

3.1 Specification

- 3.1.1 A written specification shall be prepared prior to the design or modification of fire protection systems and fire resisting elements of construction. The specification shall detail the standards to which the design, installation, and handover, is to be carried out.
- 3.1.2 The content of the specification shall be agreed between the designer and the employer.

3.2 Scope of Works

- 3.2.1 A written scope of works shall be prepared prior to the design or modification of fire protection systems and fire resisting elements of construction. The scope shall detail the content and quantity of the work, and the precise location(s) of the work.
- 3.2.2 The content of the scope of works shall be agreed between the designer and the employer.

3.3 Competency of Fire Systems Designers & Installers

- 3.3.1 Designers of passive and active fire systems shall be competent by virtue of training and experience, in the design of those systems, and in addition shall either hold (or have the design validated by the holder of) a fire safety engineering qualification.
- 3.3.2 All fire system designs shall be produced by designers working within a quality management system that has been certificated (by a recognised European independent certification body).



- 3.3.3 Designers and installers of fire detection and alarm systems shall be competent (as defined in BS 5839). The works shall be validated under a European accreditation scheme for fire system installers.
- 3.3.4 All fire systems shall be installed by contractors working within a quality management system that has been certificated (by a European accredited certification body).

3.4 General Requirements

- 3.4.1 The provisions to be designed for fire safety, shall be derived from a comprehensive fire strategy and, with respect to buildings (other than for stations and the railway), shall be designed and implemented in accordance with the requirements of Building Regulations, Approved Document B (ADB), as more fully described in the relevant parts of BS 9999.
- 3.4.2 The provisions to be designed for fire safety, shall be derived from a comprehensive fire strategy and, with respect to stations and the railway, shall be designed and implemented in accordance with the recommendations of current editions of the Health and Safety Executive's (HSE) Railway Safety Principles and Guidance (RSPG), as more fully described in the relevant parts of BS 9999.

3.5 Water supplies for firefighting and fixed installations

3.5.1 General requirements

Where water supplies for fire-fighting and fixed installations are required they shall be designed and installed in full compliance with the recommendations contained in BS 5306: Parts 0, 1, and 2, BS 9990 or BS EN 12845, as is appropriate to the case.

3.5.2 Fire hydrants & Fire Main Systems

Where fire hydrants and fire main systems are required they shall be designed and installed in full compliance with the recommendations contained in BS 9990.

3.5.3 Alteration of existing fire hydrants and fire main systems

When altering existing systems, compliance will be achieved if they are designed and installed in accordance with BS 9990; alternatively they may be designed to requirements agreed with London Underground and the Fire Authority in accordance with the recommendations in BS 7974.

3.5.4 Hose reels

Where hose reels for fire-fighting purposes are required they shall be designed and installed in full compliance with the recommendations contained in BS 5306: Part 1.

3.6 Portable fire-fighting equipment

- 3.6.1 Where items of portable fire-fighting equipment are required they shall be designed and installed in full compliance with the recommendations contained in BS 5306: Part 8.

3.7 Fire detection and alarm systems

3.7.1 General requirements

Where fire detection and alarm systems are required they shall be designed and installed in full compliance with the recommendations contained in BS 5839: Part 1 and a verification certificate shall be issued.



3.7.2 Control and Indicating Equipment

- 3.7.2.1 Control and indicating equipment shall be designed and manufactured in accordance with BS EN 54-2 and BS 5839: Part 1, and shall have been tested and certificated to that standard by a European accredited independent test house.
- 3.7.2.2 Control and indicating equipment shall be located and installed in accordance with BS 5839: Part 1, and on stations either the main control panel or a fully active network or repeater panel shall be located in the Station Operations Room, and at the Station Control Point where one is provided separately from the Station Operations Room.
- 3.7.2.3 All control and indicating equipment for stations and the railway (main control panels and repeaters) shall incorporate a control fascia of a type and layout with a consistent human interface in all stations and railway facilities (to facilitate ease of training for station staff).
- 3.7.2.4 All control and indicating equipment for stations and the railway shall incorporate consistent cause and effect operating software in all stations and railway facilities (to facilitate ease of training for station staff).
- 3.7.2.5 Any proposal to change either the fascia type and layout, or the cause and effect operating software, shall maintain the consistency required, and shall be undertaken in full consultation with LU's Engineering and Operations Directorates.
- 3.7.2.6 The cause and effect operating software, for stations and the railway shall incorporate such evacuation sequence programming, timers, and acknowledgment regimes, as may be agreed between the Regulatory Authorities and LU for the safe and efficient operation of the station.

3.7.3 Input Devices

- 3.7.3.1 All input devices (call points, smoke, heat and fire detection equipment etc.) shall be of a type that are fully compatible (either directly or via an interface) with the control and indicating equipment for the facility in which they are located.
- 3.7.3.2 Where addressable control and indicating equipment is installed all input devices shall register a unique, traceable address.
- 3.7.3.3 All addresses to be used and displayed by fire detection systems shall be agreed with the user (as defined in BS 5839: Part 1) of the system, and shall include the station location code as the first part of the address descriptor.
- 3.7.3.4 All input devices shall be designed and manufactured in accordance with the recommendations of BS 5839: Part 1, and shall have been tested and certificated to the standards recommended by a European accredited independent test house.
- 3.7.3.5 All input devices shall be located and installed in accordance with the recommendations of BS 5839: Part 1.

3.7.4 Radio fire detection and alarm systems

- 3.7.4.1 Radio alarm systems shall only be used where:
 - a) a system using cable interconnections cannot practicably be installed and maintained; or,
 - b) aesthetic considerations or restrictions prevent the installation of cables; or,
 - c) the system is to be used to monitor temporary areas or constructions.
- 3.7.4.2 Where radio alarm systems are used they shall comply with BS 5839: Part 1.