

**STANDARD SPECIFICATION FOR THE PERIODIC INSPECTION AND TESTING OF
A FIXED ELECTRICAL INSTALLATION IN A DWELLING OR COMMON AREAS OF
BUILDINGS CONTAINING DWELLINGS**

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Updated 1/4/2021

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1.0 Introduction

This specification is intended to be used by specifiers, such as property owners, local authorities, housing associations and other persons, instructing contractors and individuals to carry out the periodic inspection and testing of a fixed low voltage electrical installation in a dwelling, or common areas of buildings containing dwellings and distribution equipment and cables supplying buildings containing dwellings.

It may be used by contractors to provide a specification for individual home owners, landlords and persons intending to purchase homes, to define the process for the inspection and testing to be carried out on their behalf. It may be used by the Inspector to meet the requirement to agree the Extent and Limitations with the client prior to starting the inspection and testing process.

It may also be used for inspection and testing of private rented premises for compliance with the Electrical Safety Standards in Private Rented Sector (England) Regulations 2020.

This specification sets out the **minimum** standards for inspection and testing of Low Voltage (LV) electrical installations. A Low Voltage electrical installation means the fixed electrical installation in a dwelling that is covered by British Standard 7671 (*Ref. 1*). It does not preclude the application of additional inspections and testing such as earth leakage testing and thermal imaging. A more detailed inspection and testing process will be needed to be undertaken if the installation has been damaged for example by fire, flooding or overloading.

The inspection and testing of the installation shall be an independent and unbiased overview of the installation and the outcome must be factual and not biased with a view to the inspector gaining a financial advantage for themselves, his/her employer or some other person or persons.

It is important for the inspector to understand the distinct difference between the Initial Verification of a new installation and Periodic Inspection and testing of an existing installation.

It is important for the inspector to understand that for Periodic Inspection and Testing that inspection is a distinct process from testing, and that inspection is the prime activity *“supplemented by appropriate tests and measurements set out in Chapter 64”* as defined in Regulation 651.2 of BS 7671 (*Ref. 1*).

Unlike Initial Verification there is no required sequence of tests as the installation is already in service.

Before the inspection and testing of the installation commences the inspector shall explain to the owner or occupant what the purpose of the inspection and test is in understandable non-technical terms. The inspector will explain the need to isolate the supply to carry internal inspections and certain tests and will agree a suitable time to do so with the owner or occupier. In addition, the inspector should indicate how long the inspection and testing process is likely to take and how long the power is likely to be turned off.

2.0 Purpose of the inspection and testing.

The purpose of the inspection and testing is set out in Regulation 651.1 of British Standard 7671 (Ref. 1) (BS 7671) That requirement is: -

“To determine, so far as reasonably practicable, whether the installation is in a satisfactory condition for continued service”.

That requirement is to be recorded on the report form as the reason for carrying out the inspection and test.

3.0 Methodology for the inspection and testing.

The intention of the inspection and testing of the electrical installation is for a competent, qualified and experienced person to carry out a detailed and thorough inspection of the installation and to apply tests to determine if the installation is in a satisfactory condition for continued service. “Satisfactory” shall mean, to provide for the safety of persons, livestock and property against dangers and damage which may result in the reasonable use of the installation.

The inspection and testing outcomes are to determine if the installation meets the requirements of the current edition of British Standard 7671, not some earlier edition of BS 7671, regardless of the date of the initial installation or any alteration or addition.

Regulation 651.2 of BS 7671 provides direction for the process of the inspection and testing which says: -

“Periodic inspection comprising a detailed examination of the installation shall be carried out without dismantling, or partial dismantling as required, supplemented by appropriate tests from Chapter 65 to show that the requirements for disconnection times, as set out in Chapter 41 for protective devices, are complied with, to provide for:

- 1. The safety of persons and livestock against the effects of electric shock and burns.*
- 2. Protection against damage to property by fire and heat arising from an installation defect.*
- 3. Confirmation of correct rating and setting of protective devices required by Chapter 41.*
- 4. Confirmation of the correct rating of monitoring devices.*
- 5. Confirmation that the installation is not damaged or deteriorated so as to impair safety.*
- 6. The identification of installation defects and non-compliance with the requirements of the Regulations (BS7671:2018) which may give rise to danger.*

Each and every defect or non-compliance with BS 7671 found on inspection, or the result of a test, is to be recorded on the report form as an observation under the section indicated for that purpose. This includes non-compliances that are classified as “Improvement recommended” which would attract a C3 coding as set out in Appendix 6 of BS 7671. In addition, defects and non-compliances with BS 7671 found on inspection shall be indicated on the Schedule of Inspections. The results of tests are to be recorded on the Schedule of Test results.

