Persimmon

Health, Safety
& Environment
Department

Electrical Standards

Contents

1. Introduction

The purpose of these electrical standards is to give site management guidance, in relation to electrical safety on site.

The main hazards of working with electricity are:

- electric shock and burns from contact with live parts
- injury from exposure to arcing (when electricity jumps from one circuit to another, commonly known as an electric shock)
- fire from faulty electrical equipment or installations
- explosion caused by unsuitable electrical apparatus
- static electricity igniting flammable vapours or dusts
- Electrical work must only be undertaken by contractors with appropriate technical knowledge training and experience, under the authorisation of site management.

All electrical contractors must be on the businesses approved contractors list and have risk assessments and method statements in place, with copies on site, for any tasks they carry out.

These standards are aimed at the safety of workers during construction works and not the end user of the electrical installations.

All electrical works including wiring, commissioning and testing of plots must be done as per the current edition of the IEE Wiring Regulations, Building Regulations and any other electrical legislation and industry guidance; which is outside the remit of these standards.

2. Generators

Generators are sometime used to power site offices and welfare facilities, prior to a temporary build supply (TBS) being connected. Generators are also used by trades as a power source for their tools. When using generators the following guidance must be followed:

- Package generators > 10 kVA (normally up to 100 kVA) may be used to supply site offices, compounds and sales areas. They must be connected to tested fixed installations and adequately earthed / bonded.
- Small portable generators < 5 kVA may be used outdoors to power portable 110 volt / double insulated equipment and need not be earthed.
- Generators should not be used in buildings due to build-up of fumes and fire risk, particularly during refuelling.
- Drip trays should be used with all small portable generators.
- Any generator running overnight may potentially cause noise nuisance for nearby residents. Consider the use of fully canopied/ silenced generators, and/or acoustic screening between the source and a receiver of the noise.
- Ensure rainwater is removed from bunds or drip trays before it becomes contaminated.

3. Battery Power Tools

Battery operated power tools are usually the preferred option by most sub-contractors. Site management should consider supplying charging stations for contractors to use and batteries must not be charged inside plots. Damaged batteries can cause fires or explode. A portable equipment test must be carried out every 3 months.

The following guidance must be followed when charging batteries:

- Only use the original manufacturer's supplied charger.
- Always check the condition of the charger and battery before commencing charging, checking that the battery is secure in the charger.
- Do not leave on charge overnight.
- When charged, switch the charger off, then take the battery off of the charger. Do not leave charged batteries in chargers.
- Undertake regular inspections during the charging process.
- Charge in a well ventilated, dry area.
- Avoid charging in freezing conditions.
- Ensure there is sufficient fire suppression equipment available if a fire were to break out.

4. Plot isolation

Once the plot has been energised, if any electrical fittings such plug sockets or ceiling roses are not fully secured to the wall or ceiling, due to awaiting painting tiling etc. then site management must ensure that the electrician has isolated the power at the consumer unit. Power must not be switched on until the fittings have been fully secured.

5. Testing, inspection and user checks

5.1 Site offices and welfare units

Site offices and welfare units must be tested and inspected on installation (before first use) and when the unit is moved by a competent person, usually an electrician. The electrician must provide site management with an installation and test certificate.

Site offices and welfare units must have a further test and inspection by a competent person annually.

Site management must also carry out a monthly formal inspection of each unit and its components.

5.2 Portable Equipment Testing (PAT)

PAT by a qualified PAT tester must be carried out for any movable electrical equipment that can be plugged in.

For office type equipment, such as printers this should be undertaken annually.

For power tools with plugs and battery chargers, this should be undertaken every three months.

Any device that fails the test must immediately be put out of service until it has been repaired or replaced.

5.3 Formal visual inspection

An important part of a maintenance regime is the formal visual inspection by a competent such as a site manager/ supervisor. Such inspections are necessary because they can reveal most potentially dangerous faults. This formal inspection can also be a combined inspection with PAT.

As part of the visual inspection, the checker must ensure:

- The electrical equipment is being used in accordance with the manufacturer's Instructions;
- The equipment is suitable for the job;
- Whether there has been any change of circumstances;
- There is no apparent damage;
- The user has reported any issues.

For office type equipment, such as printers formal visual inspection should be undertaken 6-monthly.

For power tools with plugs and battery chargers formal visual inspection should be undertaken:
110v equipment – monthly
230v equipment – weekly

These checks should be recorded on the site managers weekly checksheet.

Refer to HSMS form 014 – Site Managers Weekly Checksheet

5.4 Pre- use checks

Anyone using electrical equipment must undertake a basic pre-use check:

- Check that the electrical equipment is suitable for the work and the way in which it is going to be used.
- Check that the electrical equipment is in good condition.
- Check that the equipment is suitable for the electrical supply with which it is going to be used, and the electrical supply is safe. It is often beneficial to use a Residual Current Device (RCD) between the electrical supply and the equipment.
- Check that they are comfortable to use the equipment and where applicable trained in the use of the equipment.
- Check that they have the appropriate PPE to wear/ use.

5.5 Summary of all testing and visual inspections

Unit/ equipment	Formal test (electrician or PAT tester)	Visual inspection (at time of formal test, interval periods by site management)
Site offices/ welfare units	Upon installation, if moved and annually	Monthly
Power tools with plugs and battery chargers	Every 3 months	110v equipment – monthly 230v equipment – weekly
Office type equipment	Annually	6 monthly

The visual inspection can be combined with a formal test.

6. Electrical shock – low voltage current

Currents used in the workplace and at home can cause serious injury. Incidents are generally due to faulty or loose switches, defective appliances or frayed flexes.

Electric shock can also be caused by handling an electric appliance with wet hands as water is a very effective conductor of electricity.

Someone suffering from electric shock may have a burn or a cardiac arrest.

What to do

- Assess the situation - Do not touch the casualty if they're still in contact with the electrical source as you are at risk of electrocution.
- Turn off the source of electricity to break the contact between the electrical supply and the casualty.
- Alternatively, move the casualty away from the source. You may be able to stand on some dry insulating material (such as a plastic mat or wooden box) and use a broom handle or wooden pole to push the casualty's limb away from the source.
- If it's not possible to break contact using a wooden object, loop some rope around the underneath of the casualty's arms or ankles and pull them away from the electrical source. Do not touch the casualty.
- Once you're sure the contact has been broken between the casualty and the electrical source, contract the site first aider to do a full assessment and treat any injuries.
- If required call 999 for emergency help.

7. Monitoring

Site management are responsible for ensuring that that electrical safety is maintained on site at all times.

The Group HS&E department will monitor compliance with these standards during routine HS&E inspections.

8. Further Reading

HSE guidance - maintaining portable electrical equipment

HSE guidance - electrical safety and you

HSE guidance - electricity at work

HSE guidance - electrical safety on construction sites