

Wilkins Safety Group

Weekly Update Newsletter

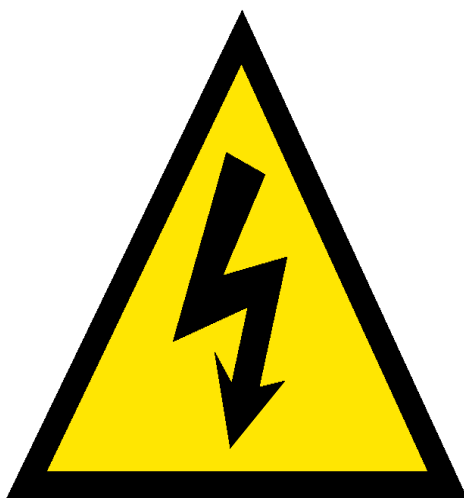


Welcome to this issue - Friday 29th April 2011 - of our Update Newsletter

Please feel free to forward this newsletter to colleagues and friends.

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Electricity at work



THE ELECTRICITY AT WORK REGULATIONS 1989

Due to last week's holiday, we didn't produce our newsletter. However this week, even though another holiday, we have watched the Royal wedding and then written this piece.

INTRODUCTION

1 The Electricity at Work Regulations 1989 (EAW Regulations). This newsletter aims to highlight the key issues on inspection and enforcement as used for inspectors. It is not comprehensive; if you have any questions do email info@jonwilkins.co.uk

2 Practical guidance on the regulations is given in the Memorandum of guidance on the Electricity at Work Regulations 1989 HS(R)25

GENERAL

3 (1) The majority of the regulations are directed at hardware requirements. Installations are required to be of proper construction; conductors must be insulated or other precautions taken; there must be means of cutting off the power and means for electrical isolation. The hardware requirements are complemented by a group of

regulations stating principles of safe working practice. Regulation 14, which covers live working, is of particular importance.

(2) The scope of the EAW Regulations is limited by the definition of danger and injury solely to risks arising from an electrical source and does not include, for example, control-system faults and consequent hazards such as aberrant machinery behaviour.

(3) The EAW Regulations revoke a number of specific regulations, but a number remain which either overlap or appear to overlap, for example

- (i) the Electricity Supply Regulations 1988
- (ii) the Low Voltage Electrical Equipment (Safety) Regulations 1988 (made under the Consumer Protection Act 1987);
- and
- (iv) the Cinematographic (Safety) Regulations, 1955.



ENFORCEMENT

4 (1) There is no expectation that inspectors should change their general approach to enforcement. However, particular attention should be paid to the enforcement of reg 14. (Work on, or near, live conductors).

(2) In situations where the 1908 Regulations previously applied or where HSW Act was used, inspectors should now enforce the EAW Regulations.

(3) There should be no difference in enforcement between situations in which no specific regulations previously applied and those which were regulated

(4) Nothing is required by the EAW Regulations which is not already the norm in the best undertakings.

(5) The EAW Regulations will apply to electrical work in domestic premises. Such work will fall to HSE to enforce.

(6) Expert assistance to prove the presence of electricity should not be necessary when contemplating enforcement action. Circumstantial evidence should suffice to indicate that electricity is present and that the EAW Regulations apply. Such evidence could include:

- (i) that the equipment carried a plate indicating that it worked at mains voltage;

- (ii) that the equipment was connected to a supply via a 3-pin plug;
- (iii) that the premises were supplied with electricity for lighting which was working; and
- (iv) that a person on the premises paid an electricity bill.

In court, an expert witness should be able to use such evidence to express a professional opinion as to the dangers which were present or likely to occur.



(7) It may also be possible to use an on-site electrician to measure voltages and use his or her measurements in evidence.

(8) An improvement notice may be appropriate if conductors are inadequately protected against damage; for example, not routed through conduit, tubing or armouring in premises where the risk of physical damage is apparent. In particularly arduous conditions, e.g. construction work, stronger action may be considered.

(9) Exposed and accessible live conductors or a lack of earthing could justify a prohibition notice. Lack of earthing can only be proved by measurement; simple observation is never adequate.

