
Electrical Safety

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An overview of:

Underground cables & overhead lines

Temporary Site supplies

Portable equipment

Safe Isolation

Underground cables



Excavation work should be properly managed to control risks, including:

Planning the work

Using cable plans

Cable locating devices

Safe digging practices

Cable locating devices



Cable locating devices



Safe digging practices

- **Cables move- depths not as expected**
- **Dig alongside - not above**
- **Supervision of Mechanical equipment**
- **No hand held power tools within 500mm**
- **Curved edged tools- spades and shovels**
- **Use locators throughout**
- **Support joints**

What can happen



A worker suffered deep burns after he hit an 11,000 volt cable when excavating using a road breaker

A labourer received burns to his torso and arm when he damaged a 415 volt electrical supply.

5 gas pipes and 1 electricity cable were struck using a mechanical digger

A 42 year old labourer sustained 50% burns to total skin area when he struck an underground 11,000 Volt electric cable with a pneumatic impact mole. He died 9 days later in hospital from pulmonary oedema secondary to burns ("shocked lung").

HSG47 is HSE's key guidance document for work near all underground services, electricity, gas, water, etc. It applies to both HV and LV cables.



**HSG47 (Third edition).
Published 2014**

Overhead lines



Overhead lines - Guidance

Avoiding danger from overhead power lines – GS6 (HSE Website)

Working safely near overhead electricity power lines – AIS8 (HSE Website)

Look out Look up (Energy Networks Association)

Working in the vicinity of overhead lines (Energy Networks Association)

Temporary Site supplies



Temporary Site supplies

This is the cabling system and equipment installed to distribute and supply electricity to points of use at the various locations on the site during the construction phase.

Temporary site supplies

All wiring on site should be installed to the appropriate standards,

BS 7671 Requirements for electrical installations

BS 7375 Code of practice for distribution of electricity on construction and building sites.

Portable equipment



Portable equipment

There are no specific requirements in EAWR for portable electrical equipment. Any piece of electrical equipment must be compliant with;

Regulation 4(1) – construction, and

Regulation 4(2) – maintenance.

Portable equipment - Guidance

HSG107 provides guidance for maintaining portable equipment. It covers equipment that is connected to the fixed mains supply or a locally generated supply.



Safe isolation



Isolation means disconnect and secure to prevent inadvertent re-energisation.

Safe isolation-Electrical Safety Management

Energising incomplete installations

- **Avoid energising until all circuits are complete and have been inspected and tested**
- **If live services are required before all circuits are completed the contractor should receive a written request from the principal contractor.**

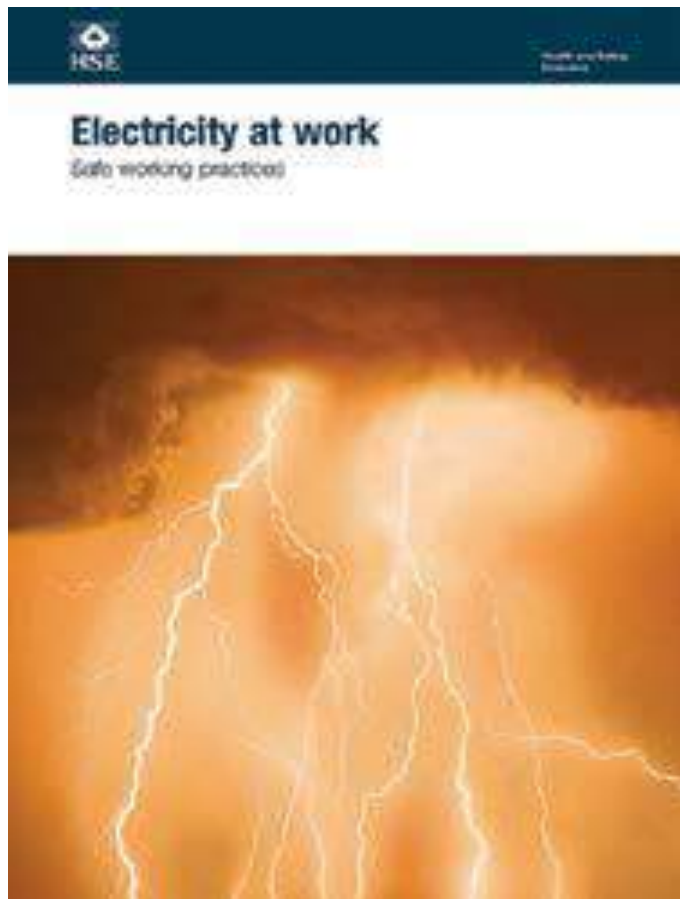
Safe isolation-Electrical Safety Management

