



HAZARD ALERT

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Electrical Hazards Working With Metallic and Plastic Pipework

Background:

An Apprentice Plumber and his boss received a severe electric shock after cutting through a steel water pipe. The Apprentice's injury proved fatal, whilst his boss was treated for internal burns.

Hazard:

An electrical hazard is caused by the use of an outdated practice of earthing electrical installations to metallic pipes, such as gas and water systems. The current flow from an electrical fault can be constant, or intermittent, and come from either the premises the Plumber is working at, from an adjoining premises, or the main supply with the current flow traveling through the water/gas main. **Turning off the premise's main supply switch will not always isolate the electrical current.**

When working with piping constructed of plastic, measures shall be taken to discharge static electricity that may be present, or become present, during work. This is to remove any ignition source when working on gas installations. (AS5601)

Risk:

Serious injury or death may result when contact is made with the pipework. The human body acts as a pathway for the flow of electrical current. Fire or explosion may occur also when working on gas installations.

Risk Controls:

BONDING STRAPS (Metallic Pipework):

The only recommended way to avoid the possibility of an electric shock or electrocution from an electrical current when working on gas installations, or plumbing systems, is to provide a temporary electrical path around any proposed break in the pipework. A temporary electrical path can be achieved by fitting **BONDING STRAPS**. Bonding straps **MUST** be fitted whenever any of the following work is being done:

- Cutting or disconnecting gas service pipes and fitting lines (AS5601)
- Disconnecting appliances or changing gas controls
- Cutting or disconnecting water service lines
- Connecting or disconnecting water meters





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Bonding straps must be fitted wherever there is any possibility of breaking an unsuspected electrical path.

Bonding straps must be attached to each side of the proposed work and must not be removed until the work has been completed.

Plastic Pipework:

A method of discharging the static electricity related to plastic pipework is to wet the ground and dampen the pipe at the work area with a wet cloth. Then drape the cloth from the pipe to the ground to provide a path to earth. Under these conditions any static electricity should now have been discharged safely. (AS5601)

Neon Testers:

A neon tester is a tool that can be used to detect if there is electrical voltage present. If electrical voltage is detected, an electrician must be notified and the fault corrected before any work is carried out.

A neon tester will not show neutral current, i.e., current using the pipework as a neutral return.

A bridging device (100 amp bonding strap) **must always** be attached to clean areas of both sides of the intended pipe cut, as an electrical current may not always be detected, and can be intermittent.

Incorporating these guidelines in a Safe Work Method Statement and implementing them will reduce the risk of electrical incidents when working on metallic and plastic plumbing systems.



Heavy Duty with screw clamps

Complies with AS 3500.1



Prior to removing a water meter, spring type.

Steve Rocco V3 2020

