

RISK MANAGEMENT PROGRAMME FOR ELECTRICAL INSTALLATIONS

Electrical faults are a major cause of fires in all types of properties whilst electric shock can cause death or severe injury. It is essential that installations are properly installed and adequately maintained in order to minimise the risks. Installations can be damaged by unauthorised modification, hostile operating conditions (such as wet, damp or acidic atmospheres), rodents, accidental damage, or simply ageing or wear and tear. It is therefore essential that the hazards be identified and reduced by implementing a risk management programme which should be overseen by a designated person who should ensure any required action is implemented without delay.

Any electrical work or inspections must be undertaken by a suitably qualified “competent person”.

The following information is provided for guidance purposes only

1) DESIGN

- a) Electrical installations are to be designed for their specific application
- b) Installations to be suitable for the conditions of use. Those in damp or dusty environments to be resistant to penetration by moisture or dust (“Ingress Protected” – IP) whilst those in flammable or explosive atmospheres (e.g. grain mills, paint spray booths) to be of “flameproof” construction or located outside the area of primary risk. Alternatively, installations may be “intrinsically safe”, that is designed not to contain sufficient electrical energy to initiate an explosion even under fault conditions
- c) For portable power tools, used on site or in the open, low voltage (110V) equipment supplied from a special transformer, or alternatively tools powered by rechargeable batteries, can be used.

2) PROTECTIVE DEVICES

- a) Access to isolator switches to always be kept clear in case of emergency
- b) Overload protection devices protect the installation from excessive currents arising from faults or other causes and reduce the risk of fire. These include traditional fuses which, if “blown”, are only to be replaced after tracing and rectifying the fault. Replacement fuses to be of the correct rating for the circuit
- c) In many applications fuses have been superseded by Miniature Circuit Breakers which are more precise and rapid in operation thereby offering better protection. It is recommended that fuses be replaced with Miniature Circuit Breakers
- d) Fuses and Miniature Circuit Breakers do not prevent electrocution or electric shock and so installation of Residual Current Devices should be considered. All circuit breaker devices should be regularly tested to ensure proper function.

3) UNDERGROUND OR OVERHEAD POWER CABLES

- a) Suitable and sufficient risk assessments should be undertaken before the commencement of any work which might involve a risk of electrical shock
- b) Hazardous contact with underground or concealed cables can occur during site works. The risk can be reduced by undertaking enquiries before work commences, the use of special equipment to detect cables and by trial holes
- c) Risks from overhead power lines can be reduced by not stacking goods beneath or close to them, training drivers and ensuring that suitable warnings are displayed on supporting poles or pylons and in vehicle cabs.

4) INSTALLATION AND AFTERCARE

- a) Installation and electrical testing of the fixed installation to be undertaken in accordance with the current edition of Institute of Engineering and Technology (IET) Wiring Regulations: BS7671:2008 by a member of National Inspection Council for Electrical Installation Contracting (NICEIC), Electrical Contractors Association (ECA), SELECT (Scotland) or similar approved UKAS accredited body who are regulated for commercial installations
 - i) for commercial installations the frequency of wiring inspection of the premises with IET certification is every 3-5 years in accordance with the recommendations of BS 7671:2008 or Electricity at Work Regulations 1989, or more frequently if advised by your electrician (see section 7)



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- ii) a full 100% test of the installation to be undertaken **where practical**, with appropriate visual inspections unless a previous full inspection has been completed, when a partial inspection on a rolling programme may be permitted. In such instances previous documentation to be available. Should the partial inspection reveal abnormal incidents of failure, then it will be necessary to revert to 100% inspection of the installation
 - iii) thermographic imaging, using heat-sensitive camera equipment, is increasingly undertaken to identify any “hot spots” and provide early warning of potential problems. This is particularly beneficial for high fire hazard risks
 - iv) electrical wiring/switch panels and controls directly attached to or passing through, combustible panels to be inspected annually with IET certification or be subject to at least annual thermographic inspection to detect hidden hot spots and any corrective action taken as necessary
- b) Other recommended checks include the condition and electrical resistance of insulation, earth continuity and resistance to earth
- c) Portable Appliance Testing is the periodic inspection of portable apparatus connected to a fixed installation ranging from kettles to vending machines. This is to be undertaken in accordance with the relevant Code of Practice published by the IET and whilst this is recommended at intervals between three months and four years, depending upon the risk, annual testing would be usual.

5) DOCUMENTATION – FIXED INSTALLATIONS

The following documents should be completed, usually by an accredited contractor e.g. recognised by the National Inspection Council for Electrical Installation Contracting or the Electrical Contractors Association, and kept on site;

- a) an Electrical Installation Certificate (EIC) which embraces the design, construction and testing of new installations or fundamental changes to existing systems
- b) Minor Works Certificate (MWC) covering minor additions or component replacements

- c) Electrical Installation Condition Report (EICR) in the form of a Periodic Inspection Report covering interim inspections, e.g. as stipulated in the EIC, visual checks to existing systems and sample testing.

6) DOCUMENTATION – PORTABLE APPLIANCES AND EQUIPMENT

- a) The following to be kept on site;
 - i) register of all equipment
 - ii) record of inspections and tests
 - iii) repair register
 - iv) faulty equipment register
- b) All formally tested equipment to be suitably labelled.

7) MAXIMUM PERIOD BETWEEN INSPECTION AND TESTING (IET GUIDANCE NOTE 3)

Type of installation	Inspection frequency (years)
Commercial	5
Industrial	3
Educational	5
Agriculture & horticulture	3
Offices & shops	5
Hotels & restaurants	5
Leisure complex (ex swimming pools)	3
Public houses	5
Public entertainment (subject to license)	1
Village halls	5
Fish farms	1
Swimming pools	1
Petrol filling stations	1
Temporary installations (e.g. construction sites)	3 months

IMPORTANT NOTE

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