

ELECTRICAL SAFETY

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SELECT

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Scope

- Who we are
- Main hazards of electricity
- Legislation
- Industry Guidance
- Exactly what is an electrician?

Who we are:

- The trade association for Electrical Contractors in Scotland
- Formed in 1900 as the Electrical Contractors' Association of Scotland
- Over 1200 members, 15,000 operatives, 2,500 apprentices, £1bn turnover
- 40 staff – based at The Walled Garden, Bush Estate, Midlothian



Main Hazards of Electricity



- Electric shock and burns from contact with electricity
- Exposure to electrical arcing
- Fire from faulty electrical equipment or installations
- Explosion due to electrical equipment or static electricity igniting flammable vapours or dusts

Main Hazards of Electricity

Electrical installations deteriorate due to a number of factors !

- Age
- Mechanical Damage
- Corrosion
- Wear and Tear
- Misuse
- Excessive Electrical Loading
- Adverse Environmental influences

Electric shock

Contact with Live Parts can result in:

- Shock leading to cardiac arrest and death (electrocution)
- Non-fatal shock can cause other injuries
- Current flowing through the body can cause deep burns
- **Current flowing through the body will depend upon the voltage & resistance of the circuit, including body resistance**

Range of Voltage in UK

- Extra Low Voltage (ELV) up to 50 V a.c. or 120 V d.c.
- Low Voltage (LV) exceeding ELV but not exceeding 1000 V a.c. or 1500 V d.c.
- Nominal Voltage in the UK is 230 V a.c.

Electric Shock

- Ohms Law $I = V/R$
- Body resistance is in the range 1000-2000 ohms at 230V
- $230/1000 = 230\text{mA}$
- When someone receives an electric shock?
Switch off the power then send for assistance

Fire can result from:

- Wiring faults
- Defective insulation
- Bad connections
- Overheating due to thermal insulation
- Faulty equipment

The consequences !

- Worst case - a fatality or significant damage to building structure and significant costs incurred by the building owner and their insurer.



Shower

Sockets

Kitchen
sockets

N

L

Fire from faulty equipment



Legislation

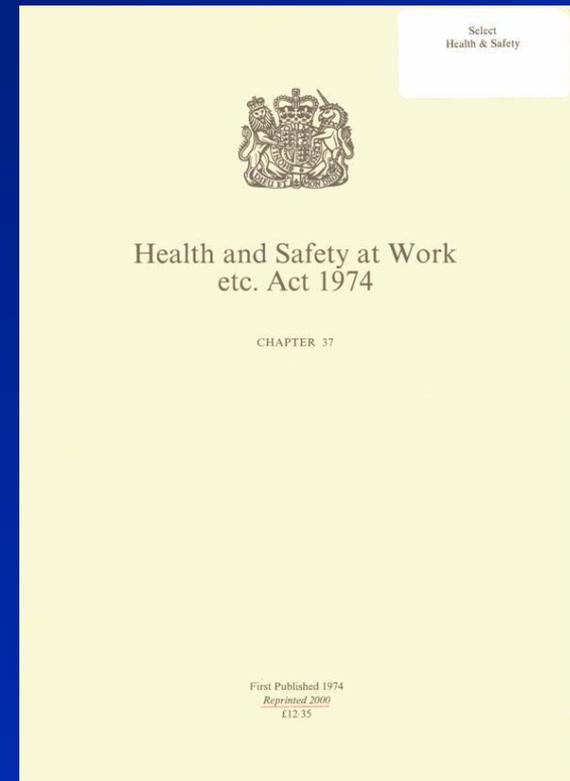
- There are Statutory Regulations relating to the use and maintenance of electrical installations and equipment in the workplace and other types of installation e.g rented properties
- Legislation is goal-setting i.e. not prescribing specific measures to be taken



**KEEP
CALM
AND
OBEY
THE LAW**

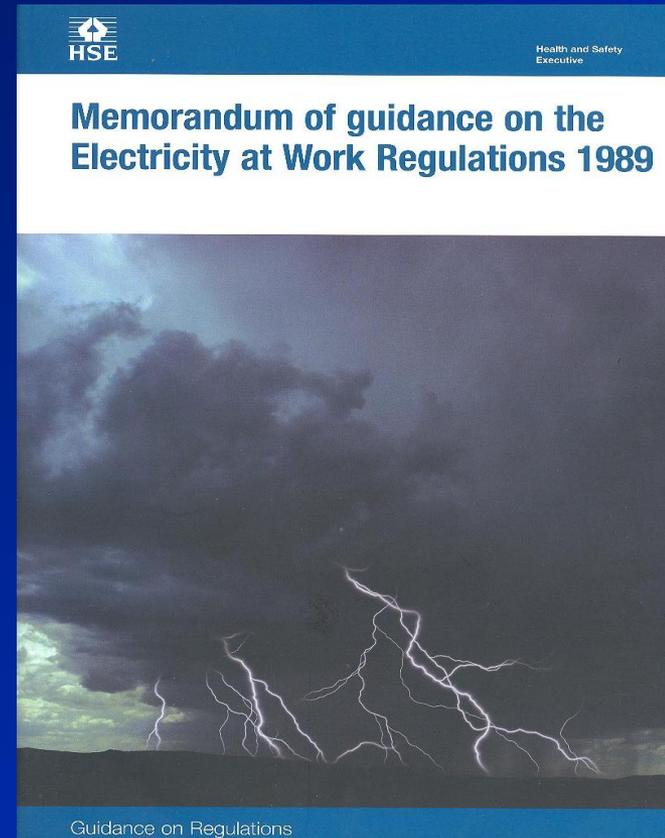
Legislation

- The Health and Safety at Work etc. Act 1974 places a duty on employers to ensure the safety of all persons using work premises and includes safe plant and systems of work !



