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Inspection and testing of electrical installations

WHY INSPECT AND TEST?

The Electricity at Work Regulations 1989 is a statutory document; it is a legal requirement that statutory regulations are complied with. Not to comply is a criminal offence and could result in a heavy fine and even imprisonment in extreme cases.

These regulations are required to ensure that places of work provide a safe, well-maintained electrical system. A simple way to provide this is to ensure that newly installed circuits and existing installations are tested on a regular basis. Electrical test certificates are used to record what has been done and confirm that the installation meets the required standard.

The British standard for electrical installations is BS 7671, the requirement for electrical installations. Within this standard, **Regulation 610.1** states that “every installation shall, during erection and on completion before being put into service be inspected and tested to verify, so far as reasonably practicable, that the requirements of the regulations have been met”.

Regulation 621.1 states that “where required, periodic inspection and testing of every electrical installation shall be carried out in accordance with regulations 621.2 to 621.5 in order to determine as far as is reasonably practicable, whether the installation is in a satisfactory condition for continued service”.

Document P of the Building Regulations 2000 for Electrical Safety came into effect on 1 January 2005 and was amended in April 2006.

The purpose of this document is to ensure electrical safety in domestic electrical installations.

Section 1. Design, Installation, Inspection and Testing

This section of Part P is broken down into sub-sections.

General

This states that electrical work must comply with the Electricity at Work Regulations 1989 and that any installation or alteration to the main supply must be agreed with the electricity distributor.

Design and installation

This tells us that the work should comply with BS 7671 electrical wiring regulations.

Protection against flooding

The distributor must install the supply cut out in a safe place and take into account the risk of flooding. Compliance with The Electrical Safety, Quality and Continuity Regulations 2002 is required.

Accessibility

Part M of the building regulations must be complied with.

Inspection and testing before taking into service

This area is covered in detail throughout this book, it reminds us that the installation must be inspected and tested to verify that it is safe to put into service.

BS 7671 Installation certificates

This tells us that compliance with Part P can be demonstrated by the issue of a correct Electrical Installation Certificate and also what the certificate should cover. This is addressed later in this book.

Building regulation compliance certificates or notices for notifiable work

This tells us that the completion certificates issued by the local authorities, etc. are not the same as the certificates that comply with BS 7671. The completion certificates do not only cover Part P, but also shows compliance with all building regulations associated with the work which has been carried out.

Certification of notifiable work

This is covered in detail throughout this book.

Inspection and testing of non-notifiable work

This tells us that, even if the work is non-notifiable, it must be carried out to comply with BS 7671 and that certificates should be completed for the work.

Provision of information

Information should be provided for the installation to assist with the correct operation and maintenance. This information would comprise of certification, labels, instruction and plans.

Section 2. Extensions, Material alterations and material changes of use

This section is covered throughout this book, it basically tells us that certification is required, and that before any additions or alterations are made to an installation, an assessment of the existing installation should be made, to ensure that it is safe to add to.

Section 3. Information about other legislation

This covers the Electricity at Work Regulations 1989; Electrical Safety, Quality and Continuity Regulations 2002; functionality requirements.

The construction design and management regulations also state that adequate electrical inspection and tests are carried out on all new installations, those with electrical design information shall form a user's manual, which can be used to provide an up-to-date working record of the installation.

With the introduction of the 'Home Information Pack' (HIP) selling a property will eventually become very difficult if not impossible unless all of the relevant documentation is in place, this of course will include certification of electrical systems. Whilst, at the time of writing, this certification is not a requirement of the HIP, it is almost certain to become so in the future. Mortgage lenders and insurance companies are frequently asking for certification as part of the house buying/selling process. Owners of industrial and commercial properties could find that insurance is difficult to obtain, while most licensing bodies and local authorities are asking for electrical certification within their guidelines.

All of these regulations are under the umbrella of the Health and Safety at Work Act 1974. This clearly puts the legal responsibility of health and safety on all persons.

COMPLIANCE WITH BUILDING REGULATIONS PART P

Compliance with building regulations is a legal requirement and electrical work carried out in the domestic sector is now included in the building

regulations; it is a criminal offence not to comply with the building regulations.

At the time of writing, there is no legal requirement to notify any work carried out in commercial or industrial buildings, although it should still be certificated for safety and record-keeping purposes.

Document P requires that most electrical work carried out in domestic premises is notified to the local authority building control. There are a few exceptions but the work must comply with BS 7671 Wiring Regulations. The exceptions are as follows:

Minor works carried out in areas that are not classed as special locations and therefore do not need notifying but would still need certifying

- Addition of socket outlets and fused spurs to an existing radial or ring circuit.
- Addition of a lighting point to an existing circuit.
- Installing or upgrading main or supplementary bonding.

Minor works carried out in the Special Locations as listed below – or in Kitchens (BS 7671 does not recognize a Kitchen as a special location.

