

**SS 645 : 2019**  
(ICS 13.220.20; 13.320)

**SINGAPORE STANDARD**

# **Code of practice for the installation and servicing of electrical fire alarm systems**

[Formerly CP 10]

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*Housing & Development Board*  
*Land Transport Authority*  
*Singapore Civil Defence Force*  
*Singapore Electrical Trades Association*  
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*The Institution of Engineers, Singapore*  
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## Foreword

This Singapore Standard was prepared by the Working Group on Emergency Alarm and Communication Systems set up by the Technical Committee on Building Facilities and Services under the purview of EESC.

This standard is a revision of Singapore Standard CP 10 : 2005 “Code of practice for the installation and servicing of fire alarm systems” and is re-designated as SS 645. In this revision, existing requirements were reviewed and revised to bring the Code in line with the latest fire alarm concepts and technology. The key changes are as follows:

- (a) New requirement for detection circuit fault covering more than one floor of the building has been added (4.2.1 d);
- (b) New requirements of clearances for alarm panels and detectors have been added (4.2.2);
- (c) Requirements for connection to alarm monitoring station have been amended (4.5) and new requirements for alarm monitoring station have been added (4.6);
- (d) Requirements for main/sub alarm panel, zone plan/mimic panel have been amended (5.2.1, 5.2.2 and 5.2.4);
- (e) New requirements for interface with the emergency voice communication (EVC) system have been added (5.5.8);
- (f) Provision for a resettable flexible element type of call point and operation has been added (5.6.2);
- (g) Requirements for the mounting height of the manual call point have been amended (5.6.6);
- (h) Requirements for spacing between detectors have been amended to be in line with AS 1670.1: 2015 (5.7 and 5.8);
- (i) New requirements for design of linear heat detectors have been added (5.7.4);
- (j) New requirements for video image fire detection system have been added (5.10);
- (k) New requirements for limitation of false alarms have been added (6.3.2); and
- (l) Provision for carbon monoxide fire detectors, flame detectors and video image fire detectors has been added (D.5, D.6 and D.7).

It is presupposed that in the course of their work, users will comply with all relevant regulatory and statutory requirements, e.g. Code of Practice for Fire Precautions in Buildings. The Singapore Standards Council and Enterprise Singapore will not be responsible for identifying all of such legal obligations.

In preparing this standard, reference was made to the following publications:

AS 1670.1 : 2015	Fire detection, warning, control and intercom systems – System design, installation and commissioning – Part 1 : Fire
BS 5839-1 : 2017	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

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**NOTE**

- 1. Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "Mature standards". Mature Standards will not be subject to further review, unless there are requests to review such standards.*
- 2. An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
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## Code of practice for the installation and servicing of electrical fire alarm systems

### 1 Scope

This Code applies to the installation and servicing of electrical fire alarm systems in buildings. It covers fire alarm systems using manual call points, heat detectors, smoke detectors, flame detectors and video image fire detectors.

In this Code, installations of automatic fire alarm systems comply with the general requirements of Clause 4, with the additional requirements of Clause 5 according to the detector type, and with the installation, operation and maintenance requirements of Clause 6. Manual call points installed in conjunction with an automatic fire alarm system or as a separate system comply with the general installation requirements of Clause 5 with the specific requirements of 5.6.

### 2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60227-4	Polyvinyl chloride insulated cables of rated voltages up to and including 450 / 750 V – Part 4 : Sheathed cables for fixed wiring
IEC 60331-25	Tests for electric cables under fire conditions – Circuit integrity – Part 25: Procedures and requirements – Optical fibre cables
IEC 60794-1-1	Optical fibre cables – Part 1-1: Generic specification – General
IEC 61386	Conduit systems for cable management
SS 249	Specification for steel surface cable trunking and accessories
SS 299-1	Specification for fire resistance cables – Part 1 : Performance requirements for cables required to maintain circuit integrity under fire conditions
SS 358	Specification for polyvinyl chloride insulated cables of rated voltages up to and including 450 / 750 V Part 1 : General requirements Part 2 : Test methods Part 3 : Non-sheathed cables for fixed wiring Part 5 : Flexible cables (cords)
SS 546	Code of practice for emergency voice communication systems in buildings
SS 638	Code of practice for electrical installations