

Introduction to Inspection & Testing

(The City & Guilds 2391)

It is essential to provide a full specification prior to the commencement or alteration of any electrical installation.

The specification should include:

- How the system operates
- Any design and operational parameters
- Adequate information (Manual)
- Commissioning procedures

Those involved could include:

- Designer
- Installer
- Supplier
- User
- Architect
- Regulatory Bodies
- Fire Officer
- HSE etc

In producing the specification it is important to obtain information from the owner/user regarding the intended use.

Details of any equipment installed or utilised must be obtained in order to ensure compliance with appropriate BSEN standards.

Any manual should include a description of how the system as installed is to operate. All commissioning records and any manufacturers technical data for items of switchgear, luminaries, accessories etc. This final requirement ensures compliance with HASAWA 1974, Construction Design Management Regulations 1994.

General Requirements for Testing

Electricity at Work Regulations

The EAWR requires that every employer, employee and self employed person be responsible for compliance with the Regulations with regards to matters within their control and as such are known as 'Duty Holders'.

When undertaking an Inspection & Test on an installation you are regarded as the duty holder in that you have control of the installation and will ultimately pass or fail (making recommendations) the installation with regard to its safety.

In the eyes of the law the person undertaking the inspection and test must be a competent person. Their title in law is duty holder.

Safety

It is the inspectors duty to ensure their own safety and that of others. The requirements of GS38 should be observed when undertaking tests.

Safe Use of Equipment – The tester should:

Understand the equipment and its rating
Ensure all safety procedures are followed
Ensure equipment complies with relevant BS safety standards
Check leads are in good order and not cracked (Apply GS38)
Pay particular attention to any instrument which generates >50v or which uses the supply for the purposes of the test.

Required Competence – The inspector should have:

Sound knowledge and experience relevant to the nature of the installation.

They have a responsibility to ensure

No danger occurs to persons, livestock or property.
To compare any I&T results with the design criteria.
To take a view on the installation and advise on remedial works where necessary.
In the event of a dangerous situation to make an immediate recommendation to isolate.

Certificates and Reports to be issued to the client subsequent to the inspection and testing:

Either Electrical Installation Certificate
 + Schedule of inspections
 + Schedule of test results

Or

 Periodic Inspection Reports
 + Schedule of inspections
 + Schedule of Test Results

Or

 Minor Electrical Installation Works Certificate

If the client is not the user then it is recommended that copies should be passed to the user.

Landlord and Tenant Responsibilities

A landlord is required to provide a tenant with an electrical installation in good condition and repair and is in a condition suitable for its intended use.

They must ensure that any repairs are undertaken by a competent person.

The tenant must ensure that areas of the installation are their responsibility are maintained in safe condition and to ensure that any repairs are undertaken by a competent person.

Alterations and Additions

Must not impair the safety of the existing installation

It is necessary to inspect and test the existing installation only so as to ensure the safety of the addition or alteration. This may include:

Continuity of CPC's

Earth Fault Loop Impedance

There is no obligation to inspect and test any part of the existing installation that does not affect or is not affected by the addition or alteration but any observed departures should be noted in the comments boxes of the relevant certificates.

Record Keeping

All I&T records should be kept through the life of the installation. They can be used to:

Identify trends of deterioration

Verify maintenance checks and their effectiveness.

Exam Tips

Safe Isolation

Remember that the inspector has a responsibility not only for the safety of those around him but also for himself.

Before we move ahead to look in more details at the range of tests that are carried out on an installation it is important to note that some of those tests are known as 'Dead tests' and are carried out with the supply isolated from the installation. Others are known as 'Live tests' and are undertaken with the supply connected to the installation.

When answering examination questions regarding testing do not expect the examiner to assume anything. When describing a dead test it is important that you precede the description by stating the need for safe isolation and if necessary appropriate reinstatement of supplies subsequent to the test.