

ELECTRICAL INSTALLATIONS AFTER A FLOOD OR FIRE

This Factsheet has been produced by the Electrical Contractors' Association (ECA), the UK's largest and leading trade association representing electrical, electronic, installation engineering and building services companies. Its purpose is to highlight how electrical installations can be damaged by flood and fire, and to assist property professionals recognise when a competent electrical contractor should be appointed.

AFTER A FLOOD

Floodwater can have a detrimental effect on electrical installations but the damage and potential dangers may not be immediately apparent.

After a flooding event, particularly if floodwater is still present in the property, an electrical contractor should be appointed to ensure the property is safe and where appropriate, that it is disconnected from mains power.

Temporary generators can be used as a source of power until it is safe to reconnect the property to mains power.

Impact of contaminants

Floodwater can contain damaging contaminants. For example, silt can penetrate electrical components that rely on mechanical movement to function, such as the circuit breakers in the distribution board. Salt can lead to the corrosion of plugs, sockets and other equipment connected to cables as well as any accessories.

A competent electrical contractor should be appointed to conduct a thorough inspection of all affected electrical installations to ensure they are safe.

Drying methods

Drying electrical installations affected by flooding using air blowers or nitrogen has proved to be ineffective. In most cases the only effective remedy is to replace the affected parts.

Plugs, sockets and other equipment connected to cables that have remained above the waterline may not require replacing. However, an inspection by a competent electrical contractor is advisable to ensure safety.

Occupant safety

Where occupants are permitted to return to a property during the drying process, a competent electrical contractor should be appointed to advise on what equipment can be used. This is to ensure it does not place excessive demand on the power supply, which may result in a loss of power.



Courtesy of Rainbow International

A competent electrical contractor should also be appointed to install temporary leads in affected areas, where it is necessary to do so.

AFTER A FIRE

Like flooding, fire can cause considerable damage to electrical installations but its effects may not always be visible.

A competent electrical contractor should be appointed to inspect the installation's exposure to heat, smoke, corrosion, contamination and of course, to the water used to fight the fire.

For example, PVC/PVC cables suffer accelerated degradation in temperatures over 70degC. These temperatures are often exceeded in areas such as ceiling voids away from the main area of the fire.

When burnt, PVC gives off hydrogen chloride. When hydrogen chloride is mixed with the water used to extinguish the fire, hydrochloric acid is formed which will corrode electrical cables, accessories and any plugs, sockets and other equipment connected to cables.

ENSURE YOU OBTAIN A PERIODIC INSPECTION AND REPORT (PIR)

Where a property has been damaged by a flood or fire, it is always advisable to appoint a competent electrical contractor to carry out a Periodic Inspection and Report (PIR) on the property.

The purpose of the PIR is to determine, where reasonably practical, whether the electrical installation affected by the flood or fire is in a satisfactory condition for continued service.

The PIR will involve a detailed inspection of the installation and appropriate tests to:

- Assess the safety of persons and livestock against the effects of electric shocks and burns
- Confirm that the installation is not damaged or deteriorated so as to impair safety

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- Assess the protection against damage to the property by fire and heat arising from an installation defect
- Identify any installation defects and departures from the requirements of BS7671:2008 (the Wiring Regulations)

ABOUT PIR CODES

In accordance with BS7671:2008, any issues identified during the Periodic Inspection that require consideration will be assigned a code in the report. The code meanings are below:

Code 1 - Requires immediate attention

This indicates a fault that poses a clear and immediate danger to those using the electrical installation and should be dealt with as a matter of urgency. For example, fire damage to cables that has exposed live conductors.

Code 2 - Requires improvement

This indicates a fault that does not present an immediate danger but that must be addressed to prevent it becoming dangerous. For example, a broken socket that does not expose live conductors.

Code 3 - Requires further investigation

This indicates an aspect of the installation that may appear safe but warrants further investigation. For example, exposure to excessive heat may have accelerated the degradation of the cable insulation, which if disturbed, may expose live parts.

Code 4 - Does not comply with the current edition of BS7671

This code indicates that the electrical installation was not carried out in accordance with the latest edition of the Wiring Regulations.



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FREQUENTLY ASKED QUESTION

Should electrical installations be replaced if they are old?

If the installation has not been damaged by a flood or fire, under the Wiring Regulations it will not need to be replaced if:

- It was installed according to a previous version of the Regulations
- It is still safe for continued use
- It is not due to be upgraded

COMPLYING WITH THE BUILDING REGULATIONS

Since its introduction in January 2005, electrical installation work carried out in all domestic properties and some commercial properties in England and Wales has been subject to Part P of the Building Regulations.

Part P applies to ALL electrical work and failure to meet its requirements is a criminal offence.

As a consequence of Part P, all electrical installation work in England and Wales now counts as “building work”, as defined in the Building Regulations 2000. This means that all electrical installation work in domestic properties and some commercial properties must be either*:

- Notified to a Building Control Body before the work commences

OR

- Undertaken by a competent person registered with a Government-approved competent person scheme provider, such as Elecsa (www.elecsa.co.uk)

*(*Unless the work is 'minor' in nature and does not come under the scope of 'notifiable work' under Part P. Details of the scope of work to be notified under Part P can be found in the ECA leaflet "Part P of the Building Regulations (2006 edition) - Explained" at www.eca.co.uk.)*

After a flood or fire, a competent electrical contractor should be appointed to ensure the safety of the affected electrical installations, to undertake a Periodic Inspection and report and where relevant, to satisfy Part P requirements.

To find a competent electrical contractor go to www.eca.co.uk/findamember.

FURTHER INFORMATION

Contact: Electrical Contractors' Association Tel: 020 7313 4800 or visit the website www.eca.co.uk