

Electrical Installation & Equipment



Electrical installations

If not properly installed and maintained, a fixed electrical installation, including the distribution board (where mains electricity comes into the building) and associated wiring for power and lighting can become a fire and/or health and safety hazard.

If you're an employer, or a landlord or property owner, or you have control over a premises or part of one, you're required by law to make sure that the property, including the electrical installation, is safe for people - whether employees, tenants, contractors, visitors or the general public.

Key actions to maintain safe electrical installations

The increased frequency and significance electrical and electronic equipment play in our lives means the safety of these is essential to reduce the risk of potential harm.

This document covers [Electrical installations](#) [Electrical and electronic equipment](#)

- Understand what is required for compliance with the Electricity at Work Regulations (EAWR), then make sure your risk assessments, employee training, and 'safe systems of work' documents and processes all include risks from electrical installations.
- Get a competent person (i.e. someone with relevant qualifications, knowledge and experience for the type of installation) to carry out any maintenance or repair work, inspections or tests on the electrical installations.
- Make sure electrical installations are inspected and tested to comply with [BS 7671 'Requirements for Electrical Installations. IET Wiring Regulations.'](#)
- Confirm timeframes with your competent person after each inspection and test when the next one should be. This will normally vary between 12 months and 5 years.
- If defects are found or remedial work needed, make sure these have been prioritised (by the competent person undertaking the inspection/test), the repairs are done as soon as possible (in priority order), and with the urgency recommended.

- Keep a record of the work, as well as any inspection or test reports, and make sure a completion certificate is issued for any new work.
- A recorded system based on a risk assessment should be considered for maintaining fixed, portable and transportable electrical equipment, including extension cables, leads and plugs.
- With guidance from your competent person, make sure that the electrical installation, equipment, fittings and appliances are suitable for the “zone”, as categorised under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). Don’t let work take place on the electrical installation within such “zoned” areas, or on high voltage equipment, unless those involved are fully trained, experienced and competent to do so.
- Don’t store in electrical equipment cupboards, or on top of or within two metres of electrical distribution boards. Provide suitable guard rails or floor markings to stop this and put down insulating rubber mats in front of electrical distribution equipment.
- If you have high intensity lighting (HID), consider taking the following actions:
 - Check HID lamps are installed following the manufacturer’s instructions, in clear, dry areas, like aisles, and a good distance from combustible goods and materials.
 - Make sure they’re in protective housings that will safely contain any parts of the bulb, if it were to shatter during use; if possible, use housings made of fire-resistant materials.
- Consider using specialist infrared cameras to look at selected parts of electrical systems under load to identify hot spots and plan for preventative maintenance and repairs to machinery, plant and equipment.
 - Consider undertaking thermal imaging surveys in addition to a conventional electrical installation inspection and testing programme, based on BS 7671.
 - Allianz Engineering provides electrical testing and inspection services, including thermal imaging surveys, at special rates for Allianz Commercial policyholders.
- Review our guidance regarding electrical and electronic equipment to further develop your knowledge.

Electrical and electronic equipment

Employers have duties set out by the Electricity at Work Regulations and Provision and Use of Work Equipment Regulations (PUWER), to keep people safe, and assess and eliminate or control risks to employees and others. They need to provide resources, instruction and training so that workers are able to work safely. Workers are also responsible for making sure they keep themselves and others safe.

Too often, electrical and electronic equipment cause fires, injuries and fatalities due to a lack of protective measures and failing to maintain equipment properly.

