

## Why complete paperwork?

### Periodic inspection and testing

It must be clearly understood that a retest of a working installation may not be as fall as that carried out before the installation was put into service.

For example, it may be impossible to switch off certain systems such as computers, and if full testing is not possible, this should be made clear on the certificate. In such cases, the installation should be carefully inspected to ensure that possible dangers become apparent.

In some cases, it may be necessary to carry out measurements, such as the value of the earth leakage current, which will indicate the health of the system without the need to disconnect it.

A sample of 10% of switching devices must be thoroughly internally inspected and tested. If results are poor, the procedure must be extended to include all switches.

The condition of conductor insulation and other protection against direct contact must also be inspected at all distribution boards and at samples of switchgear, luminaries, socket outlets, etc.

There should be no signs of damage, overloading or overheating.

Protective and equipotential bonding conductors must not be disconnected from the main earthing terminal unless it is possible first to isolate the supply.

The tester must ensure that a durable notice to the wording given in {Table 1} is fixed at the mains position.

On completion a full electrical installation certificate must be submitted. Additional matters to report are:

1. full test results to enable comparison with earlier tests, from which the rate of deterioration of the installation (if any) can be assessed.
2. the full extent of the parts of the system tested notes of omissions may be very important
3. any restrictions which may have been imposed on the tester and which may have limited his ability to report fully
4. any dangerous conditions found during testing and inspection, non-compliance with the Regulations, or any variations which are likely to arise in the future.

Where an installation was constructed to comply with an earlier Edition of the Regulations, tests should be made as required by the 17th Edition as far as it is applicable, and the position fully explained, with suggestions of necessary action, in the Electrical Installation report.

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**Table 1 - Notice - periodic inspection and testing**

**IMPORTANT**

This installation should be periodically inspected and tested and a report on its condition obtained, as prescribed in BS 7671 (The IET Wiring Regulations for Electrical Installations) published by the Institution of Electrical Engineers.

Date of last inspection.....

Recommended date of next inspection.....

**Table 2 - Sequence of periodic testing**

<b>1</b>	Continuity of protective conductors and earthed equipotential bonding.
<b>2</b>	Polarity
<b>3</b>	Earth fault loop impedance
<b>4</b>	Insulation resistance
<b>5</b>	Operation of switches and isolators
<b>6</b>	Operation of residual current devices

together with the following where appropriate

<b>7</b>	Continuity of ring final circuit conductors
<b>8</b>	Earth electrode resistance
<b>9</b>	Manual operation of circuit breakers
<b>10</b>	Electrical separation of circuits
<b>11</b>	Insulation resistance of non-conducting floors and walls

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The importance of regular inspection and testing of electrical installations cannot be overstated, but unfortunately it is an aspect of electrical safety which is very often overlooked.

It is now a requirement of the Regulations that the installer of an installation must tell the user of the need for periodic test and inspection and the date on which such attention is required.

Probably the good contractor will institute a system so that a reminder is sent to the customer at the right time.

There are suggested intervals between inspections and tests.

The results of sample tests should be compared with those taken when the installation was last tested, and any differences noted.

Unless the reasons for such differences can be clearly identified as relating only to the sample concerned, more tests must be carried out. If these, too, fail to comply with the required values, the complete installation must be retested and the necessary correcting action taken.

The inspection and testing must be carried out with the same degree of care as is required for a new installation.

In fact, more care is often needed because dangers can occur to the testers and to others in the situation in the event of failure of parts of an installation such as the protective system.

The tester must look out for additions to the installation, or for changes in the use of the area it serves, either of which may give rise to fire risks.

Included may be the addition of thermal insulation, the installation of additional cables in conduit or trunking, dust or dirt which restricts ventilation openings or forms an explosive mixture with air, changing lamps for others of higher rating, missing covers on joint boxes and other enclosures so that vermin may attack cables, and so on.

The sequence of periodic tests differs slightly from that for initial tests because in this case the supply will always be connected before testing starts.

The tests required and the sequence in which they must be performed are shown in {Table 2}.

There will be cases where necessary information in the form of charts, diagrams, tables, etc., is not available.

The tester will then need to investigate the installation more thoroughly to make sure that he is fully conversant with it before he can carry out his work.