

CONTENTS

Electrical safety



What your site and employer should do for you	102
What you should do for your site and employer	102
Introduction	103
Electrical voltages	103
Using extension leads and cables	104
Electrical hazards	104

ELECTRICAL SAFETY

What your site and employer should do for you

1. Protect you from electrocution by identifying the location or isolation of mains electric, and both underground and overhead electricity supplies.
2. Agree a safe system of work and have in place a permit-to-work system.
3. Provide safe, temporary electrics and safety lighting.
4. Make sure electrical installations are inspected, maintained and certificated.

What you should do for your site and employer

1. Only use electrical tools or equipment in accordance with the agreed safe system of work.
2. Only use tools and equipment if you have had the correct training, and after carrying out the pre-use checks.
3. Use the correct equipment and personal protective equipment (PPE) in an appropriate manner.
4. Report any damage or faults.
5. Assume that any exposed cables or wires that you are working near are live, and do not start work until a permit to work has been issued.

Introduction

You can't see electricity. You can't smell it. It is dangerous and it can kill.

- There is no visible way of knowing for sure if a cable or wires are live.
- All existing underground cables should be identified from surveys and their locations checked with the use of a cable avoidance tool (CAT).
- The temporary nature of site electrical distribution systems and the possibility of them being damaged are all the more reason to be careful with electricity.
- If there are exposed cables or wires near where you are working, assume they are live, stop work and report them.
- Before you start any work, you must obtain permits to work to confirm the disconnection of any live cables.

Electrical voltages

Battery power

- Battery-powered tools are the safest option.
- The severity of any electric shock will be much lower.
- There are no trailing cables.
- A lot of sites now provide secure battery-charging lockers.

110 volt - yellow

- Electrical tools on construction sites should, ideally, be battery powered or a maximum of 110 volts.
- The standard colour code for 110 volt sockets, cables and equipment is yellow.
- You would feel an electric shock from faulty 110 volt equipment but no lasting damage should be done.

230 volt - blue

- Domestic voltage or mains power is 230 volts.
- It is commonly used for generators and electrical distribution.
- The standard colour for 230 volt outdoor use sockets, cables and equipment is blue.
- If a 230 volt cable is damaged, or if you touch the wires that make up the cable, you will get a severe or even fatal electric shock.
- 230 volt tools are not allowed on most sites.

400 volt - red

- The standard colour for 400 volt sockets, cables and equipment is red.
- It is for equipment needing a lot of power (such as a tower crane).

ELECTRICAL SAFETY



Electricity can kill. If in doubt, stop work and report any concerns to your supervisor.

Using extension leads and cables

- Extension cables and reels should be fully unwound to avoid them overheating and catching fire.
- Do not overload extension cables with too many plugs or plug adapters.
- Where possible, route cables or leads overhead. (Cables on the floor are trip hazards.)
- Use protective ramps to protect cables from being run over and prevent trip hazards if they need to be routed at floor level.
- Don't route cables across puddles or waterlogged ground.
- Get a transformer moved rather than using several leads joined together.

13

Electrical hazards

- There may be overhead power lines on site, which are only completely safe if isolated by a competent and authorised person.
- People have been electrocuted and killed when items (such as ladders, scaffold towers or mobile plant) accidentally touch or come close to live overhead power lines. Remember, objects only need to be close to overhead lines, not actually touching them, for electricity to jump (arc) and electrocute you.
- Burns, scorch marks or burning odours indicate an electrical fault.
- Damaged leads and cables, even if it is just the outer sheathing, must be taken out of use.
- If you see smoke from a power tool, switch it off and take it out of use.
- If a fuse blows, it means there is a fault. Switch off and disconnect the equipment and report it to your manager. Do not try to do any repairs (even changing a fuse), unless you are trained, competent and authorised to do so.

Protection devices

- Residual current devices (RCDs) are life-saving devices. They work by cutting the power quickly if there is a fault, preventing electrocution.
- Fixed RCDs are installed into the consumer unit and offer protection to all sockets on the circuit.
- Portable RCDs fit between the mains socket and provide an additional socket with an RCD fitted, into which the equipment is plugged. Portable RCDs only protect the individual who is using the equipment.
- Your site rules may require you to use an RCD with any 230 volt tool.

- They must be kept free of moisture and dirt and be protected against vibration and mechanical damage.
- Portable RCDs should have a combined inspection and test before first use and then every month.
- Portable RCD units should have a mechanical (trip) test before each use. You do this by pressing the test/trip button.

Portable appliance testing

- Health and Safety Executive (HSE) guidance recommends that tools, cables and equipment should be tested every three months if used on site.
- If used, the portable appliance testing (PAT) label will tell you when the last safety test was carried out. It does not tell you when the next test is due.

