

This fact sheet has been designed to assist with the important decisions you must make while assessing flood damage to your home or business with regard to safety, term of operation and rebuilding/reconstruction.

Electrical testing of flood affected installations

It is essential that a licensed electrical contractor using licensed electrical workers to perform any electrical work due to an electrical installation affected by flood water.

If your home or business has been flood affected contact an Master Electrician as there is a need to check the whole installation before arranging the reinstatement of supply to the property which is dependent on the scope of damage and extent to which electricity is required.

Always heed Notifications left by your local electricity supply authority, never turn on switches unless you have been advised it is safe to do so.

If the installation is subject to major rectification because of flood damage or where existing electrical installations are found to be unsafe, then it may be practical to provide supply a single safe source of electrical supply to enable repairs - e.g. the installation of a power point to enable basic supply may be required.

The electrician is to refer to the Wiring Rules for inspection and testing installation wiring and fixed equipment. The test results should be in accordance with Section 8 of AS/NZS 3000. Some equipment may need to remain disconnected from supply while repair or replacement advice is sought from the equipment manufacturer.

Refer to the Wiring Rules regarding the requirements to install a safety switch. Circuits with an existing safety switch must continue to be protected by a safety switch. It is an offence to by-pass a safety switch because of a fault. Master Electricians Australia recommends all circuits be protected by safety switches.

For portable electrical equipment the electrician must assess the damage and refer to the Australian Standard AS/NZS 3760, after which the appropriate disposal of the equipment should be requested should it fail the required test. For electrical safety purposes, a defective appliance must be positively identified by signage or disconnection of the supply lead.

Flood-damaged electrical equipment

Where flood water has entered electrical equipment then the manufacturer's advice should be sought on how this equipment can be made electrically safe before it is re-energised. The manufacturer or its authorised agent should be consulted and subsequently engaged to evaluate the equipment before it is connected to the supply. In the absence of this advice, the equipment should be replaced or disconnected prior to re-energisation of the electrical installation.

If a safety switch is disconnected for this purpose it must be replaced before circuits protected by it are energised.

Conductive building material

Ensure you have an electrician check and test all conductive material such as metal foil insulation and metal building material (sarking) located in the ceiling, roof or walls, as it may have been damaged or dislodged and may now present an electrical risk. Always treat such material as live until it has been proven safe. Likewise, thermal ceiling insulation may have become dislodged and present an electrical and/or fire risk.

Solar photo-voltaic (PV) systems

Even if the network supply is turned off, solar PV systems will continue producing voltages and the PV cells and associated wiring will be live. Use the shut down instructions to safely turn off the isolation switches located next to the Solar Inverter. These instructions are usually located on your switchboard.

Where a solar PV system has been flood inundated, have an electrician check the system and safely isolate water-damaged components. Ensure the system is electrically safe before it is re-commissioned or before work commences in the area of the PV cells and associated electrical wiring.

Generator systems

Where an existing installation has a generator installed or the ability (appliance connection/changeover switch) for a standalone plug-in connection, ensure the genset does not include RCD protection on the outlet sockets as this may interfere with the reliable operation of the RCD protection installed on the main switchboard.

WARNING: Gensets used to energise an installation by the use of an extension lead with 2 male plugs which plug into socket outlets is EXTREMELY DANGEROUS. This is a Dangerous Electrical Event and MUST be reported to the Electrical Safety Office.

Electrical component	Issue	Recommendation
GPO's, Socket Outlets, Power Points, Light Switches	Internal contacts will be coated with mud/silt, switches may not turn on/off. Hot joints are a possible risk of failure due to corrosion or fire over time.	Replacement is the most economical solution as cleaning is not always possible and will not ensure correct operation.
Electronic Switches (Lights etc), Dimmer Switches & Timer GPO Combinations	May work initially but will eventually fail due to electronic component failure. Possible risk of fire.	Replacement is the safest solution.
Electrical Cables	As all general use electrical cables are not designed to be submerged in water there is a definite risk of shorting causing fire, electric shock, total or partial failure.	<ul style="list-style-type: none"> All cables should be tested by a qualified electrician in accordance with AS/NZS 3000:2018 Refer to clause 8.3.6.3 Notes. No allowances will be made for a substandard test. Replacement is highly recommended.
Pool Pumps & Filtration Systems	As with all electrical equipment the pool equipment must be tested prior to use. The filtration system and chlorinators will need attention.	<ul style="list-style-type: none"> Have a qualified electrician perform the tests to confirm the pool equipment is electrically safe. Contact a pool equipment professional to assess the filtering capabilities and possible water contamination prior to operation.
Switchboard: <ul style="list-style-type: none"> Circuit Breakers Safety Switches Relays Contactors 	<p>Circuit breakers: Operation cannot be successfully tested and may fail in the case of a fault due to mud/silt/chemical corrosion.</p> <p>Safety switches: As with circuit breakers, the operation of the device in a fault or shock situation can not be assured.</p> <p>Relays/Contactors: Devices as such will have contaminants on the contacts which may cause hot joints leading to fire, total or partial failure of the device.</p>	<ul style="list-style-type: none"> All devices listed adjacent should be replaced on the basis of safety and possible operational failure. It is recommended that all final sub circuits be protected by a safety switch.
Air Conditioners	<p>An air conditioner in most cases is split into two parts:</p> <ol style="list-style-type: none"> Indoor unit (Fan Coil): Unit must be fully tested and also if submerged in flood water should not be operated and be replaced due to the health issue of contaminated moisture penetrating the coil and filters. Outdoor unit (Condenser): Unit must be fully tested as electronic components may fail or short causing electric shock or fire. 	<ul style="list-style-type: none"> Must be inspected by an accredited air conditioning mechanic and an electrician and a full test completed. It is also recommended contact be made with a health consultant regarding the indoor unit and contamination. Replacement is highly recommended due to health issues. Parts may not be available to repair older models.

Electrical component	Issue	Reccomendation
Appliances: (Kitchen) <ul style="list-style-type: none"> • Refrigerators • Freezers • Stoves • Cook Tops 	Refrigerators/Freezers: In most cases once a refrigerator has dried out and has been tested it may work however you must consider the possibility of flood water accessing the inner lining of the appliance rendering a possible health issue due to contaminants. Stoves/Cook Tops: These appliances must be tested in accordance with the manufacturers specifications and only then can they be reused, possible health risk with the contamination of flood water.	<ul style="list-style-type: none"> • Have a qualified electrician perform the tests and report accordingly. • Speak with the health department regarding the health issues of contaminated flood mud. • If unsure seek advice from the product manufacturer.
Hot Water Service	As with all electrical equipment the hot water service must be tested prior to use. The water contained in the system must also be inspected.	<ul style="list-style-type: none"> • Have a qualified electrician perform the tests and report accordingly. • A plumber should be called to inspect the tank and water condition.
Appliances: <ul style="list-style-type: none"> • Televisions • DVD Players • Radios • Stereos • CD Players 	Refer to manufacturers repair agent. DO NOT USE UNTIL TESTED	<ul style="list-style-type: none"> • Refer to manufacturers repair agent. DO NOT USE UNTIL TESTED
Water Tank Pumps	As with all electrical equipment the water pump must be tested prior to use. The water contained in the system must also be inspected.	<ul style="list-style-type: none"> • Have a qualified electrician perform the tests and report accordingly. • A plumber should be called to inspect the tank and water condition.

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