

ELECTRICAL SAFETY INSPECTIONS

Your Practical Guide



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Introduction

In all industrial and commercial premises there are electrical installations, equipment and associated wiring. Fortunately the majority of these installations are well maintained and safe, but in other cases they pose a potentially serious risk to people and property.

The Electricity at Work Regulations impose an 'absolute duty' on the owner of the installation to prevent any risk of injury from electrical causes, such as electrocution, heat, radiation or uncontrolled fire.

To comply with this requirement as an employer, it's your responsibility to make sure that plant, portable electrical equipment and electrical installations remain safe. This is achieved by a combination of two things.

- electrical equipment must be regularly monitored, and
- all electrical work must be done by a qualified and competent electrician.

This may be either an outside contractor or someone on your own staff who has the appropriate qualifications, training and experience.

Inspection Programme

As it cannot be assumed that electrical equipment will continue indefinitely to operate correctly and safely, it is important to establish a programme of regular inspections, maintenance and repairs, with records of the work that has been carried out.

In the case of the fixed or main electrical installation, you should arrange for regular inspections.

For all portable electrical equipment:

- you should establish an inventory and a recorded visual inspection system that allows for periodic portable appliance testing
- the frequency of inspection should be determined by your practical experience of the equipment, the working environment in which it is used, and any recommendations supplied by the manufacturer – see the table on the next page for guidance

You should include:

- domestic appliances (kettles, vacuum cleaners etc),
- extension leads
- mains-powered electrical appliances brought on to the premises by your employees, (e.g. radios, portable heaters).

Remember that once an electrical appliance is connected to your system, you are legally responsible to ensure it is safe.

Electrical Equipment Inspection and Testing Schedule

Equipment/Environment	User Checks	Formal Visual Inspection	Combined Inspection and Testing
Battery operation (less than 25 volts)	No	No	No
Extra low voltage: (less than 50 volts AC) e.g. telephone equipment, low voltage desk lamps	No	No	No
IT equipment: e.g. desktop computers and VDU screens	No	Yes, 2-4 years	No, if double insulated otherwise up to 5 years
Photocopiers and fax , machines NOT hand-held, and rarely moved	No	Yes, 2-4 years	No, if double insulated otherwise up to 5 years
Double insulated equipment: NOT hand-held and moved , occasionally e.g. fans, table lamps, slide projectors	No	Yes, 2-4 years	No
Double insulated equipment: Hand-held, e.g. some floor cleaners	Yes	Yes, 6 months to 1 year	No
Earthed equipment (Class1): e.g. electric kettles, some floor cleaners	Yes	Yes, 6 months to 1 year	Yes, 1-2 years
Cables (leads) and plugs connected to the above. Extension leads (mains voltage)	Yes	Yes, 6-48 months depending on equipment	Yes, 1-5 years depending on the type of equipment it is connected to

Electrical Appliance Visual Inspection Record

TYPE

MAKE

MODEL

SERIAL NO

WHERE USED (e.g. kitchen, office etc)

DATE PURCHASED (if known)

DATE DISPOSED OF

REASON (e.g. type of fault etc)

DATE OF CHECK
(should be every 6 months)

CHECKED BY (initials)

What to check for	Action required if fault present	Write OK in appropriate box when no fault present
PLUGS – INTERNAL		
Wired correctly	Rewire	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
No loose strands	Rewire	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Insulation OK - no cuts, exposed wire etc	Re-strip wires, Rewire	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Terminal screws tight	Tighten	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Correct fuse rating	Change to correct rating	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Cable grip securing	Relocate under grip tighten outer sheath firmly	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
PLUGS – EXTERNAL		
No cracks/breaks	Replace	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
No burns/scorches	Replace	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Top secure	Tighten	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
LEAD – FIXED TYPE		
No cracked/broken insulation	Do not use. Get expert help to replace lead or dispose of appliance.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
No burns/scorches		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Secured into appliance		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
LEAD - PLUG IN TYPE		
No cracked/broken insulation	Replace	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
No burns/scorches		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
APPLIANCE		
Casing not burnt or scorched	Do not use. Dispose of appliance or get expert help to repair.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
No excessive heat		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Functions correctly		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Auto switch-off works (e.g. in the case of kettles etc)		<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

Additional Considerations

Qualified electricians

All electrical work including testing must be carried out by a suitably qualified electrician. We recommend that you use a contractor who is a member of either NICEIC or ECA. You will need to specify the type of electrical system that you have, and ensure that the contractor you select has sufficient experience of working on that class of system.