Further guidance for periodic inspection and testing of electrical installations can be found in IET Guidance Note 3 Inspection and Testing (*Ref.2*)

4.0 Report format.

The report shall be in the format of the model form set out in BS 7671 Appendix 6 Electrical Installation Condition Report (EICR) together with a Schedule of Inspections and a Schedule of Test Results as set out in Appendix 6. A Schedule of Test Results shall be produced for each and every consumer unit or distribution board.

Where a defect or non-compliance is recorded the location of that observation is also to be recorded so the exact location may be readily found.

The person who carries out the inspection and test shall be known as the “Inspector”. That person should record the outcomes of the inspection and testing at the time of the inspection. The inspector shall, on completion of the inspection and testing conclude that the installation is “satisfactory” or “unsatisfactory” and record that conclusion on the report form. The inspector shall sign and date the form in the place provided on the form having carefully read the Declaration indicating his or her responsibilities.

The inspector is personally responsible for the completeness of the report and for the accuracy of the content of the report.

Where another person completes an EICR from information provided to them by the Inspector the Inspector shall carefully examine the completed form for accuracy and completeness and only then sign it as true record of the outcome of their inspection and test. There should be no empty boxes or sections on the completed form. Boxes or sections where it is inappropriate to make an entry should contain “N/A”.

Where proprietary software is used to produce the completed EICR the function of the software shall not be relied on for the accuracy of the completed report. The responsibility for the accuracy of the report shall remain that of the inspector.

A copy of the EICR is to be provided to the person ordering the work as soon as possible and no later than 5 days for a report classified as “Unsatisfactory” and 10 days for a “Satisfactory” following the completion of the inspection and test. See Section 5 for immediate action required for the discovery of dangerous conditions.

Copies of reports shall be kept and available for inspection for a period of 6 years after the completion of the inspection and test by the inspector, or the inspector’s employer.

5.0 Recording of Defects and non-compliances with British Standard 7671.

The inspector shall record all defects and non-compliances with British Standard 7671 on the EICR discovered during the inspection and testing process.

Each defect or non-compliance shall be classified using the coding system set out in the table below. Where a defect or non-compliance has been recorded as being C1, C2 or FI the outcome of the report must be recorded as “unsatisfactory”. An installation may have multiple C3 non-compliances with BS 7671 in which circumstances the installation the outcome of the report shall be “satisfactory”.

CODE	MEANING	EXAMPLE
C1	Danger present. See Note below.	Immediate danger present. For example, an exposed live part.
C2	Potentially dangerous.	A defect or non-compliance that is pre-disposed to danger only needing another event or condition to become dangerous. For example, an un-earthed Class 1 light fitting.
C3	Improvement recommended.	Does not comply with the current Edition of BS 7671 but the safety of the installation would be improved if the condition was rectified. For example, a lighting circuit that does not have 30mA RCD protection.
FI	Further investigation required.	Further investigation is required before the inspector can conclude that the installation is satisfactory for continued service. For example, low insulation resistance indicated when tested that requires further dismantling and fault finding to discover the cause.
N/V	Not verified.	For example, an un-identified circuit that cannot be traced with reasonable investigation.

Note. Where practical, items classified as “Danger present” (C1) they should be made safe on discovery. For example, temporally covering an exposed live part with insulation tape. Where this is not possible the owner or occupier should be given a written notice describing the dangerous condition as a matter of urgency.

6.0 Personnel

The inspection and testing shall only be carried out by competent, qualified and experienced electricians or engineers. There is no requirement for individuals to be registered with any organisation to carry out these inspections. The Electrical Safety Standards in the Private Rented Sector (England) Regulation 2020 requires the person carrying out periodic inspections in private rented residential premises to be qualified and competent.

The person carrying out the inspection and test shall be known as the inspector. The inspector shall be fully conversant with the requirements to be a competent person as defined in Regulation 16 of the Electricity at Work Regulations 1989 (*Ref.3*) and fully meet the requirements of that Regulation.

In addition, the inspector shall fully meet the requirements of to be a Skilled Person (electrically) as defined in Part 2 of BS 7671 and Regulation 651.5.

In addition, the inspector shall hold as a minimum the following qualifications.