Key actions to ensure equipment can be, and is, used safely

- Check any equipment being purchased or hired meets applicable British and international standards, while also being the best option for the job.
 - Review all options before buying and go for the safest option. Pneumatic, hydraulic or hand-powered alternatives can be safer, or there might be battery powered alternatives.
- Carryout risk assessments to determine the risk of it becoming faulty. Factors to consider include:
 - the type of equipment;
 - how it'll be used;
 - where it'll be used;
 - previous fault conditions and test results; and
 - the competence of people working on, with and around it.
- Make sure there are enough socket outlets, and they're located close to where they're needed to prevent trailing cables creating trip hazards and let the equipment work to its full potential.
- Consider using residual current devices (RCD) whenever possible. RCDs prevent electrocution and fire caused by earth faults. They can be installed within equipment (fixed), built into socket outlets or plugged into standard socket outlets (the equipment is then plugged into the RCD).
 - The preferred option is to have RCDs built into socket outlets and fixed system switchboards.
 - RCDs must be included in testing arrangements – if they're tripping frequently, action needs to be taken to investigate the cause.
 - Don't forget if an RCD trips and it's connected to the same circuits as lighting, fire alarms, etc. then they will trip too. Therefore, the placement of RCDs in the circuit needs to be carefully thought out.
- Make sure all workers carry out visual inspections of equipment before they use it, or at the start of each shift or working day to verify it's in a safe condition.
 - Put procedures in place ensuring damaged cables are replaced quickly and faulty equipment is labelled 'do not use', kept separately from the main stock and disposed of or repaired by authorised and competent individuals.
- Maintain a register for equipment, appliances and tools, including fields noting when it was used, by whom, what for and its condition.
- Put systems in place, based on the risk assessment, so fixed, portable and transportable electrical equipment, including extension cables, leads and plugs, get maintained periodically.
 - Comply with maintenance instructions from the manufacturer.
- Have visual inspections carried out by a suitably trained person when deemed appropriate by risk assessments, regulation and/or prior inspections.
- If employees are doing them, they must demonstrate their competence to perform electrical work by successfully completing a training course which includes an assessment or examination, provided by an UKAS accredited organisation and/or registered with nationally recognised electrical industry bodies.

- Get portable appliance testing (PAT) done at appropriate intervals, considering the risk each item poses, based on a risk assessment or triggered by a user check or visual inspection.
 - PAT testers aren't often skilled in electrical work, so using an appliance that gives them a 'pass' or 'fail' indication which doesn't require interpretation, can be helpful.
 - Testers who have the appropriate technical knowledge, experience and skills will use a more sophisticated instrument that gives readings that do require interpretation.
- Label equipment with the last inspection date and when the re-inspection date is or the frequency.
- Get evidence that any contractors or electricians who provide advice, inspections or carry out electrical work for (or on behalf of) your business, are registered with a reputable electrical industry body, like the NICEIC, ECA, SELECT (in Scotland), SAFed or NAPIT.
 - Keep in mind, not all electricians are competent to carry out all types of electrical work. It's the responsibility of health and safety duty holders in your business to make sure they do have relevant technical knowledge, practical skills and experience for the equipment involved.
- Confirm additional competence and experience criteria is met for people who work with testing, maintaining or inspecting specialised equipment and used for a safety critical application or in hazardous environments, including workplaces "zoned" under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR).
 - Have procedures in place for isolation and a 'Permit to Work' system in areas that are potentially hazardous.
 - In DSEAR 'zones', make sure all equipment is suitable, regardless of how good its condition is, or how experienced the user is.
- Make sure everyone carrying out checks, maintenance, inspections and tests is informed and has the right knowledge so they can recognise what is acceptable.
 - Individuals must feel able to admit when they don't know something so further assistance can be sourced.
- Take a structured, balanced and sustainable approach when assessing and managing the risks from electrical equipment. For example, precautions are appropriate for the risk and equipment doesn't get 'PAT tested' unnecessarily. This will keep things straightforward and reduce costs for unnecessary testing.
- Include dealing with electric shock incidents in first aid training.
- Install measures (like guard rails and floor markings) to prevent other items being stored with electrical equipment. This can lead to fires or damage equipment and make it dangerous to use.
- Don't forget electrical and electronic equipment includes your computer systems – failing to maintain could put your data and connectivity at risk.
- Review our guidance about electrical installations to further develop your electrical safety knowledge.