Toolbox talk

Electrical safety on site

110 V, RCDs, leads and daily checks

10 minutes

For: Anyone using power tools, leads, lighting or temporary supplies on site

Why it matters

Electricity can kill or cause serious burns, and site conditions are hard on tools and leads. Most electrical accidents on site can be prevented with the right supply, simple checks and leaving electrical work to people trained to do it.

Key points

1. Use cordless tools, or single-phase 110 V tools on a centre-tapped-to-earth supply: 55 V from each live conductor to earth.
2. In damp or wet conditions, use battery or air-powered tools where you can.
3. Use suitable RCD protection of 30 mA or less for 230 V portable tools.
4. Press the RCD test button before use. If it doesn't trip, don't use it, and label it faulty.
5. Before using a tool, unplug it and check the plug, lead and casing for damage or burn marks.
6. Never use leads repaired with tape. Damaged cables must be replaced by a competent person.
7. Keep leads out of walkways, water and traffic, and protect them from sharp edges.
8. Only trained, competent people can do electrical work, and they must follow correct isolation.

Electrical safety on site

Do

- Do the pre-use check and follow the inspection schedule. A test label alone does not prove a tool is safe.
- Take damaged tools or leads out of use and report them.
- Unwind extension reels fully so they don't overheat.
- Check for hidden cables before drilling or cutting into walls or floors.
- Switch off and unplug before changing blades, bits or discs.

Don't

- Don't use a tool with a cracked casing, bare wires or a damaged plug.
- Don't bypass, wedge or ignore an RCD that keeps tripping. It's telling you there's a fault.
- Don't use 230 V equipment on site where 110 V or battery tools can do the job.
- Don't run leads through doorways, puddles or under plant tracks.
- Don't open up or repair electrical equipment unless you're competent and authorised.

Ask the group

- Which of our tools are battery, 110 V or 230 V?
- When did you last check your leads and plugs before use?
- What do we do with a tool that fails its check?
- Where could there be hidden cables on this job?

If it goes wrong: Do not touch a casualty until the equipment and all relevant supplies are made safe. Call 999 and get a first aider. Do not approach damaged cables or metalwork. Take faulty equipment out of use and tell your supervisor.

On this site

Nearest first aider _____

Emergency assembly point _____

Site-specific hazards and controls _____

_____

Scan for the latest version of this talk online ›

Go further: HSE: Work using electrically powered equipment

Sources: HSE: Electricity in construction, systems in buildings; HSE: Work using electrically powered equipment; Electricity at Work Regulations 1989 (legislation.gov.uk).

This talk supports, but does not replace, your site-specific risk assessment, method statement, training and supervision. Free to copy and use. **tradefoxapp.com/toolbox-talks/electrical-site-safety**

Attendance register

Electrical safety on site

Site / project

Date and time

Presented by

Company

	Name (print)	Company	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

By signing, attendees confirm they took part in this toolbox talk and understood the key points. Keep this record with your site safety file.

Presenter signature

Follow-up actions

Scan for the latest version of this talk online ›

Go further: HSE: Work using electrically powered equipment

Sources: HSE: Electricity in construction, systems in buildings; HSE: Work using electrically powered equipment; Electricity at Work Regulations 1989 (legislation.gov.uk).
This talk supports, but does not replace, your site-specific risk assessment, method statement, training and supervision. Free to copy and use. **tradefoxapp.com/toolbox-talks/electrical-site-safety**

Quick check

Electrical safety on site

Tick one answer for each question. Your presenter has the answers.

Name _____ Date _____

1. On single-phase 110 V centre-tapped-to-earth, what is each live to earth?

- [ ] 110 V
- [ ] 55 V
- [ ] 230 V

2. What should an RCD's tripping current be for personal protection?

- [ ] Not more than 30 mA
- [ ] 300 mA
- [ ] 3 A

3. The RCD keeps tripping. What do you do?

- [ ] Wedge the switch on
- [ ] Stop and get the fault checked
- [ ] Plug into a different socket and carry on

4. You find a lead repaired with insulating tape. What now?

- [ ] Use it carefully
- [ ] Take it out of use and report it
- [ ] Add more tape

5. What is the pre-use checking rule in this toolbox talk?

- [ ] Before every use
- [ ] Once a year
- [ ] Never

For the presenter

Answers and sources

Quick check answers

1. 55 V

Single-phase 110 V centre-tapped-to-earth is 55 V to earth; a three-phase 110 V system is different (about 64 V).