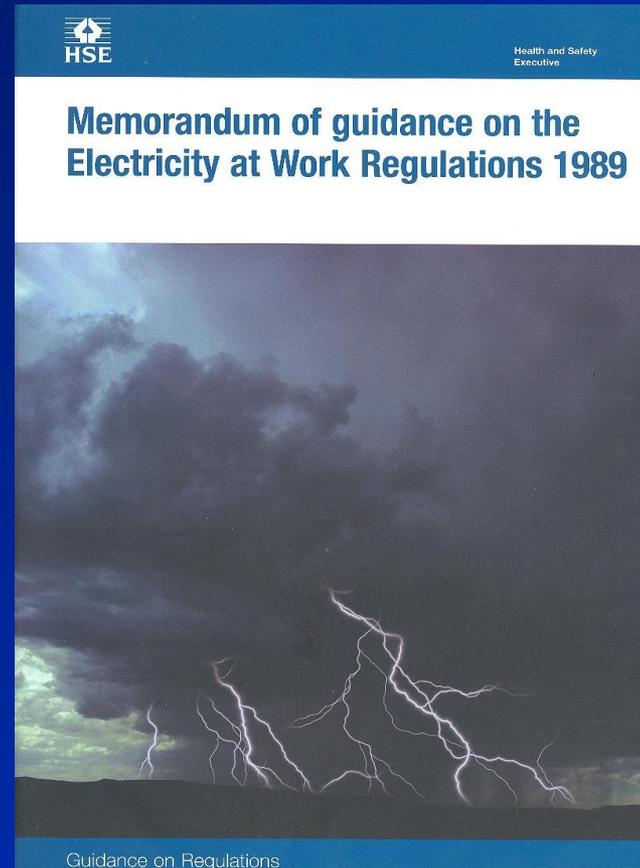
Legislation

- Regulation 4 (2) of The Electricity at Work Regulations 1989 requires all electrical systems including appliances to be regularly maintained.



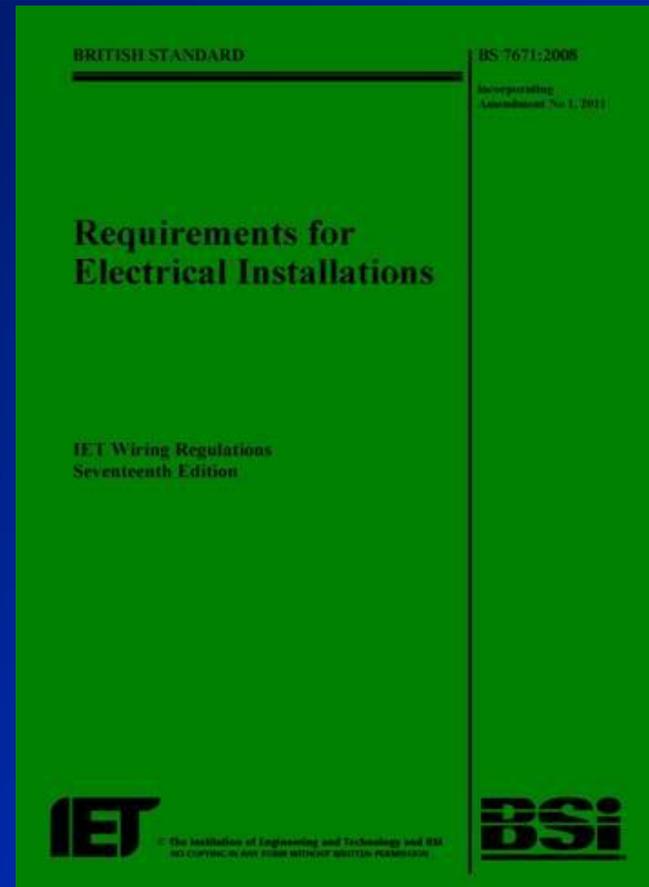
Legislation

- **HSR25** states that compliance with BS 7671 (IET Wiring Regulations) current at the time the installation was carried out is likely to achieve compliance with the EAW Regulations



Industry Guidance

- The fixed electrical installation in a building should be designed and installed in accordance with BS 7671 and other relevant CoP



Exactly what is an Electrician?

- The Electricity at Work Regulations 1989
Regulation 16

“No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate injury, unless he/she possess such knowledge or experience or is under such degree of supervision as may be appropriate having regard to the nature of the work”

Exactly what is an Electrician?

- Persons undertaking electrical work require to be competent or under the supervision of such a person
- Competence requires a mix of training, education or relevant experience to work safely
- Personal attributes such as the individuals general approach to work, sense of personal responsibility, integrity and maturity are also important

**ANYONE CAN CALL
THEMSELVES
AN ELECTRICIAN**

Any Questions?

