



NORWOOD UK

# Electrical Safety Policy

## **1 Introduction**

### **1.1 Purpose**

**1.1.1** Electricity is the most useful source of energy throughout the world for lighting, power and data, and is used safely by millions of people on a daily basis. However if not managed correctly, or misused, it presents a serious hazard that can cause injury or death. This document sets out the company's policy for electrical safety.

### **1.2 Scope**

**1.2.1** The use of electricity is common to staff, contractors and visitors to the company. Therefore this Electrical Safety policy is applicable in part to everyone using electrical equipment in the company.

**1.2.2** This policy includes arrangements for electrical power supplies, distribution, and connection of hard-wired installations including machinery and electrical equipment; selection and procurement of electrical equipment; equipment designed and built in the company; electrical equipment in flammable and explosive atmospheres; visual inspection and testing of portable appliances; and personal equipment.

### **1.3 Equality Analysis**

**1.3.1** The company is strongly committed to equality of opportunity and the promotion of diversity for the benefit of all members of the company community. Safe use of electricity is common to all persons of any nationality, gender, age, race, disability, sexual orientation, religion / belief, pregnancy / maternity / paternity, or marriage / civil partnership. Persons with colour blindness must seek assistance when working with colour coded wiring or components.

### **1.4 Definitions**

**1.4.1** High Voltage (HV) – Voltages over 1,000 Vac or 1,500 Vdc. The company HV networks are supplied at 11,000 volts ac 3-phase. Low Voltage (LV) – Voltages below 1,000 Vac or 1,500 Vdc. The company LV systems are supplied at 415 volts ac 3-phase, and 230 volts ac single phase. Extra Low Voltage (ELV) – Voltages below 50 Vac or 120 Vdc. Reduced Low Voltage (RLV) – 110 Vac centre tapped to earth (55 Vac to earth). Portable Appliance – any portable, transportable or moveable appliance, machinery plugged in to the electrical distribution system through a socket outlet.

**1.4.2** Competence, Training and Briefing Competence is based upon training and is equipping staff (and others where the company has a duty-of-care) with relevant skills and knowledge to deal appropriately with a given health and safety situation. Briefing is informing such persons of relevant knowledge in relation to health and safety. Training and briefing will be made available in a range of formats according to the

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needs of the trainee and different groups of staff and others.

### **1.4.3 Accessibility**

The duty to make reasonable adjustments, as far as possible, to ensure that all staff (and others where the company has a duty-of-care) with a disability have equal access to everything they need to do a job or studies as those persons without a disability.

## **1.5 Legislative Context**

**1.5.1** The Electricity at Work Regulations came into force on 1st April 1990 under the Health and Safety at Work Act 1974. The Regulations impose duties in respect of all electrical systems, equipment and conductors. The Regulations require all electrical equipment and systems to be designed, installed and maintained to prevent danger “so far as is reasonably practicable”. The Electricity at Work Regulations cover all electrical apparatus whether portable or fixed, and of any voltage or current.

## **1.6 Health & Safety Implications**

**1.6.1** This forms part of the range of Health and Safety Policies created to manage the health and safety of all relevant stakeholders.

**1.6.2** The effects of electric injuries are well documented in HSE guidance. A brief summary follows.

- Electric shock resulting from current flowing through the body can cause muscular spasm, heart stoppage, breathing paralysis, and deep burns.
- Overheating cables, equipment or appliances can cause burns, fire or explosion.
- Arcing can cause very rapid UV skin burns and blindness.
- Uncertified electrical equipment in hazardous areas may cause ignition of flammable or explosive atmospheres.
- Systems and machinery can operate erratically or run out of control due to electrical faults or electromagnetic interference, causing physical injury.
- Exposure to radio-frequency electrical energy can lead to deep-seated heating of body tissue, with resulting scars or organ damage. The extent of electrical shock damage to the body depends on a number of physiological factors and environmental conditions however, higher voltages present much greater risk of serious injury or death.

## **2 Policy**

### **2.1 Principles**

**2.1.1** The High Voltage networks shall be managed by SHEQ Manager in accordance with the HV Management Plan, with all work carried out by HV Approved staff. High Voltage

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systems must only be switched or worked on by Authorised Persons and Competent Persons.