1. A QCF Level 3 “*Qualification in Requirements for Electrical Installations (BS 7671:2018)*”. That qualification shall be for the current edition of BS 7671 which is the 18th Edition.
2. A QCF Level 3 Qualification in the Periodic Inspection and Testing of electrical installations.

The inspector shall provide details of their experience, preferably in the form of a CV, if requested to do so. In addition, the inspector shall provide copies of their qualifications if requested to do so. If requested the inspector shall produce the original qualification documents if requested to do so.

It is not permitted for inspectors who do not meet the requirements, as listed above, to carry out the inspection and testing regardless if they are working under the direction of some other person such as a Qualified Supervisor. However, inspectors may be assisted by non-qualified persons, such as trainees. These non-qualified persons must be directly supervised by the inspector. Supervised shall mean in the direct presence of the inspector and acting under the inspector’s direct instructions at all times during the inspection and testing process.

7.0 Insurance

The inspector shall hold as a minimum insurance to indemnify them for the following provisions.

1. £2 million Public Liability Insurance.
2. £250,000 Professional Indemnity Insurance.

The insurance documents shall indicate that periodic inspection and testing is specifically included in the insurance cover. Copies of the insurance document shall be provided to the person ordering the work when requested.

Where the individual inspector does not hold insurance as an individual, copies of insurance documents shall be provided by his/her employer to indicate that they have insurance cover to indemnify the inspector as listed above.

8.0 Extent of the installation to be inspected and tested.

The fixed low voltage electrical installation from the distributors supply intake position, distribution boards, consumer units, final circuits, fixed equipment and accessories excluding:

1. Telephone, alarm, CCTV, data, intercom, call system wiring, heating control wiring circuits other than to confirm earth continuity to permanently connected equipment where required. Any wiring system of such equipment is to be inspected to confirm it is adequate to prevent premature collapse in the event of a fire. See BS 7671 Regulation 110.1.2 (v).
2. Appliances other than those Class 1 appliances permanently connected to the installation to confirm earth continuity.
3. Emergency lighting systems other than the low voltage supply to any system.
4. Any lift or hoist installation.
5. Medical equipment.
6. Equipment such as building services plant, motors and control equipment other than to confirm satisfactory earth continuity of readily accessible plant.
7. Lightning protection systems other than to confirm any required main protective bonding.
8. Any high voltage equipment.
9. Any equipment belonging to the electrical supply company or meter operator other than a visual inspection of the outside of any readily accessible equipment. The inspector must not interfere with the equipment belonging to the supply company or the meter operator.
10. Servers, computers or other IT systems.
11. UPS and Power Factor Correction equipment other than the visual inspection of the readily accessible outer parts and to confirm satisfactory earth continuity to the equipment.
12. Radio transmitters or receivers including mobile telephone equipment.
13. Any part of the installation not in service at the time of the inspection and testing.
14. Any equipment in a void, pit or confined space.
15. Any equipment in a roof space beyond any loft hatch unless the space floor is boarded and can be safely accessed.
16. Any equipment on a roof unless adequate edge protection is in place and the roof surface is safe to walk on.
17. Roof tops will not be accessed where there are radio transmitters including mobile telephone equipment.
18. Where any part of the installation cannot be readily and safely accessed, equipment above 3m, for reasons such as locked doors, reasons of safety, or access denied or impeded, the exclusion should be recorded in the "Extent" section to indicate the area concerned and the reasons. If access is impeded at the time of inspection this shall be recorded in the "Operational limitations" section of the Electrical Installation Condition report together with the reason.

Note 1. See Table 10.1 and Table 11.1 for items to be inspected and tested.

Note 2. To ensure overall electrical safety, appliances (non-portable as well as portable) may also need to be checked. Such checks are not with the scope of an Electrical Installation Condition Report and so would have to be arranged separately, if required.

9.0 Limitations to the inspection and testing process

1. Only those parts of the installation that can be safely and readily accessed by the Inspector shall be inspected and tested.
2. No part of the installation containing asbestos, or substance having the appearance of asbestos, will be dismantled for inspection or testing. Should the inspector encounter an item which (s)he reasonably suspects may contain asbestos they will attach a suitable warning label and proceed no further with the inspection of that item. The electrical inspection is not intended to be a substitute for an asbestos survey and should not be regarded as indicating the presence or absence of asbestos in the premises. The suspected presence of asbestos is to be recorded on the EICR under the "Observations" section.
3. No insulation resistance testing shall be carried out between live conductors due to the possible presence of any electronic devices. Insulation resistance testing shall only be carried out between all live conductors connected together and earth.
4. Where any circuit is not identified, or cannot readily be identified, the circuit details will be recorded for conductor sizes, circuit protection devices and wiring type. The circuit designation and the test results will be recorded as "Not Found".
5. Cables concealed within trunking and conduits, or cables and conduits concealed under floors, buried, in inaccessible roof spaces beyond any loft hatchways or where the loft space is not boarded for safe access and generally concealed within the fabric of the building shall not be inspected.
6. No part of the electrical installation shall be inspected on a roof unless there is safe access to the roof without the need for access equipment, there is edge protection to the roof and it is not a fragile roof.