2. Not more than 30 mA

Use a suitable RCD rated 30 mA or less for additional protection. It cannot protect against every electric shock or replace safe equipment.

3. Stop and get the fault checked

An RCD trips because of a fault. Never bypass it. Get the system checked.

4. Take it out of use and report it

Taped repairs aren't safe. Damaged cable should be replaced by a competent person.

5. Before every use

Check before every use. Formal inspection and test intervals follow a risk-based maintenance plan; there is no universal annual PAT requirement.

Sources

- HSE: Electricity in construction, systems in buildings
  https://www.hse.gov.uk/construction/safetytopics/systems.htm
- HSE: Work using electrically powered equipment
  https://www.hse.gov.uk/electricity/electricequip.htm
- Electricity at Work Regulations 1989 (legislation.gov.uk)
  https://www.legislation.gov.uk/uksi/1989/635/contents

> **Presenting tips:** keep it to about 10 minutes, use real examples from your site, ask the group questions rather than reading everything out, and record attendance on the register.

This talk supports, but does not replace, your site-specific risk assessment, method statement, training and supervision. Free to copy and use. **tradefoxapp.com/toolbox-talks/electrical-site-safety**

Check it. Every time.

1. Battery or 110 V tools
2. Test the RCD before use
3. Damaged? Take it out of use

Electrical safety on site toolbox talk

Scan to read the full talk, free from Tradefox.
tradefoxapp.com/toolbox-talks

Check it. Every time.

1. **Battery or 110 V tools**
2. **Test the RCD before use**
3. **Damaged? Take it out of use**

Electrical safety on site toolbox talk

Scan to read the full talk, free from Tradefox.
tradefoxapp.com/toolbox-talks

Sources and qualifications

Electrical safety on site

Scope: Great Britain safety legislation unless a nation is identified. Northern Ireland has separate legislation. Site rules can be stricter than minimum legal duties; use the site assessment, instructions and competent supervision.

A4-related review: temporary construction installations need competent design using the applicable requirements, including Section 704 where in scope. Select RCD type/protection for the actual loads; an RCD cannot substitute for sound equipment or correct isolation.

A4 basis: published IET guidance on BS 7671:2018+A4:2026. The full licensed standard was not available for clause-by-clause verification. This is an editorial/source review, not installation certification. IET: current edition.

S1. HSE HSG141: Electrical safety on construction sites

Site supply design, battery/reduced-voltage hierarchy, single-phase 55 V versus three-phase 64 V to earth, correct isolation and maintenance; key points and quiz.

https://www.hse.gov.uk/pubns/priced/hsg141.pdf

S2. HSE: Electrically powered equipment

Suitability, 30 mA additional protection limitations, checks, leads, damp/conductive environments and RCD testing; Do/Don't and quiz.

https://www.hse.gov.uk/electricity/electricequip.htm

S3. HSE: Portable appliance testing FAQs

Risk-based inspection/testing, no universal annual PAT rule, labels not proof of safety; quiz 5 and presenter notes.

https://www.hse.gov.uk/electricity/faq-portable-appliance-testing.htm

S4. IET: Isolation and switching devices (2026)

A4 context: suitable isolation devices, all sources and isolation versus functional switching. Electrical design remains the competent designer's task.

https://electrical.theiet.org/wiring-matters/years/2026/110-july-2026/protective-isolation-and-switching-devices-explained-electrical-safety-guide/

Presenter qualification: The before-every-use check here is a site rule. Formal inspection and testing follow a risk-based plan. Ordinary RCD protection is not enough for every conductive, wet or explosive location.