- 2.1.2** Low voltage fixed wiring installations shall be designed, installed and maintained in accordance with the statutory Regulations, British Standards, the Wiring Regulations, and established practice of the UK electrical industry. Fixed wiring installations must only be worked on by qualified electricians and engineers.
- 2.1.3** Electrical equipment procured by the company for standard use in buildings and shall be CE marked, compatible with the UK supply, and comply with the Electrical Equipment (Safety) Regulations 1994. Specialist equipment for use in explosive atmospheres, radiology and medical purposes, and lifts shall be supplied in compliance with their particular Regulations. Bespoke or innovative equipment for research which falls outside of international or national standards must nonetheless comply with the fundamental safety requirements of the Regulations.
- 2.1.4** Electrical equipment made, repaired or modified in the company must comply with the Electrical Equipment (Safety) Regulations 1994 and its design, safety and operation documented and certified safe for use by a competent electrical engineer.
- 2.1.5** Portable appliances shall be inspected and tested according to HSE and IET guidelines. Fixed electrical equipment in the building shall be maintained in accordance with a planned preventative maintenance routine.

## **2.2 Procedures**

### **2.2.1 Fixed distribution systems**

The low voltage fixed distribution systems at the company are designed, installed and maintained in accordance with BS7671, the IET Wiring Regulations. The frequency of inspection and testing is carried out to Guidance Note 3 of the Wiring Regulations for educational establishments every 5 years. The schedule of testing and the test records are held by SHEQ Manager. Fixed wiring installations must only be worked on by qualified electricians and engineers. Hard-wired plant, machinery and equipment is permanently connected to the electrical supply at 415 volts ac 3-phase. All plant and machinery shall be fitted with local isolators as required in the Wiring Regulations.

### **2.2.2 Portable Appliances**

Portable appliances must be formally inspected and tested at intervals and must display a test label indicating the test date. New appliances should be visually inspected and labelled before being put into service. The frequency of testing of portable appliances varies according to risk assessment depending upon the class of equipment and the environment in which it is used; in accordance with Table 1 of the Code of Practice for In-service Inspection & Testing of Electrical Equipment, HSE

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guidance HSG107 Maintaining Portable Electrical Equipment, and INDG236 Maintaining Portable Electric Equipment in Low-risk Environments. Portable appliance testing must be carried out by specialist approved contractors, staff who have attended recognised PAT training. PAT testers require a level of competency set out in the company's document Electrical Safety Guidance and Best Practice. Any portable appliance that fails either a visual inspection or a formal test must be disconnected, withdrawn from service, marked as 'Unsafe – Not to be used', and either made safe by a competent electrician or disabled and disposed of according to company waste disposal requirements.

### **2.2.3 Procurement of equipment**

Standard electrical equipment procured or leased new shall be CE marked for use within the EU, compatible with the UK supply voltage and frequency, and comply with the Electrical Equipment (Safety) Regulations 1994. The company in conjunction with suppliers of the equipment must satisfy themselves as to the compliance of the electrical equipment with the Regulations. Second hand equipment does not necessarily have to be CE marked.

### **2.2.4 Design, build, repair and modification**

Electrical equipment, apparatus or devices made in the company must comply with the Electrical Equipment (Safety) Regulations 1994, but does not require CE marking for use within the company. The design, safety and operation of the equipment must be documented, reviewed and certified safe for use by a competent electrical engineer. Equipment under 50 Vac or 75 Vdc is exempt. Repairs carried out in the company must restore the equipment to its original safety standard, with particular attention to insulation, electrical protection (fuses etc) and earthing. Where possible repairs should be carried out in dedicated workshops by competent persons. Modifications to equipment need to be assessed by a competent engineer to determine whether the modifications have introduced risks or hazards which were not present in the original design, and act accordingly.

### **2.2.5 Site tools**

The preferred system for use on sites is to use cordless battery powered tools, or those that operate from a reduced low voltage supply with automatic disconnection comprising a 110 Vac centre-tapped to earth (CTE) supply transformer so that the maximum voltage to earth does not exceed 55V.

### **2.2.6 Maintenance**

Electrical equipment is maintained by the SHEQ Manager. The frequency of maintenance and inspection & testing routines are defined in a planned preventative maintenance system. Damaged or defective equipment must be repaired or replaced.

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Old or obsolete equipment will be subject to planned replacement based on age and condition, as determined by a competent electrical engineer.

- 2.2.7** Disposal Equipment must be disposed of in accordance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive and where applicable the Hazardous Waste Directive. Refer to the company H&S document A – Z guidance for Hazardous Waste Management for guidance on disposal of electrical goods.

### **3 Governance Requirements**

#### **3.1 Responsibility**

- 3.1.1** Health & Safety managers are responsible for power supplies, distribution, and connection of hard-wired installations including machinery and electrical equipment throughout the company. H&S specify new electrical installation projects, and operation and maintenance of existing installations and equipment. The managers & Director are accountable for ensuring that their staff and contractors understand what they can do, and must not do, in relation to electrical distribution and electrical equipment and that staff who carry out electrical work are competent to do so. The Electrical Manager is the company's designated competent person for electrical supply and distribution systems and for equipment connected to these systems. The Electrical Manager sets the required level of competency for those working in electrical systems and inspection & testing. In addition the company has appointed named persons as competent engineers for operational control of these systems.

