

GUIDE TO ROUTINE INSPECTION AND MAINTENANCE OF FIRE SAFETY INSTALLATIONS

Introduction

The purpose of this guide is to assist owners/occupiers of buildings to maintain fire safety equipment provided in their premises, in good working order.

The contents of this note apply to any premises, and form the basis of a system of work, which ensures that all aspects of fire safety management are covered effectively, and as a matter of routine.

General

Fire safety installations comprise the following:

- a. Fire detection and alarm systems;
- b. Emergency and escape lighting systems;
- c. Sprinkler systems;
- d. Gaseous, foam and powder extinguishing systems;
- e. Smoke control systems, including systems using pressure differentials;
- f. Fire doors and fire door automatic release mechanisms;
- g. Evacuation lifts for persons with disabilities;
- h. Firefighting lift installations;
- i. Fire hydrants and fire mains;
- j. Portable fire extinguishers and hosereels.

It is essential for the safety of the occupants of a building that fire safety equipment is checked frequently. Although much of the checking can be undertaken by suitably trained personnel, a formal agreement should be made with the installer, the installer's agent, or an accredited servicing organisation, to provide the regular inspection and testing described in the codes for fire safety installations.

NOTE - The information given in this note has been summarised from the current BS 5839: Part 1, BS 5266: Parts 4 and 5, BS 5306: Part 2 and BS 8214. Reference should be made to these Codes for further details of both routine maintenance and inspection and testing.

Fire Detection and Alarm Systems

Daily Checks

The following should be checked:

- a. That the control panel indicates normal operation and, if any fault is indicated, that it has been logged and the appropriate action(s) taken;
- b. That any fault recorded the previous day has received attention.

Weekly Checks

The following should be checked:

- a. The ability of the control equipment to receive a fire signal and to initiate the evacuation procedure, recording which trigger device has been used, and ensuring that each zone is tested at least every three months;
- b. That any standby batteries are in good condition, and that the fuel, oil, and coolant levels of any standby generators are correct, topping up as necessary;
- c. That the reserves of paper and ink or ribbon are adequate for two weeks' normal usage.

Monthly Checks

Any standby generator should be started up (by simulating failure of the normal power supply) and allowed to energize the System for at least one hour, while the System is monitored for any malfunctioning caused by the use of the generator. After restoring the normal supply, check that the charging arrangements for the generator starting battery are functioning correctly, top up the oil and coolant levels, and fill the fuel tanks.

Three Monthly

Arrange for the quarterly inspections and tests of the fire detection and alarm systems, to be carried out by competent persons; for any defects found to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Emergency and Escape Lighting Systems:

Daily Checks

The following should be checked:

- a. That every lamp is lit if the system is maintained;
- b. That the control panel for any central battery system or generator indicates normal operation;
- c. That any fault found is logged and the appropriate action(s) taken.

Monthly Checks

Check that:

- a. After simulating a failure of the supply to the normal lighting, all luminaires and exit signs function correctly. If the standby supply is from a generator with back-up batteries, that all luminaires and exit signs function correctly even if the generator is prevented from starting;
- b. After restoring the supply to the normal lighting:
 - i. Indicator lamps or devices to self-contained luminaires or internally illuminated exit signs show that the normal supply has been restored;
 - ii. Indicator lamps or devices to central battery systems show that the normal supply has been restored, and that the charging arrangements are functioning correctly;
 - iii. The charging arrangements for any battery for starting a generator are functioning correctly, that the oil and coolant levels have been topped up, and that the fuel tanks are filled

Note: Diesel Engine Restart Tests

Diesel engines must be run for thirty minutes, or for the time recommended by the manufacturer, whichever is the longer. The engine should then be restarted using the manual start before shutting down. A check should be made on the water level in closed circuit cooling systems.

Annual

Arrange for annual inspections and tests to be carried out on self contained luminaires with sealed batteries, if more than 3 years old, by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Three Yearly

Arrange for the three-yearly inspections and tests of the emergency and escape lighting to be carried out by competent persons; for any defects found to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Sprinkler Systems:

Daily Checks

The following should be checked:

- a. Unless the connection to the Fire Service is continuously and automatically monitored, the continuity of the connections between the alarm switch and the control unit, and between the control unit and the Fire Service (usually via a remote staffed centre);
- b. Unless automatically controlled, the water level and air pressure in any pressure tank providing a duplicate supply;

and any corrective action(s) taken.

Weekly Checks

The following should be checked:

- a. Water and air pressure gauge readings on installation, trunk mains and pressure tanks, water levels in elevated private reservoirs, rivers, canals, lakes, water storage tanks, and all gauge readings and levels recorded;
- b. That each water motor alarm has been sounded for at least thirty seconds;
- c. Fuel, oil and coolant levels of diesel engines used to power automatic pumps;
- d. That automatic pumps start when the water pressure is reduced to the specified level and, if powered by a diesel engine, the oil pressure, the flow of cooling water through open-circuit cooling systems, or the water level in the primary circuit of closed-circuit cooling systems, and whether the engine will re-start, using the manual start test button;

Note: Diesel Engine Restart Tests

Diesel engines must be run for thirty minutes, or for the time recommended by the manufacturer, whichever is the longer. The engine should then be restarted using the manual start before shutting down. A check should be made on the water level in closed circuit cooling systems.