Note. See Table 10.1 and Table 11.1 for items to be inspected and tested.

10.0 The Inspection Process

The installation shall be inspected and the Schedule of Inspections set out in Appendix 6 of BS 7671 to accompany and EICR shall be used as a list of those items to be inspected. Where a required item or condition is not present, or it is damaged or defective, then this deficiency shall be recorded on the Schedule and in addition on the Observations section of the EICR. The deficiency shall be allocated an observation Code using the codes set out on the Schedule of Items to be inspected form.

As a minimum the following should be sample inspected. Sampling should be increased if non-compliances or defects are found.

See Table 10.1 below.

Table 10.1

ITEM	SAMPLE
Supplier's equipment and secondary sources of supply.	100% external visual inspection for deterioration or damage. The supplier's equipment is not to be interfered with and supply fuses are not to be withdrawn, whether sealed or not. Any indication on the outside of the fuse carrier of rating shall not be relied on. Unless the rating of the supply fuse(s) can be readily obtained from the supplier the supply fuse rating on the EICR shall be shown as "LIM".
Inspection of distribution boards and consumer units.	Readily accessible and securely fixed. Made of non-combustible material. 100% check for deterioration, tightness of terminations and co-ordination of circuit protection and conductors. Verify IP ratings are compliant. Verify RCD protection is installed where required.
Surge Protection Devices.	100% to verify indicators show device is functional.
Distribution cables and final circuits.	100% where visible. Visual inspection to verify that they are correctly supported, supported against premature collapse in the event of a fire, suitable for external influences and undamaged. Check for the integrity of fire stopping where required in accordance with Regulation 527.
Containment.	10% sample to verify it is correctly fixed, covers are in place and basic protection is not visible.
Sockets, switches, fused connection units, isolators and accessories.	External visual inspection and a 10% internal sample inspection for each final circuit.
Permanently connected current using equipment.	20 % check to verify suitable for external influences, IP ratings, does not constitute a fire hazard, securely fixed, no sign of overheating of terminals and surrounding building fabric.
Electric Vehicle Charging Points	Visual inspection of the charging equipment and any tethered lead and plug for damage and deterioration. Verify if the equipment is connected to a PME earthing system one of the required additional protective measures in Section 722 of BS 7671 is present and functional.
Earthing and bonding.	100% inspection.
Labelling	Check that all circuit protection is labelled to show its function. In addition, check each distribution board or consumer unit has a circuit chart. Check other required warning labels are present.

11.0 The Testing Process

The testing of the installation shall be carried out using instruments complying with the relevant sections of BS EN 61557. See BS 7671 Regulation 651.3.

Test leads, clips and probes are to comply with the guidance set out in the Health and Safety Executive Guidance Note GS38 (*Ref. 4*).

The instruments shall be calibrated at intervals of not greater than 12 months. The calibration shall be formally undertaken with reference to National Physical Laboratory or by a company with UKAS approval. Copies of calibration certificates shall be provided by the inspector if requested to do so.

The testing methods set out in IET Guidance Note 3 (*Ref. 2*) shall be used.

The installation is to be isolated from all sources of supply before testing is commenced. Before isolation the consent of the owner or occupier of the premises is to be obtained. Before isolation all loads are to be turned off and plugs removed from sockets. After isolation the all sources of supply are to be locked off and a warning notice applied. Where covers are required to be removed for inspection and testing, they shall be replaced if the inspector moves away from their immediate location.

The tests set out in Table 11.1 below shall be carried out, and the results of those tests shall be accurately recorded on the Schedule of Tests Results form. A description of any unacceptable test results is to be recorded in the Observation section of the EICR form.

See Table 11.1 below.