Document P does)

Kitchens

Locations containing bath tubs or shower basins

Hot air saunas

Electric floor or ceiling heating

Garden lighting (*if fixed to a dwelling wall it is not deemed to come into the Special Location category*)

Solar photovoltaic power supply systems

The work which could be carried out in these locations without notification but should still be certificated would be:

- Replacement of a single circuit which has been damaged
*Providing that the circuit follows the same route
The cable used has the same current carrying capacity as the cable being replaced
Circuit protective measures are not affected.*
- Replacing accessories such as socket outlets, switches and ceiling roses.
- Re-fixing or replacing of enclosures and components.

All other work carried out in any areas of a domestic installation must be certificated and notified to the local authority building control, this can be carried out by various methods.

EARTHING AND BONDING TO COMPLY WITH PART P

If a Minor Electrical Installation Works Certificate is necessary, there is no requirement to upgrade the existing earthing and bonding arrangements within an installation. Where the earthing and bonding do not comply with the latest edition of BS 7671, it should be recorded on the Minor Electrical Installation Works Certificate.

If an Electrical Installation Certificate is required, then the earthing arrangements must be upgraded to comply with the current edition of BS 7671.

Where the work is in the bathroom, or any areas that require supplementary bonding, then this must also be brought up to the current standard.

There is no requirement to upgrade supplementary bonding in an area where work is not to be carried out. There is also no requirement under Part P to certificate the upgrading of earthing and bonding to an installation.

REGISTERED DOMESTIC INSTALLER

To become a registered domestic installer, it is necessary to become a member of one of the certification bodies which operate a domestic installer's scheme. This would require the person carrying out the work to prove competence in the type of work which is being carried out, and the ability to inspect, test and certificate the work which he/she has carried out. Competence is usually assessed by a site visit from an inspector employed by the chosen scheme provider.

There are two types of registration: (1) a person who needs to be able to carry out all types of electrical installation work in dwellings will need to register with an organization which runs a full scope scheme; (2) a person who needs to carry out electrical work associated with their main trade will need to register with an organization which runs a limited scope scheme. This scheme will enable a person to carry out electrical work which is related to the other work which is being carried out. An example of this would be where a person is a Kitchen fitter and needs to carry out electrical work which is required in the Kitchen. The installer would not be allowed to carry out electrical work in other parts of the dwelling unless that person was a member of a full scope scheme.

If the electrician is registered as a domestic installer, he or she must complete the correct certification and notify the scheme provider, who they are registered

with, of the work which has been carried out. This must be done within 30 days. The scheme provider will both notify the local authority and the customer of the correct certification being given. An annual fee is usually required by the scheme provider, while a small fee is also payable for each job registered.

UNREGISTERED COMPETENT PERSON

If the work is carried out by a non-registered competent person who is capable of completing the correct certification, the local authority will need to be contacted before commencement of work, and the work will be carried out under a building notice. This will involve a fee being paid to the local authority and a visit or visits being made by a building inspector to inspect the work being carried out to ensure that it meets the required standard (*the cost of this will usually be far higher than that charged per notification by a scheme provider to a registered installer*). On satisfactory completion, and after the issue of the correct certification by the competent person, the building inspector will issue a completion certificate. The issue of a completion certificate by the local authority does not remove the responsibility for the work including guarantees from the non-registered competent person; the required certification must still be completed by the person who carried out or who is responsible for the work.

DIY INSTALLER

In cases where the work is carried out by a person who could not be deemed qualified (i.e. a DIY enthusiast), building control must be informed prior to work commencing, and on completion of the work to the building control officer's satisfaction, an inspection and test certificate must be issued. As a DIY installer would be unlikely to have the knowledge, experience or correct test equipment required to carry out the inspection, tests or completion of the certification, the services of a competent person would be required. The qualified person would in effect take responsibility for the new/altered work. For that reason, the qualified person would need to see the work at various stages of the installation to verify that the work and materials used comply with the required standards of the BS 7671 wiring regulations.

SUMMARY

Currently, there is no requirement for any person carrying out electrical work in a domestic environment to be qualified in any way. The condition is that

they must be competent; in other words, they must be in possession of the appropriate technical knowledge or experience to enable them to carry out the work safely.

There are Part P courses being provided by many training bodies, although it is not a requirement that you attend one of these courses or any other course which is being offered. However, it is impossible to become an electrician in 5 days.

The buildings control authorities must be informed of any electrical work that is to be carried on a domestic electrical installation other than very minor work, although even this work must be certificated.

Building control can be informed (*before commencing work*) by the use of a building notice, and this will involve a fee.

If your work involves a lot of domestic electrical work, then by far the best route would be to join one of the certification bodies. This would allow you to self-certificate your own work. When you join one of these organizations, you must be able to show that your work is up to a satisfactory standard and that you can complete the correct paperwork (*test certificates*). Whichever organization you choose to join, they will give you the correct advice on which training you require. A qualification is fine, but being able to carry out electrical work safely is far better.