(For example, if you have High Voltage (HV) supplies coming on to your site that are then stepped down via electrical switch gear to normal voltages such as 415v and 240v, you must ensure that the contractor has experience of working on high voltage installations.) You need to make sure the contractor has experience of work with HV equipment and has attended the HV Safety courses run by Regional Electricity Companies.

Electrical defects

All electrical defects found must be remedied immediately, in accordance with the current edition of the Institution of Electrical Engineers Regulations for Electrical Installations (the 'IEE Wiring Regulations' 16th Edition) where these apply. Additionally you need to be aware of the requirements laid down in the Electricity at Work Regulations and the Electricity at Work Regulations Safe Working Practices. These give authoritative guidance on safe working with electrical installations.

Multiple outlet adapters

Multiple outlet adapters should be avoided where possible. If you do have to use these, you should calculate the electrical loading required, and ensure that the adapter is adequate. Best practice is to install permanent additional sockets.

Electrical switchgear rooms

The use of electrical switchgear rooms as storage areas must be avoided. All electrical installations need to be kept clear for access in case the electrical supply needs to be isolated. Similarly, combustible materials, gases or liquids must not be stored or used anywhere near electrical equipment, as flammable vapours and fumes can be ignited by unprotected circuit breakers.

It is recommended that an entirely clear space of at least two metres should be maintained around the switchgear – this is best achieved by installing non-combustible guard-rails or by floor marking.

New Regulations

New regulations entitled 'The Dangerous Substances and Explosive Atmospheres Regulations' were introduced in November 2002.

These new regulations are aimed at preventing serious injury arising from fire and explosion and require employers to carry out a risk assessment of all flammable and explosive substances used in the workplace (this includes dusts and vapours).

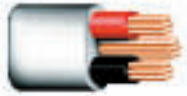
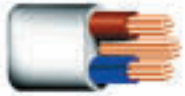








From 30th June 2003

- New workplaces are required to be classified into hazardous zones and where necessary marked with a specified EX sign
- New workplaces (where a dangerous substance is in use) must be protected from sources of ignition by the selection of equipment and protective systems on the basis of the criteria outlined in Schedule 4 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations
- Employees are to be provided with PPE that does not give rise to electrostatic discharge in classified areas
- New workplaces will be required (before being used for the first time) to be subject to a DSEAR verification process by a person competent in the field of explosion protection
- Existing work equipment in use before 30th June 2003 and which has been competently assessed in line with the requirements of DSEAR and found to be acceptable may continue to be used
- Workplaces in use before 30th June 2003 have 3 years to comply with DSEAR after which time they must be classified into hazardous area zones and, where required, marked accordingly.

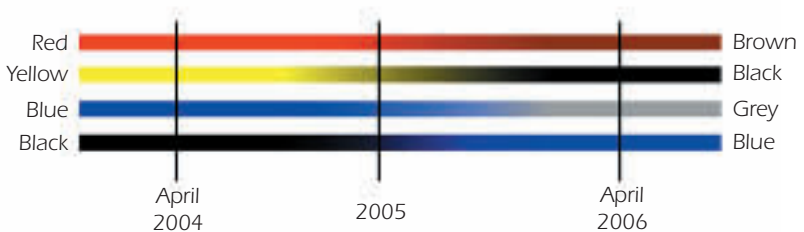
New Wiring Cores Colour Code Changes

- From April 2004 the current British Standard 7621-2001 (IEE Regulations) will reflect the changes in the colour coding of core cables in line with the European harmonisation process.
- Electrical installation work taking place after 31st March 2004 will be able to use the new colour coding indicated below or the existing colours but must not use both or mix colours within existing installations.

New installation work taking place after 31st March 2006 must use the new European Harmonised colours indicated below and must not use the old colour coded cabling.

Existing	Single Phase	Harminosed
	Twin flat 6242Y	
	Triple flat 6243Y	
	Two core armoured	
Three Phase		
	Three core armoured	
	Four core armoured	

Harmonised Core Colour Introduction



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ACLD007R (01/06) (10638)

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