#### **3.1.2 Health & Safety**

Health & Safety are responsible for provision of electrical equipment and PAT inspection and testing within the company. Departmental managers are responsible for provision of electrical equipment and PAT testing in their departments. Departments also have competent electrical engineers among their staff who carry out PAT testing.

#### **3.1.3 HV Management**

The Electrical Manager is responsible for authorising works to the company's HV and LV electrical infrastructure, equipment and systems, and appointing staff. Authorised Persons. The Electrical Manager is the primary contact with the District Network Operator. Authorised Persons are qualified electrical engineers with the necessary technical knowledge, training and experience to switch HV and LV systems and work safely on them. The company's AP's are responsible for the practical implementation, management and operation of switching HV and main LV supplies in the company's Buildings.

**3.1.4** Any activity involving High Voltage networks requires strict safety rules for switching, isolation and working. The Approved Contractor shall work to their own safety rules and procedures at all times. The company's electrical Manager and HV Approved Persons may authorise works to proceed, but control of safety during High Voltage works is solely held by the Approved Contractor and rests with their AP's and Senior AP's.

### **3.1.5 Staff and Visitors**

In normal working conditions, mains socket outlets may be used safely by staff and visitors in the same manner as in their homes. However all users in the workplace and have a duty to be vigilant and report any wear or damage to plugs, sockets, switches, flexible power cords and equipment which may expose people to danger. Staff using items of personal equipment on site are responsible for ensuring that they comply with European and British Standards and they are in a safe condition to use.

## **3.2 Implementation / Communication Plan**

**3.2.1** The policy will be made available on the company Website. Electrical Safety needs to be communicated and adopted by all departments, staff electricians and engineers, and their electrical contractors. Managers should promote electrical safety among staff and encourage them to report any faults which may cause danger. Electrical faults should be communicated by telephone in emergency. Injuries should be reported to HR Department for first aid or emergency services.

## **3.4 Supporting documentation**

### **3.4.1 Electricity at Work Regulations**

The Electricity at Work Regulations 1989 came into force on 1st April 1990 and are issued under the Health and Safety at Work Act 1974. The Regulations impose duties on persons (duty holders) in respect of systems, electrical equipment and conductors, which includes fixed installations and other equipment such as portable appliances. The Regulations make no specific stipulations, but require all systems to be constructed, operated and maintained to prevent danger so far as is reasonably practicable.

### **3.4.2 Wiring Regulations BS 7671:2008 Incorporating Amendment 3:2015, `**

The Wiring Regulations', published by the IET and currently at 17th Edition. There is a long-established precedent that compliance with the Wiring Regulations may be used to claim compliance with the statutory requirements in law. These regulations set out requirements for design, testing and inspection of new LV installations, alterations and extensions, and periodic inspection and testing in maintenance.

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### **3.4.3 Electrical Installation Condition Report**

The Code of Practice for In-service Inspection and Testing of Electrical Equipment published by the IET, currently 4th Edition (2012) applies to the fixed wiring installation in buildings. Recommended frequency of inspection and testing of portable electrical appliances is set out in Table 1. The inspection and testing activity for each building is encapsulated in an Electrical Installation Condition Report.

### **3.4.4 Portable Appliance Testing**

Portable Appliance Testing provide guidance for managers, electricians and users for maintaining and inspection and test of portable, movable or transportable electrical equipment to prevent danger. Examples include power tools, office and IT equipment, cleaners equipment, domestic appliances and similar equipment used in the company and construction environments. The IET Code of Practice for In-service Inspection & Testing of Electrical Equipment provides further practice guidance.

### **3.4.5 HSE Guidance HSR 25 Guidance on the Electricity at Work Regulations – 2015.**

HSR 25 sets out the Regulations and gives technical and legal guidance on them to highlight the nature of the precautions in general terms and help dutyholders achieve high standards of electrical safety in compliance with the duties imposed.

### **3.4.6 Electrical Equipment Safety**

The Electrical Equipment (Safety) Regulations 1994 applies to manufacture of electrical equipment designed or adapted for use in the workplace between 50 and 1,000 volts ac, or 75 and 1,500 volts dc.

Signed for and on behalf of the company

A handwritten signature in blue ink, appearing to read 'Jo Shuttlewood', written over a faint, illegible background.

Jo Shuttlewood – HR Director