

SAFETY ALERT 002 – ELECTRICAL RISKS – ELECTRICIANS

Issue

In the past few months a number of issues has arisen regarding working with live power. A near miss occurred when an electrician whilst trying to install a down light came into contact with an exposed live wire. In another incident an electrician came into contact with a live cable whilst installing an air conditioning unit. Both incidents could have easily been prevented.

Controlling electricity risks (electricians)

Work on or near an energised electrical installation or service is high risk construction work and must not commence until a SWMS is prepared. The SWMS is to sufficiently describe the measures to control the risks and how they are to be implemented. Typically the electrician is to identify in their procedures controls for:

- De-energising and re-energisation
- Ensuring de-energisation is maintained for the duration of the work; and
- Safety performing verification tests and tests for live

Examples of risk control are shown in the table below supplied by WorkSafe Victoria:

| Hierarchy of Control for construction work | |
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| Level 1 | Eliminate any risk (eg de-energise all or that part of the installation being worked on and lock & tag out the isolation devices). |
| Level 2 | Reduce the risk by implementing one or a combination of the following: <ul style="list-style-type: none"> • substitute the hazard giving rise to the risk health or safety with a new activity, procedure, process or plant that is of lesser risk (eg use a non-conductive draw wire instead of metal wire). • isolate persons from the hazard (eg install temporary insulated barriers around live parts). • use engineering controls (eg retractable tip test probes and high impedance testers). |
| Level 3 | Reduce the risk using administrative controls (eg electrical testing procedures, safety observers, warning signage). |
| Level 4 | Control the risk by providing appropriate personal protective equipment (eg electrically rated gloves, eye protection, face shield, full coverage arc flash resistant clothes). |

1. De-energise the installation or part of the installation

In many cases it is possible for the electrician to eliminate the risk of an electrical shock by de-energising the installation. This can be done by removing the electrical service fuse (where possible) or by turning off and locking out the main switches or circuit isolation devices.

2. Use appropriate signage or tag

Once the service fuse or the main switches have been locked out a sign should be placed at the device location that:

- Warns again turning on the power, such as:
 - o "Danger working on electrical installation" or
 - o "Electricians working do not turn power on", and
- Is legible with lettering large enough to be easily read.

3. Verify the installation is de-energised

The electrical installation should be treated as being energised until verified by test that de-energisation has been achieved. Whenever the de-energised installation is left unattended it should be re-tested to ensure it is still de-energised before recommencing work.

Barriers to prevent accidental contact

Once an electrician has completed wiring works and/or removed electrical installations (e.g. lights, switches etc.) a temporary barrier, such as a junction box or electrical wire end capping can be installed until the GPO's and other fixtures installed. Electrical tape is also often wrapped around the cable ends to provide added security however tape on its own is not an adequate control measure as it can be easily removed and over time may become detached.

Such temporary barriers are particularly useful when lock-out and de-energisation is interrupted or of a long duration as it provides a failsafe if the lock-out or tag is removed resulting in re-energisation of the premises. There may also be other non-electrical works in the vicinity of the wiring which may require re-energisation and the capping of exposed wiring of the electrical cabling will allow this works to occur. It is also provides a visual identifier to non-electrical qualified personnel that the wiring has been adequately protected from accidental contact and there is no need to test as to whether the wiring is live or not.