Norwich Union Risk Services

Ref No 1025 (v6)

Safety of Electrical Installations - Guide for Residential Property Owners

Faults in the electrical wiring systems of properties account for the majority of fires and in some cases fatal electric shock accidents. Every year approximately 25 people are killed by electricity at work. In addition to these fatalities, 1000 major injury accidents are also reported. (Source HSE 2006).

Around 25% of all electrical injury accidents are caused by portable electrical equipment (PEE). Faulty electrical leads cause around 2000 fires each year.

Property owners are responsible for the overall safety of the electrical installation. i.e. fixed wiring.

Main causes of electrical faults

The two most common faults are:

- Insulation failure

The electrical insulation which covers and protects the copper conductors of cables can fail for a variety of reasons. Modern wiring is insulated with durable PVC but older installations used rubber, which can become brittle with age. This can lead to insulation breakdown resulting in short circuits. Short circuit faults can result in fires caused by the sparks and heat generated under fault conditions. Insulation breakdown could also result in metal surfaces, which are not adequately earthed, becoming "live" presenting the potential for a fatal electric shock. Damage can also be caused by vermin such as mice or rats who like to chew the insulation which when exposed can result in the faults identified above.

- Overheating

Overheating occurs when installations are overloaded, a classic example being the use of multi-adaptors or multi-socket extension leads. These are not inherently dangerous as they can be used quite safely to connect several low power items such as the home hi-fi, but they do facilitate overloading. If too many appliances are connected to an electrical circuit, excessive heat will be generated in the copper conductors which can lead to a breakdown of the insulation and a short circuit.

Work carried out by unqualified installers or tenants can also lead to the faults as described.

Installation, Inspection, Testing and Maintenance

It is important to remember that installation, inspection, testing and maintenance of new or altered electrical systems should only be carried out by a competent qualified electrical tradesmen or contractor.

The electrical installation must be installed in accordance with the Institution of Engineering and Technology (IET) Wiring Regulations 17th edition now known as BS 7671:2008.

The IET Wiring Regulations establish the accepted safety parameters for designers, installers and testers of electrical installations.

The IET Wiring Regulations have the status of a Code of Practice and whilst being non-statutory, may be used in a court of law as evidence of the standard to be achieved.

It is recommended that electrical installations are tested at least once in every 5 year period or after any additions are made to the system. Simple, visual inspections should take place more frequently.

Visual Inspection of the system will include:

- Safety
- Wear and Tear
- Corrosion
- Damage
- Excessive loading
- Age
- External influences (changes in building/occupancy)
- Suitability (e.g.of protective devices).

Periodic electrical tests will include:

- Verification of effectiveness of earthing system
- Polarity
- Earth fault loop impedance
- Insulation resistance
- Operation of devices for isolation and switching
- Operation of residual current devices, over-current circuit breakers and fuses.

A certificate showing details of the installation and the results of the tests should be issued.

Key Action Points

- Ensure that electrical installations, and any additions to existing systems, are only carried out by a competent person or contractor.

- Ensure that the electrical installation is tested at least once in every 5 year period, and a test certificate is issued

- Ensure that all electrical accessories (switches, sockets, pendants etc.) are of good quality.(Relevant BS or EN Standards)

- Respond quickly to all reported faults. Delay could result in property damage caused by fire or personal injury or death caused by electric shock.

Note:
Norwich Union policyholders can obtain competent advice and testing and inspection services through a Preferred Supplier Scheme.

Contact the Helpline for further details on 0845 366 66 66.

Reference Documents:

Memorandum of Guidance on the Electricity at Work Regulations 1989. HSE HSR25

BS 7671:2008 – Requirements for Electrical Installations (IET Wiring Regulations 17th Edition)
IET Guidance Note 3 to the 17th Edition Wiring Regulations
Electrical Safety and You - HSE Free Leaflet INDG231(L).

NURS Hardfacts:

5005: Maintaining portable electrical equipment in low risk workplaces
5027: Electrical Installations in Public Houses
5058: Maintaining portable electrical equipment
5056: Safety of Electrical Installations

HSE Electricity topic page:
www.hse.gov.uk/electricity/index.htm

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Norwich Union Risk Services operates a Risk Helpline during normal business hours for the cost of a local telephone call. The telephone number is:
0845 366 66 66
www.nurs.co.uk