

# Electricity at Work Regulations 1989



## Systems and Equipment

The **Electricity at Work Regulations (EAWR)** are made under the **Health and Safety at Work Act 1974**. The Health and Safety at Work Act applies principally to employers, the self-employed and employees, including trainees.

Duties are imposed on people (referred to in the EAWR Guidance on Regulations HSR25 as “**duty holders**”) in respect of systems, electrical equipment and conductors, and in respect of work activities on or near electrical equipment.

### Reg 4

#### Regulation 4 System construction, maintenance, work activities and protective equipment.

Requirements for Regulation 4 have been subdivided into Regulations items 4 (1) to 4 (4).

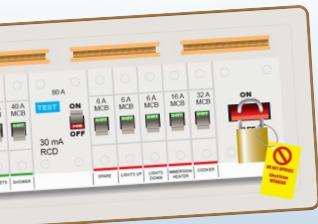
### 4.1

#### Regulation 4 (1) covers construction and states:

“All systems shall at all times be of such construction as to prevent, so far as is reasonably practicable, **danger.**”

The use of the word ‘**construction**’ has wide-reaching application from the design, installation, initial verification (inspection and testing), maintenance and periodic inspection and testing throughout the life of the electrical system.

This consideration also should take into account any likely or reasonably foreseeable conditions during the operation by the users of the electrical system.



- 1 Manufacturer's rating of equipment ✓
- 2 Likely load and fault conditions ✓
- 3 Suitable protective devices ✓
- 4 Fault levels at supply point ✓
- 5 Equipment and protective devices ability to handle fault conditions ✓
- 6 Fault levels from connected equipment ✓
- 7 Environmental equipment effect on equipment ✓
- 8 Users requirements ✓
- 9 Systems risk for adjacent work activities and public ✓
- 10 Future maintenance, commissioning and testing or other work ✓

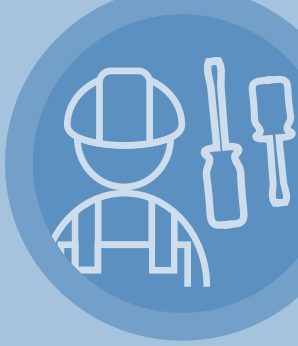
This list is not exhaustive

4.2 ✓

### Regulation 4 (2) covers maintenance:

The need for maintaining the electrical system to ensure safety as opposed to the maintenance activity which is required to be carried out safely and states:

“As may be necessary to prevent danger, all systems shall be maintained to prevent such **danger**, so far as is reasonably practicable.”



4.3 ✓

### Regulation 4 (3) covers work activities:

Including those directly or indirectly associated with any electrical system:

“Every work activity, including operation, use and maintenance of a system and work near a system, shall be carried out in such a manner as not to give rise, so far as is reasonably practicable, to **danger**.”



Maintenance activities should be considered and controlled to **remove danger so far as reasonably practicable** to maintain all parts of the electrical installation and the electrical equipment are safe for use within the installation.

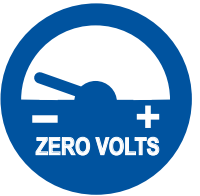
An essential part of any preventative maintenance programme, is the use of **inspection of the electrical systems** and, where necessary testing of the installation and the equipment.

The frequency of preventative maintenance is the **responsibility of the duty holder** subject to reference to manufacturers' guidance, local authority and/or insurance requirements or the experience of competent electrical personnel.



Further details on this have been provided within **Regulations 12 to 16** for work on or near an electrical system.

For electrical work, the conductors of the system being worked on should be **made dead**. This requires isolation of the system prior to the proposed area of work on the electrical system. Safe isolation requires required locking off with a means of securing to prevent inadvertent re-energisation.



**Verification of this isolation process must be carried out to ensure that the conductors have been made dead. See ESR 12 steps to safe isolation.**



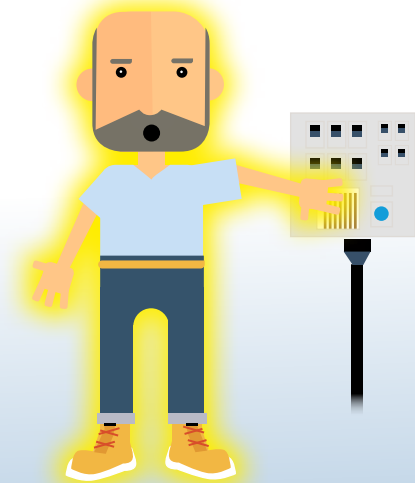
The **retention of records** of the original electrical installation and equipment including manufacturers' guidance, electrical design and certification is recommended to allow the dutyholder to evidence that the electrical system continues to meet the parameters as set out in the initial installation.



When maintenance is carried out these documented work programmes and procedures should form part of the ongoing records.

Persons carrying out operation, maintenance and testing of electrical systems and equipment **must be competent** in the range of tasks to comply with the requirements for the safety of all persons.

**The requirements for electrical safety extend to areas where persons may not be directly involved in the electrical installation or equipment. One example of this is the excavation near to buried electric power cables or overhead lines.**



**British Standards Codes of Practice provide guidance on maintenance of electrical equipment.**

**BS 7671 provides advice on the inspection and testing for those parts of the fixed electrical installations.**



4.4 ✓

**Regulation 4 (4) covers specialist equipment:** equipment associated with any of the work activities such as insulating tools, protective clothing or equipment and states:



“ Any equipment provided under these Regulations for the purpose of protecting persons at work on or near electrical equipment shall be suitable for the use for which it is provided, be maintained in a condition suitable for that use, and be properly used. ”

**This Regulation requires that any protective equipment shall be:**



- a Suitable for use ✓
- b Maintained in that condition ✓
- c Properly used ✓

This is an **Absolute** and any such protective equipment must conform to the requirements of Regulation 4 (4). ✓

“

**In summary...**

The application of **Regulation 4** requires the duty holder to demonstrate that the electrical installation, equipment and systems are designed, constructed and maintained for the safety of those using the system and for those working on or near any electrical equipment.

Although the **dutyholder** (person/organisation) is ultimately responsible for electrical safety compliance, each person involved in every step of the development of the electrical installation from design, installation, inspection and testing and maintenance must also meet the requirements of **Regulation 4**. ”



This leaflet aims to provide a summary of the full regulations which are available to view [here](#). This leaflet alone should not be relied upon for compliance.

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