



Electrical installation and repair

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During the process of fixed Installation test & inspection, PHS Compliance Engineers carry out a thorough visual inspection of the electrical distribution system, as well as key electronic tests. In most instances, this course of action highlights deviations from the BS 7671 (The IEE Wiring Regulations). These very specific regulations are the benchmark for electrical installations in terms of safety, integrity and quality.

PHS Compliance Engineers, in accordance with the British Standard, will catalogue deviations on page 2 of the periodic test report and code them 1-4 in order of severity as follows:

- Code 1** – requires immediate attention
- Code 2** – requires improvement
- Code 3** – requires further investigation
- Code 4** – does not comply with BS 7671

Once the testing procedure is complete, PHS Compliance will issue a report containing its findings including the above deviations and recommendations. The responsibility then lies with you, as the duty holder to make a decision on the next stage.

After completing the repair programme successfully, PHS Compliance Engineers will document the processes involved and the repairs made in order to satisfy regulations and standards. This information will be provided to the client in the form of a 'completion', or 'minor works' certificate. We will also re-test the affected areas of the installation free of charge and include this information within the report. This final documentation should be kept safely alongside the original fixed installation test and inspection report as evidence of total compliance.

Aside from defect repair, PHS Compliance also offer a comprehensive National Design and Installation Service, completing installations so far up to a value of £2million.



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Emergency lighting & fire alarm test & inspection

Emergency lighting

Emergency lighting is required in all premises where people are employed. It is a Life Safety System and is required to assist the occupants in the event of an emergency. It will assist in the evacuation of premises in the event of power failure. It is a mandatory requirement to be installed where artificial lighting is installed. Remember, Emergency Lighting is designed to help save lives.

Most traditional emergency lighting systems are split into 'zones' to enable essential maintenance to take place without isolating the entire lighting system. Like all systems that employ electronic components to function properly, lack of planned maintenance can lead to failure – and ultimately disaster.

Emergency lighting testing involves the periodic test and inspection of all key components within the system. This includes a functionality test of key switches, batteries, luminaires and control equipment

Fire alarm testing

Most organisations rely upon a fire detection and alarm system to provide staff with an early warning of fire within their premises.

Such a system is designed to give inhabitants of a building sufficient notice to evacuate safely and notify the emergency services avoiding major incident. Most traditional fire detection systems are split into 'zones' to enable the source of the trigger to be identified and isolated quickly. Like all systems that employ electronic components to function properly, lack of planned maintenance can lead to failure – and ultimately disaster.

Fire alarm testing involves the periodic test and inspection of all key components within the system. This includes a functionality test of manual call points, smoke/heat detectors and bells or sounders.



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Fixed wire test & inspection (BS7671)

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A fixed electrical installation includes all parts of a distribution system from the main incoming supply point, through to wiring accessories such as sockets and light fittings – and everything in-between. Because the majority of this part of the installation is unseen, it is often forgotten in terms of test and inspection. The fact is that it is vitally important that all wires, cables, accessories and switching equipment are maintained well in order to ensure safety.

The process of FIT, involves a similar process to that of PAT, in that a thorough visual inspection is carried out along with electronic tests. Engineers are looking to identify any potentially dangerous defects within the system that may lead to fire or injury. The benchmark for this inspection and test process is BS 7671 (The IEE Wiring Regulations) which provides guidance on how systems must be designed, installed and maintained. Deviations from this British Standard are most likely to be the cause of any problems.

After an initial visual inspection, several electronic tests are carried out by injected test voltages and current through the system to determine the integrity and functionality of cables, accessories and disconnection devices. This form of test and inspection is paramount to safety in the workplace.

PHS Compliance is unique, in that we offer our customers a remedial solution to repair any defects found during the test and inspection process. Our electrical installations division will prepare a no obligation quotation to repair any deviations from BS7671 and provide the required certification in each case.



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Portable appliance testing

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Portable Appliance Testing (PAT) involves conducting a series of electronic tests and a thorough visual inspection to all portable electronic equipment within a workplace or building. The desired outcome is to ascertain whether or not the appliance is suitable and safe for use. In order to test each piece of equipment properly, it must first be disconnected from the supply socket and inspected visually by a competent Engineer/Operative.

The Engineer checks for signs of damage to the appliance and its supply cord (IEC Lead) and then tests the functionality of any switches before checking that the fuse within the plug top is correctly rated for the safe disconnection of the appliance. After this process, the appliance is energised by a test machine which uses a sequence of checks to establish the integrity of the live, neutral and earth wires. The machine, depending on its findings, will establish a 'pass' or 'fail' status for the appliance, and the Engineer will label the equipment accordingly.

The legislation and guidance governing PAT is quite clear in most cases about how to protect your people and property and why, however PHS Compliance does not assume, as others do, that everybody has read the Electricity at Work Act 1989 or the British Standard that governs electrical safety. The fact is that common sense tells us that electricity is dangerous and any equipment using or producing it should be well maintained, PHS Compliance negate the need for our customers to worry about the legislative requirements by managing their electrical safety requirements on their behalf.



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Thermal imaging

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Thermal Imaging has evolved into one of the most valuable diagnostic tools used for Predictive Maintenance (PM). Also known as thermography, thermal imaging is the production of non-contact infrared, or 'heat' pictures from which temperature measurements can be made. By detecting anomalies often invisible to the naked eye-thermography allows corrective action before costly system failures occur. Portable infrared (IR) imaging systems scan electrical systems, then constantly convert the thermal images to visible pictures for quantitative temperature analysis.

Thermographic systems are commonly used for electrical inspections. As electrical connections become loose, there is a resistance to current that can cause an increase in temperature. This increased temperature can then cause components to fail, potentially resulting in unplanned outages and injuries. In addition, the efficiency of an electrical grid becomes low prior to failure, thus energy is spent generating heat, causing unnecessary losses. If left unchecked, heat can rise to a point where connections melt and break the circuit; as a result, fires may occur.

Besides loose connections, electrical systems suffer from load imbalances, corrosion, and increase in impedance to current. Thermography can quickly locate hot spots, determine the severity of the problem, and help establish the time frame in which the equipment should be repaired.

Thermography is very useful when inspecting indoor components such as motor control centres, breaker panels, disconnect switches and transformers.

Another key benefit of thermography is the ability to perform inspections while electrical systems are under load. Since thermography is a non-contact diagnostic operations, the test engineer can quickly scan a piece of equipment from a safe distance, leave the hazardous area, and return to a safe place to analyse the data without ever putting himself in harms way.



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