Table 11.1

TEST	NOTES
External Earth Loop Impedance.	Verifies that the installation is effectively earthed.
Prospective Fault Current.	At the origin and at each distribution board or consumer unit to confirm equipment is suitably rated. For 3 phase supplies the fault current is to be measured between individual phases and the highest of the 3 readings is to be divided by 0.87 and the result recorded as the Prospective Fault Current.
Continuity of protective conductors.	100% of earthing and main protective bonding. Confirm earth continuity of a 20% sample of exposed conductive parts. Continuity may be proved by earth loop impedance testing (see Note 4 to Table 3.4 in IET GN3). R ₁ + R ₂ tests are not required as this is a test appropriate to initial verification. N/A should be entered in the box on the test form for this item.
Polarity.	At the origin, at distribution boards and consumer units, all accessible sockets and extremities of radial circuits. A 20% sample of ES lamp holders and single pole switching devices.
Ring final circuits.	All ring final circuits. End to end continuity testing. No need for cross connection tests as the installation has already been energised.
Insulation resistance.	A global IR test for all circuits on a distribution board or consumer unit between live conductors connected together and earth. A test between live conductors is not appropriate due to the risk of damaging equipment and the practicality of removing all connected loads. RCD functional earths are to be disconnected for this test.
Earth loop impedance testing.	At all distribution boards, all accessible socket outlets and the extremity of each radial circuit. Where insulation resistance testing indicates a low insulation resistance this test will require repeating after the defect has been rectified.
Permanently connected current using equipment.	Verify earth continuity.
Electric Vehicle Charging Points	Earth loop impedance test. Polarity and RCD test.
Functional testing.	All RCDs with an instrument followed by operation of the test button. Check AFDD operation of test button. Check for test RCD warning label. 20% sample of circuit breakers, isolators and switches operate satisfactorily.

12. Frequency of Inspection and Testing

On completion of the inspection and test the inspector shall apply a label to the installation stating the date of the inspection and the recommended date of the next inspection in accordance with BS 7671 Regulation 514.12.1. The inspector also needs to record the recommended date for the next inspection on the EICR.

The maximum period between periodic inspection and testing is set out in Table 12.1 below.

Table 12.1

TYPE OF INSTALLATION	MAXIMUM PERIOD BETWEEN INSPECTION AND TESTING	NOTES
Owner occupied dwelling	10 Years	Routine visual inspection recommended every year
Rented dwelling	5 Years or change of occupancy	Routine visual inspection recommended every year
Common areas of buildings with dwellings	5 Years	Routine visual inspection recommended every year
Buildings or dwellings with swimming pools	1 Year	Swimming pool area only.
Buildings with communal laundries	1 Year	Laundry area only

An inspector may shorten those recommended periods due to the age and gradual deterioration of the installation, but again the inspector must be able to justify his or her decision. A common error is for inspectors to shorten the period for the next periodic inspection and test due to the extent of the defects and non-compliances found and the fact the installation is "Unsatisfactory". That is not correct as it states on the EICR form that the date for the next inspection is "*Subject to the necessary remedial action being taken*".

13.0 Reference documents

The inspector shall have in their possession, or have ready access to, as a minimum the following reference documents: -

1. British Standard 7671:2018 Requirements for Electrical Installations.
2. The Institution of Engineering and Technology Guidance Note 3 8th Edition.
3. The Health and Safety Executive Memorandum of Guidance on the Electricity at Work Regulations 1989.
4. The Health and Safety Executive Guidance Note GS38 4th Edition.
5. The Electrical Safety Standards in the Private Rented Sector (England) Regulations 2020.

14. Glossary of abbreviations used in this specification.

ITEM	MEANING
BS 7671	The British Standard specifying the Requirements for Electrical Installations. Also known as the IET Wiring Regulations or just "The Wiring Regulations".
BS (EN)	British Standard. British Standard European Norm.
CCTV	Closed Circuit Television.
Class 1	Class 1 equipment has metallic exposed parts that require a connection to earth.
Class 2	Class 2 equipment has enclosed live parts protected by 2 layers of insulation or reinforced insulation. Does not usually require a connection to earth.
CV	Curriculum Vitae.
EICR	Electrical Installation Condition Report.
ELV	Extra Low Voltage (ELV) - Voltages not exceeding 50V AC or 120V DC
HV	Voltages exceeding Low Voltage.
IT	Information Technology.
LV	Low Voltage (LV) - Voltages above Extra Low Voltage but not exceeding 1000V AC or 1500V DC between conductors or 600V AC or 900V DC between conductors and Earth.
QCF	Qualifications and Credit Framework.
RCD	Residual Current Device. Installed for shock protection.
UKAS	United Kingdom Accreditation Service.
UPS	Uninterruptable Power System.