- e. The electrolyte level and density of all lead acid Plante cells and, if the density is low, the battery charger; if the charger is working correctly, ensure that the affected cells have been replaced;
- f. The operation of the mode monitoring system for stop valves in life safety installations;
- g. The continuity of connection between the alarm switch and the control unit, and between the control unit and the Fire Service (usually via a remote staffed centre) for automatically monitored connections;
- h. The correct functioning of trace heating systems provided to prevent freezing in the sprinkler system.

Three Monthly

Arrange for the quarterly inspections and tests of the sprinkler systems, to be carried out by competent persons; for any defects found to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

- a. Inspection, cleaning and corrosion prevention of sprinklers, multiple controls and sprayers.
- b. Inspection of pipe work and hangers.
- c. Electrical earthing connection.
- d. Testing of water supplies and alarms.
- e. Inspection of electrical supplies and batteries.
- f. Satisfactory operation of electrical supplies from diesel generators.
- g. Stop valves manipulated to check they are in working order.
- h. Flow switches checked.
- i. Replacement parts held as spare checked for number and condition.

Six Monthly

The following should be checked:

- a. Dry alarm valves and any accelerators and exhausters in dry pipe or tail end installations.
- b. Fire Brigade and/or collector station communication links.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received. The following should be checked:

- a. Automatic pump flow test
- b. Diesel engine fail to start test
- c. Inspection and operation of float valves on storage tanks.

Three Yearly

Arrange for the three-yearly inspections and tests of the sprinkler systems to be carried out by competent persons; for any defects found to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Fifteen Yearly Routine

Cleaning, draining and inspection of Type A and D suction tanks by a competent person.

Fire Door Automatic Release Mechanisms:

Daily Checks

Release all doors held open by automatic release mechanisms by simulation of alarm conditions.

Monthly Checks

Check (and record) the operation of the fail-safe mechanisms, either by 'breaking-out' the doorset, or by simulating failure of the mains power supply, as appropriate.

Portable Fire Extinguishers and Hosereels

Daily Checks

Check that all portable fire extinguishers and hosereels are in place and not obstructed, discharged, or damaged. Any extinguisher used in a fire, or for training, should be recharged immediately.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Gaseous, Foam and Powder Extinguishing Systems:

Weekly Checks

The following should be checked:

- a. Any pressure gauges;
- b. That all operating controls are both properly set and accessible;
- c. That all indicators are functioning;
- d. That the equipment, particularly pipe work and nozzles, is free from dust and dirt, is not physically damaged or leaking, and remains in its designated position;
- e. That the fire risk and its enclosure has not changed;
- f. That the quantity of extinguishing medium is correct and, for foam systems, that the water supply is available and at the correct pressure.

Monthly Checks

Check that all personnel who may have to operate the equipment or system(s) are properly trained and authorised to do so, and in particular that new employees have been instructed in their use.

Six Monthly

Inspection and testing is to be carried out by competent persons on extinguishing systems and for any defects found to be logged, and the necessary action to be taken, and ensure that certificates of satisfactory testing are received.

Smoke Control Systems for Means of Escape:

Weekly Checks

Simulate actuation of the System, and ensure that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), natural exhaust ventilators open, automatic smoke curtains move into position, etc.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Evacuation Lifts and Firefighting Lift Installations:

Weekly Checks

Check the operation of the evacuation and firefighting lift switch (es).

Monthly Checks

Simulate the failure of the primary power supply. If a generator provides the standby power supply, it should energize the lift(s) for at least one hour.

Six Monthly

Inspection and testing is to be carried out by competent persons on firefighting lift(s) and for any defects found to be logged, and the necessary action to be taken, and ensure that certificates of satisfactory testing are received.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Fire Hydrants:

Weekly Checks

Check that there are no obstructions impeding access, that the indicator plates are in position, and that the isolating valves are locked open.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Hosereels:

Weekly Checks

Check that water is still reaching the equipment.

Monthly Checks

Check that there are no leaks, and that drum assemblies are free to rotate on their spindles.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Fire Mains

Six Monthly

The following should be checked:

- a. That inlets, landing valves, drain valves, door hinges and locking arrangements for inlet and landing valve boxes are ready for immediate use, and that spindles, glands and washers are in a satisfactory condition.
- b. For wet mains:
 - i. Booster pumps and their associated mechanical and electrical apparatus are fully operational;
 - ii. That storage tanks are full of clean water.

Annual

Arrange for annual inspections and tests to be carried out by competent persons, any defects to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

Fire Doors

Six Monthly

The following should be checked:

- a. That heat-activated seals and smoke seals are undamaged;
- b. That door leaves are not structurally damaged or excessively bowed or deformed;
- c. That gaps between the door leaf and the frame are not so small as to be likely to bind, or so large as to prevent effective fire and smoke sealing;
- d. That hanging devices, securing devices, self-closing devices and automatic release mechanisms are operating correctly.

Electrical Inspections and Tests

Five Yearly

Arrange for the electrical system of fire safety installations to be checked in accordance with the testing and inspection requirements of the current IEE Wiring Regulations; for any defects found to be logged and the necessary action taken, and ensure that certificates of satisfactory testing are received.

FURTHER ADVICE

If you require any further advice please contact your local Fire Safety Office at one of the following addresses:

Salisbury Fire Station
Ashley Road
Salisbury
SP2 7TN
01722 439300

Or

Swindon Fire Station
Drove Road
Swindon
SN1 3AD
01793 401229

Or

Trowbridge Fire Station
Hilperton Road
Trowbridge
BA14 7TB
01225 756530