

Electricity in the Workplace

Frequently Asked Questions

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This briefing is UK legislation specific.

Did you know that...

The use of electricity in the workplace is subject to 'The Electricity at Work Regulations 1989'

Information on the Electricity at Work Regulations 1989 is contained in the IET Health and Safety Briefing 34a

- <http://www.theiet.org/factfiles/health/hsb34a-page.cfm>

Further information is provided below on some common questions raised by the Regulations.

Portable Appliance Testing - Maintenance

The routine inspection and testing of portable electrical appliances (or equipment), especially those used in severe environments such as building sites, is an important safety requirement.

There are no set statutory periods for testing and the testing regime should be appropriate to the environment and duty for which the equipment is used. In low risk environments, for example, normal office accommodation, testing with a "PAT" (Portable Appliance Tester) will be less frequent than in a harsh industrial environment. The most important monitoring of such appliances is visual inspection. The user of the equipment should be trained in what to look for:- damaged plug tops, faulty cords, fractured appliance casings, etc. A record of training for users would also be a good idea. The HSE strategy suggests user checks, backed up by formal visual inspection and combined inspection and test.

The IET, with the support of the HSE, has prepared guidance, including suggested initial frequency of inspection and testing of equipment in a 'Code of Practice (CoP) for In-service Inspection and Testing of Electrical Equipment'. A description of the CoP and table of contents is at

- <http://www.theiet.org/publishing/wiring-regulations/> and linked pages.

The HSE has also published a series of leaflets on electrical safety in the workplace, maintaining portable appliances in offices and hotels, HSE Guidance Note HS(G)107 Maintaining Portable and Transportable Electrical Equipment ISBN 9780717628056:

- <http://www.hse.gov.uk/pubns/books/hsg107.htm>

This is accompanied by a leaflet:

- INDG236 ISBN 0717612724 <http://www.hse.gov.uk/pubns/indg236.pdf>

These are available on request, see <http://www.hse.gov.uk/pubns/elecindx.htm> for details.

Earthing and Bonding - Design

The IET Wiring Regulations requirements for Earthing and guidance is given in the IET Guidance Notes No5 "Protection Against Electric Shock", IET GN 5, 7.2

- <http://www.theiet.org/publishing/books/wir-reg/19282.cfm>

Information on Bonding is also provided but one paragraph in particular is important:

- "There is no single answer to the bonding of extraneous-conductive-parts, each situation has to be considered on its own merits..."

Work with Electrical Equipment

The Electricity at Work Regulations 1989 has a requirement in regulation 14 that:

No person shall work on or so near any live conductor that danger may arise unless -

1. It is unreasonable in all the circumstances for it to be dead; and
2. It is reasonable in all the circumstances for the person to be at work on or near it while it is live; and
3. Suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury.

- HSE HS(R)25, ISBN 9780717662289: <http://www.hse.gov.uk/pubns/books/hsr25.htm> expresses a strong preference for dead circuit working. Exceptions to this requirement must be very carefully considered before permitting work on live equipment.

Use of 110V or 230V Equipment and Supplies

For many years, the use of 110V CTE (centre tap earthed) has been encouraged in harsh environments such as construction sites. This was largely a UK initiative, but in the rest of Europe, systems of working with 230V have been established. If responsible individuals decide to stipulate that reduced voltage is to be used it must be made clear that the requirement is dependant on the environment and is therefore a site decision. The use of 110V CTE and other low voltage systems in the UK is not compulsory under the law but has long been recognised as good practice in harsh environments. Guidance on reduced low voltage systems and extra low voltage systems is provided in BS 7671.

Testing and Fault Location

The rule of thumb is that only diagnostic testing should be done with circuits live. Fault finding itself should preferably be done with the circuits dead and isolated - but can sometimes be conveniently performed using extra-low voltages, that is using voltages not exceeding 50V ac or 120V dc.

Such work should be planned in detail; all persons involved should be competent and trained in their tasks; and the affected area should be effectively controlled.

Futher information

- For more general guidance see the HSE booklets Safety in Electrical Testing at Work INDG354 ISBN 0717622967: <http://www.hse.gov.uk/PUBNS/indg354.pdf>
- and Electrical test equipment for use by electricians GS38, ISBN 9780717608454: <http://www.hse.gov.uk/PUBNS/books/g38.htm>
- Additional information can be found on the Health and Safety Executive's Electrical Safety at Work website: <http://www.hse.gov.uk/electricity/>

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