- **Prior to energising:**
- **You should not be working on or near uninsulated live conductors on grounds of convenience, or saving time or cost.**
- **Make sure everyone on site is aware of any live circuits by displaying danger notices.**
- **People entering completed and energised areas must be aware of their extent and assume all services are energised**

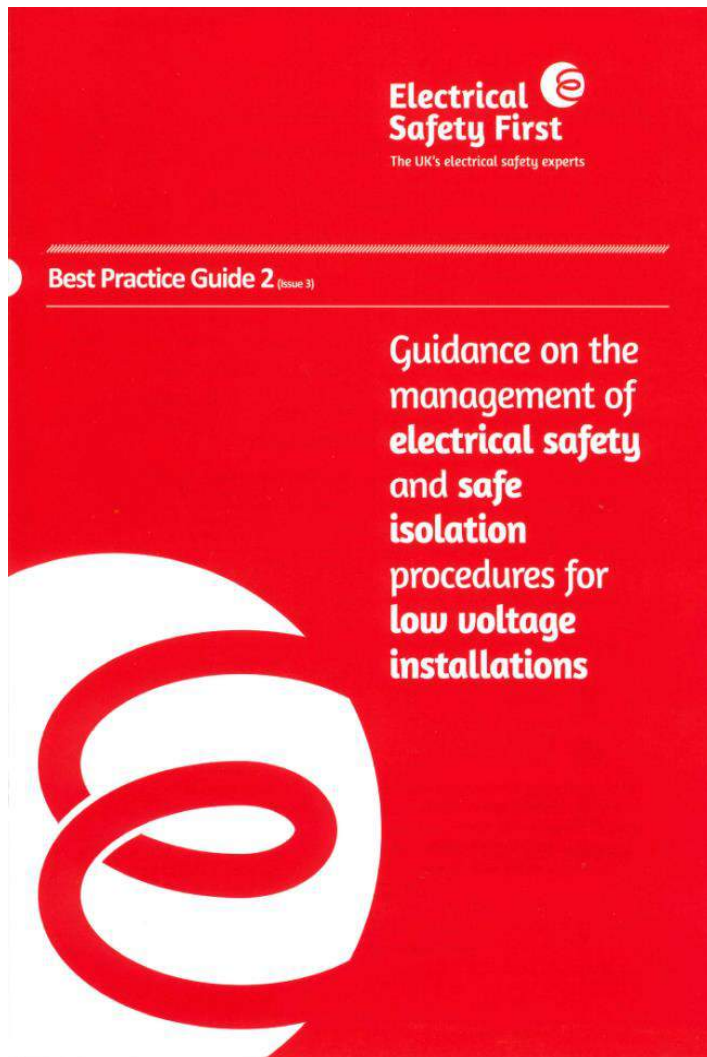
Safe isolation-Electrical Safety Management

- **Electrical contractor must inform principal contractor when they intend to energise.**
- **Contractors should advise employees at site inductions and toolbox talks.**

Safe isolation



HSG85 – Electricity at work Safe working practices provides guidance in the key elements to consider when devising safe working practices and is for people who carry out work on or near electrical equipment.



This document provides guidance relevant to circumstances where work is being carried out in the presence of other trades and to sites where more than one electrician is employed.

(Available free to download ESF website)



**Not acceptable as a
point of isolation.**