



ASTONLARK

RISK MANAGEMENT

# Fire Safety – Electrical Maintenance

## INTRODUCTION

Electricity has consistently been the second largest cause of fire in the UK. The risk of fire can be reduced if the installations are properly designed and installed in the first instance but invariably installations are subsequently modified or extended, sometimes in a manner not anticipated in the original design which may increase fire hazards. Installations can also deteriorate due to age, misuse or adverse environmental conditions.

It is therefore essential that all installations are properly installed, maintained, inspected and tested if the dangers of fire are to be avoided or minimised.

## THE LAW

The current regulations for electrical installations are British Standard 7671: 2008 Requirements for Electrical Installations, incorporating Amendment no 1: 2011 (IEE Wiring Regulations 17th Edition). Compliance with these regulations and the subsequent issue of certificates of conformity are not a legal requirement, other than in Scotland where they are included in the Building Regulations. However there is a legal duty under the Electricity at Work Regulations 1989 for all electrical installations in work places to be designed, constructed and maintained as to be safe and to prevent danger. It is likely therefore that in the event of an accident that the authorities will look at the wiring regulations as a benchmark to the standards that should be adopted.

Whilst this information sheet is not directly concerned with health and safety or legal issues, compliance with the above regulations, and following other

guidance referred to below, will go some way to satisfying your obligations under the Electricity at Work Regulations. In the event of any confusion regarding compliance with regulations, specialist advice should be sought.

## RECOMMENDATIONS

### 1. GENERAL RECOMMENDATIONS

1.1 All work involving installation, modification, testing and inspection should be carried out by a competent person who should have sufficient technical knowledge and experience appropriate to the type of installation.

1.2 If using outside contractors it is recommended that they be approved by the National Inspection Council for Electrical Installation Contracting (NICEIC) or National Association of Professional Inspectors and Testers (NAPIT). If using your own electrical engineering staff they should be suitably qualified e.g. a Joint Industry Board graded electrician or equivalent.

1.3 Best practice indicates that all installation and testing work should be in accordance with current wiring regulations and the appropriate completion certificates and periodic inspection report forms obtained.

### 2. FIXED INSTALLATIONS

2.1 Diagrams should be prepared showing all HV and the main LV distribution circuits. This will assist in identifying how all the various distribution boards and isolators are connected.

2.2 Identify and label all switchgear, control gear and protective devices. The wiring regulations require durable notices or labels to be displayed at the origin of

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every installation and certain other positions indicating the dates of the last and recommended next inspections.

2.3 Arrange for the appropriate tests and inspections as detailed in the wiring regulations to be carried out at appropriate intervals. The recommendations for frequency of testing are contained within a separate guidance note issued by The Institution of Electrical Engineers called "Inspection and Testing". The following is a brief summary of the recommended periods:

Industrial, agricultural, horticultural premises 3 years

Commercial premises, education establishments, hospitals 5 years

Buildings open to public inc. leisure complexes, restaurants, hotels, theatres 1 year

Special installations inc. launderettes, petrol stations 1 year

2.4 It should be borne in mind that the recommended intervals are maxima and that site conditions may suggest more frequent testing.

2.5 A useful technique to aid inspection is the use of thermography. Installations can be scanned in a very cost effective way portable cameras to identify hot spots indicative of incipient faults, and can be used on HV as well as LV equipment.

2.6 Records of tests should be kept including descriptions of the extent of the work, the parts of the installation inspected and details of what the inspection and testing covered. Details should also include any prevalent dangerous conditions or non-compliance with the regulations and which are likely to develop.

2.7 Any defects should be remedied as soon as possible.

### 3. PORTABLE EQUIPMENT

The wiring regulations do not cover portable equipment but faults are just as likely to cause fire as with fixed installations. There is a duty under the Electricity at Work Regulations to maintain such equipment.

3.1 Portable equipment refers to any equipment that is not part of a fixed electrical installation.

3.2 Inspection and testing need to be differentiated, as they are two separate activities. Inspection is purely an external examination of the apparatus, its lead and plug and can be done by a relatively unskilled person. Testing involves a full inspection of the equipment followed by appropriate electrical test, which needs to be carried out by a suitably trained person.

3.3 The frequency of inspection and testing is not defined in the regulations and the responsibility for this rests with the Employer. It should be determined by a risk assessment based on the type of equipment usage and nature of the environment. The more frequent or heavier the use the more risk there is of damage occurring. Experience will show what inspection and testing frequencies are suitable.

3.4 Although the regulations do not define frequency of inspection or testing, significant advice has been issued by the HSE in several publications including the following:

- HS (G) 107 Maintaining portable electrical equipment.
  - INDG 236 - Maintaining Electrical Equipment in Low Risk Environments.
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- IND (G) 164 Maintaining portable electrical equipment in hotels and tourist accommodation.

3.5 The main factors to be taken into consideration are:

- Voltage
- Nature and environmental conditions of the equipment
- Frequency of movement
- Whether hand held
- Whether double insulated (Class 2 equipment) or earthed equipment (Class 1)

3.6 Formal records do not have to be kept but would be useful so that a history can be built up. Experience of operating a maintenance system over a period of time, together with information on faults found, can be used to review the frequency of inspection and testing programmes.

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