INTERPRETATION (Reg 2)

5 (1) The definitions of danger and injury are linked but distinguished to accommodate those circumstances when persons must work on or so near live equipment that there is a risk of injury, i.e. where danger is present and cannot be prevented.

(2) Danger includes danger to the public.

(3) The definition of electrical equipment excludes items which only generate electricity adventitiously, e.g. as static.

(4) Earthing and isolation are defined in regs.8 and 12 respectively.

DUTIES (Reg 3)

6 (1) Regulation 3 imposes duties only on employers, employees, the self-employed, and mine or quarry managers. In other cases HSW Act ss.3 and 4 will apply.

(2) All duties are limited by the phrase "to matters which are within his control", apart from reg.3(2)(a) which is similar to HSW Act, s.7(b). Some large industries tend to produce written rules which clearly define the extent of an individual's control but it will often be the case that there is overlapping liability where several individuals and/or bodies corporate are duty holders.

SYSTEMS, WORK ACTIVITIES AND PROTECTIVE EQUIPMENT (Reg 4)

7 (1) Regulation 4 acts as a catch-all requirement.

(2) Due to the broad definition of system (reg. 2), reg. 4 covers almost every conceivable electrical danger: from an exploding lithium battery in a calculator to the output side of a power station.

(3) Systems in vehicles are covered by reg. 4, but note should be taken of reg. 32 in relation to ships, aircraft and hovercraft.

(4) Regulation 4(3) embraces all work which could lead to electrical danger, although such work may not be associated with an electrical system. This would include work in the vicinity of electrical equipment and insulated or uninsulated conductors. The requirement does not limit proximity to conductors, live or dead, but rather regulates the work activity so as not to give rise to danger.

(5) Regulation 4(3) is almost always applicable to work on or near underground cables, in which situations the standards of the Construction (GP) Regulations, reg. 44 should be maintained, via electrical isolation by disconnection and secure separation from sources of electrical supply. However, reg. 14 should be used if there has been a failure to switch off the supply to such cables before undertaking work. That said, the circumstances of each case will dictate which regulation should be used.

(6) The duties in reg. 4(4) are not qualified by 'so far as is reasonably practicable' and link with reg. 14(c) ensuring that protective equipment provided is always suitable for the purpose.

STRENGTH AND CAPABILITY OF ELECTRICAL EQUIPMENT (Reg. 5)

8 (1) The assigned rating of electrical equipment represents the extent to which it may be used in an assessment of the adequacy of equipment strength and capability in foreseeable conditions of actual use; but may not necessarily represent all factors to be considered. A technical judgement by a competent person will often be needed to determine adequacy.

(2) If a failure has occurred it may be relatively easy to prove a contravention. However, expert support will be required except where a deficiency is obvious and requires no technical proof.

ADVERSE OR HAZARDOUS ENVIRONMENTS (Reg 6)

9 (1) Regulation 6 addresses extrinsic effects which are reasonably foreseeable. For example, in order to prove a contravention of reg.6, it is not necessary to show that electrical equipment is or has been exposed to a flammable atmosphere, but only that it is foreseeable that it could be so exposed.

(2) The Memorandum of guidance gives general advice on the different hazardous environments covered by reg. 6, and makes reference to relevant standards and publications.

INSULATION, PROTECTION AND PLACING OF CONDUCTORS (Reg 8)

10 (1) This regulation is an example of where the EAW Regulations extend protection to anyone exposed to electrical danger from electrical equipment, including those not at work

EARTHING AND OTHER SUITABLE PRECAUTIONS (Reg 8)

11 (1) This regulation applies to any conductor and not just to metal. It also allows other suitable means of preventing danger as an alternative to earthing.

(2) The duty to prevent danger arising is activated only when a relevant conductor becomes charged.

(3) Regulation 4 requires that systems are constructed so as to prevent danger; but in the event that danger arises because a conductor which should be earthed is not, reg.8 also becomes relevant.

(4) As regards adequate earthing, the use of a conductor with a small cross-sectional area, which is not capable of carrying a heavy current for the duration of the fault, is not acceptable.

(5) Inspectors should continue to press for the use of reduced voltage lighting and power tools, e.g. 110v centre tapped to earth in the working environments described in para. 19 of the Memorandum of Guidance (leg construction work).

