



**FIRE PROTECTION NOTICE NO. 16**

**FIRE DETECTION SYSTEM  
RECOMMENDED MAINTENANCE  
PROCEDURES**



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### Fire Detection System Recommended Maintenance Procedures

#### Fire Detection System

##### 1. *General*

- 1.1 Fire detection system is a fire service installation (FSI) commonly provided in buildings for life and property protection.
- 1.2 According to Regulation 8 of the Fire Service (Installations and Equipment) Regulations, the owner of any FSI or equipment shall
  - (a) keep such installation or equipment in efficient working order at all times; and
  - (b) have such installation or equipment inspected by a registered FSI Contractor at least once in every 12 months.
- 1.3 The following are the recommended procedures for proper maintenance of fire detection system.

##### 2. *House Keeping*

- 2.1 The owner of FSI should liaise with the registered FSI Contractor to devise procedures for dealing with alarm of fire, fault warning and isolation of part or whole of the system.
- 2.2 A log book containing the name and contact telephone number of the FSI Contractor should be provided near the control panel to record appropriate details of every false alarm. The details should include the following :
  - date and time
  - identity and location of detector (if known)
  - category of false alarm (if known)
  - reason for false alarm (if known)
  - activity in the area (if the reason for the false alarm is unknown)
  - action taken
  - the person recording the information
  - the periods of direct telephone link (DTL) suspensions

##### 3. *Recommended System Servicing and Maintenance*

- 3.1 The owner of FSI shall employ a registered FSI contractor in Class 1 to carry out servicing and regular maintenance of fire detection system.
- 3.2 The owner of FSI and the registered FSI Contractor should ensure that the following routine works are followed : -

3.2.1 *Daily attention* (by FSI owner)

- (i) check if the panel indicates normal operation;
- (ii) record all faults and inform the registered FSI contractor to carry out repair works if required; and
- (iii) check if the fault warning recorded had been dealt with.

3.2.2 *Monthly attention* (by FSI owner)

- (i) inspect the condition of all detectors and check if there is any change in the environmental conditions that will affect the system performance; and
- (ii) ask the registered FSI Contractor to check the system in case of any doubt.

3.2.3 *Quarterly attention* (by registered FSI Contractor)

- (i) check whether or not the batteries are fully charged;
- (ii) simulate a failure in normal power supply and to start up the system with standby power;
- (iii) visually inspect the condition of all detectors and carry out cleaning works where necessary;
- (iv) operate at least one detector in each zone loop to test the ability of receiving signal by the control and indicating equipment and the ability of operating any other warning devices;
- (v) re-check the log book and follow up any outstanding action;
- (vi) test the DTL to the Computerized Fire Alarm Transmission Terminal of the Service Provider and;
- (vii) carry out the maintenance required by the equipment manufacturer.

3.2.4 *Annual attention* (by registered FSI Contractor)

- (i) follow all the works required in quarterly attention;
- (ii) check each detector for correct operation and sensitivity in accordance with the manufacturer's recommendation;
- (iii) check if all cable fittings and equipment are secured, undamaged and adequately protected; and
- (iv) operate all detectors to test the ability of receiving signal by the control and indicating panel to receive signal and the ability of operating other warning devices.

Note : DTL of the system shall be isolated before testing while alarm bells may be muted after several circuit tests to reduce disturbance.

#### 4. *Maintenance of Detectors* (by registered FSI Contractor)

- 4.1 All detectors should be tested annually by using suitable sensitivity testing instrument required by the equipment manufacturer.
- 4.2 Detectors classified among field adjustable types may be either adjusted within the listed and marked sensitivity range, cleaned, recalibrated or replaced, whichever is appropriate.
- 4.3 Consideration should be given to replace detectors which have been obsolete or without manufacturers' servicing supports. Mixed use of detectors from different manufacturers in a system is not recommended.
- 4.4 Group replacement and preventive maintenance of detectors are strongly recommended.
- 4.5 The maintenance programme as recommended at BS 5839 : Part 1 should be taken as a useful reference and followed wherever applicable.

#### 5. *Certification*

Whenever a registered FSI Contractor install, inspect, repair or maintain the installation, he shall within 14 days after completion of works issue a certificate, i.e. FS 251, to the person upon whose instruction the works is undertaken and forward a copy thereof to the Director of Fire Services.

#### 6. *Unwanted Alarms*

- 6.1 The causes of unwanted alarms may be incompatible environmental changes or human activities, inherent installation problem or lack of maintenance. If numerous unwanted alarms are found, the FSI owner should co-ordinate with the registered FSI Contractor to solve the problem and take suitable action to improve the system performance.
- 6.2 To solve the problem of unwanted alarms from fire detection system, design engineer and registered FSI Contractor should carefully study and consider all possible causes of unwanted alarm based on the statistics and experience. Some of the causes are listed as follows :-

##### 6.2.1 Environmental Factor

- a. Dusty environment
- b. Fog and high humidity
- c. High air velocity
- d. Insects
- e. Transient condition

### 6.2.2 Human Activities

- a. Smoking
- b. Steam from cooking or hot shower
- c. Burning joss sticks
- d. Construction works
- e. Contractor's installation works
- f. Vehicular exhaust fume
- g. Malicious action

### 6.2.3 Installation Design and Maintenance

- a. Electrical transient
- b. Inappropriate design
- c. Defective equipment
- d. Lack of cleaning and maintenance

- 6.3 To avoid unwanted alarm due to incompatibility between the electronic characteristics of detector and the annunciation panel, make sure that the selected detector model and the panel have been tested to be compatible.
- 6.4 Analogue addressable systems, which are less likely to produce unwanted alarms caused by system failure, are recommended for buildings with complicated or extensive AFA systems to be installed.
- 6.5 The use of certain fire detection systems incorporating multi-sensor detectors, which has the potential to greatly reduce the unwanted alarms, should be considered at the design stage.

## 7. *Enquiries*

Any enquiries regarding the fire detection system can be made to the Fire Service Installations Task Force of Licensing and Certification Command at the following address, telephone, facsimile and e-mail address :-

4/F, Fire Services Headquarters Building,  
1 Hong Chong Road,  
Tsim Sha Tsui East,  
Kowloon.

Telephone : 2733 7879, 2733 4066, 2733 4068, 2733 7880

Fax No. : 2722 1915

E-mail : lcpolic2@hkfsd.gov.hk

(Rev. 8/2013)