INTEGRITY OF REFERENCE CONDUCTORS (Reg 9)

12 (1) Regulation 9 is fully explained in the Memorandum of guidance.

CONNECTIONS (Reg 10)

13 (1) The definition of danger means that connections have to be mechanically and electrically suitable to prevent the risk of electrical injury.

MEANS FOR PROTECTING FROM EXCESS CURRENT (Reg 11)

14 (1) The due-diligence defence in reg. 29 is important when enforcing this requirement because, in theory, it is impossible in an absolute sense to prevent danger arising before any excess current protection device operates.

MEANS OF CUTTING OFF THE SUPPLY AND FOR ISOLATION (Reg 12)

15 (1) This regulation cannot be used to require means to prevent non-electrical hazards arising from the use of electrical controlled systems.

(2) Permit-to-work systems relying on a warning notice may be encountered. Where such systems are well established, tried and tested they could represent adequate isolation. However, they need to meet the minimum requirements of this regulation and when assessing such systems, inspectors should seek expert assistance, where appropriate.

(3) Regulation 12 covers electrical equipment which may become charged by means other than connection to the supply, e.g. through capacitance or induced current arising from proximity to other live conductors.

(4) There are no voltage limits.

PRECAUTIONS FOR WORK ON EQUIPMENT MADE DEAD (Reg 13)

16 (1) Regulation 13 may apply during any work, be it electrical or non-electrical.

WORK ON OR NEAR LIVE CONDUCTORS (Reg 14)

17 (1) This regulation is very important and should be used to reduce the incidence of live working and to ensure strict precautions are adhered to when such work is carried out.

(2) All 3 conditions stipulated in the regulation must be met before live working is permitted.

(3) "Reasonable in all the circumstances" (reg. 14(b)) means that all necessary precautions must be taken to ensure it is reasonable for someone to be asked to work.

(4) Regulation 14(c) could imply that in the absence of injury no precautions can be required in advance. This would mean that notices requiring such precautions could not be issued. This interpretation is not correct because:

(i) it would not be reasonable to work in a situation where the necessary precautions had not been taken; and

(ii) in order to take precautions it is necessary to foresee the potential harm, and such precautions will only be suitable if they are adequate to prevent the harm foreseen.

Therefore, if an inspector judges that the precautions taken will not prevent injury, he or she could issue a notice citing an apparent breach of reg. 14.

(5) Inspectors should question all live working wherever they find it. This could be in many establishments and also where peripatetic electricians are working.

(6) The issue of accompaniment during live work is touched upon in the Memorandum of guidance. The presence of a colleague who could render assistance if safe to do so could prevent injury or mitigate its extent.

WORKING SPACE, ACCESS AND LIGHTING (Reg 15)

18 (1) This regulation only applies to the period during which work is being carried out.

(2) It can be used to prevent the storage of goods etc. in front of switchboards on the basis that the act of operating switching device is considered to constitute work on the equipment in question.



COMPETENCE TO PREVENT DANGER AND INJURY (Reg 16)

19 (1) If competence is in doubt, inspectors should enquire into:

- (i) technical knowledge, and
- (ii) experience

in relation to the work activity being undertaken. Clearly, more knowledge is required of those involved in high voltage work compared to those doing 25-volt test work.

(2) HSE specialist support is available for assessing electrical competence

(3) The regulation does not require authorisation of competent persons but in conjunction with regs. 4 and 14 such authorisation may be required, when necessary, to avoid danger.

(4) The regulation does not specify any age limitations. The key requirements are adequate and relevant knowledge and experience, or an appropriate degree of supervision to allow persons to work safely and possibly to acquire those attributes.

DEFENCE (Reg 29)

20 (1) The defence only becomes relevant once it has been established that an offence has been committed. It should not affect the judgement of the duty holder as to the steps he or she should take to meet an absolute requirement

(2) Employers may suggest that they have taken reasonable steps to meet their obligations by the delegation of responsibility to adequately qualified and instructed staff. This approach is pre-empted by the specific duties placed upon employers and others by reg. 3.

(3) HSE electrical specialists may be able to provide technical support in relation to a due diligence defence.

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If you would like to discuss any of the issues highlighted in this newsletter, then drop an email to Jon on jon@jonwilkins.co.uk or call the office **01458 253682**



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