

Workplace Health and Safety Queensland

Tree trimming/arbicultural industry - Electrical safety

Why do I need to be worried about electrical safety?

Electricity can kill if you give it the chance. Even non-fatal shocks can lead to severe and permanent injuries which may include burns, eye damage, partial loss of limb function, neurological problems such as memory loss and confusion, and injuries caused after the shock (e.g. falling from a ladder or contacting moving machinery).

Direct contact with electricity is not the only issue to be aware of. Even if you don't touch the power lines you are still in danger, as **electricity can arc** (jump gaps).

Working near overhead power lines is a very dangerous activity unless the appropriate precautions are taken. For this reason the *Electrical Safety Regulation 2002* states that persons, vehicles and operating plant (e.g. a vehicle including an elevated work platform) **must stay outside the defined exclusion zone applicable to the overhead power lines**. This includes anything the person, vehicle and operating plant may be carrying, connected to, controlling, holding and or lifting, unless the equipment is specifically designed to contact powerlines. The person must still remain outside the exclusion zone.

An exclusion zone refers to the minimum distance persons, vehicles and operating plant must keep away (in all directions) from an applicable power line. Exclusion zones are designed to keep people, vehicles and operating plant out of harm's way and away from the risk of sustaining electrical injuries.

It is against the law to go within an applicable exclusion zone.

What should I do?

There are a number of things that can be done to limit the risk of injury or property damage from electricity in the tree trimming / arbicultural industry. **Always** make sure that:

- you never attempt to do your own electrical work – it's dangerous, illegal and can be fatal. Illegal electrical work may also result in an insurer refusing to accept a claim. Always get a licensed electrician to do any electrical work;
- your work does not enter into your exclusion zone – (all work is to be conducted outside your exclusion zone);
- workers are trained in relation to cutting or trimming trees around overhead power lines;
- all equipment used around power lines is appropriate for that use; and
- all injuries, electric shocks and near misses are reported to the employer. The employer is required to notify the Electrical Safety Office of any serious electrical incidents (SEI) or dangerous electrical events (DEE). See the *Electrical Safety Act 2002* for definitions.

It is good industry practice when using items of plant (e.g. elevated work platforms, etc) near power lines to use a safety observer (or spotter) whose job is to watch the worker and their equipment and to warn them if they begin to get too close to their exclusion zone around the power lines; and to keep people away from the area at ground level where falling items (e.g. branches, etc) may land.

If you suspect that there is a reasonable likelihood that your work may cause a person, vehicle, operating plant, equipment and/or tree part to come within an exclusion zone or make direct contact with the overhead power lines, you must consult with the owner of the power lines (this is generally the local electricity supply authority, however, in some cases the power lines may be privately owned) prior to commencing the work. To do this you must give the owner of the power lines **written** notice that you intend to perform the work. **Within seven days of receiving your notice**, they must provide you with written 'safety advice' about the performance of the work.

You are not allowed to start work near the overhead power lines without this safety advice. Therefore it is critical that you assess the work requirements prior to commencing work and take the necessary steps to minimise the risks involved with work near overhead power lines.

Additionally, when using plant such as stump grinders or excavators to dig up tree roots etc, be aware that contacting '**Dial before you Dig**' on **1100** can assist with identifying the location and depth of underground services such as power, telecommunications and sewerage.

Exclusion zones

Exclusion zones apply to tree climbers as well as the operating plant (e.g. elevated work platforms, etc.) and any equipment they may use in the performance of their work. Any branches from trees being cut must also be controlled to prevent them from coming within the exclusion zone.

The actual dimensions of an exclusion zone will depend upon the voltage of the power lines, the competence, training and authorisation of the worker and the way in which the work will be performed. The exclusion zone itself is not eliminated unless the power lines are de-energised and or isolated (and earthed if high voltage power lines).

For low voltage power lines (less than 1000 volts) and/or low voltage service lines

connecting properties to the power lines along a road, the exclusion zone is **generally** three metres. A smaller exclusion zone may be possible, but only after consultation with the owner of the power lines and only after certain requirements are met.

Exclusion zone distances for high voltage power lines (over 1000 volts) vary somewhat. Guidance on exclusion zone distances can be found in Appendix B of the *Code of Practice - Working Near Exposed Live Parts*.

Other requirements

There are also legal requirements about when you need to have a safety switch and when you need to have it and any specified electrical equipment inspected and tested.

These requirements vary depending on the type of work being performed in different areas of the workplace. The types of work done in the tree trimming / arboricultural industry are likely to be manufacturing work and office work.

Manufacturing work means the work of assembly, disassembly, fabrication, installation, maintenance, manufacturing, refurbishment or repair, but does not include amusement work, construction work or rural industry work.

In the tree trimming/arboricultural industry, manufacturing work would most likely be the maintenance work carried out in the workshop and office work would be the work performed in the office associated with running the business. Some examples of *specified electrical equipment* requiring inspection, testing and tagging, which may be used the tree trimming / arboricultural industry include welders, electric hand held tools, air compressors, vacuum cleaners, extension leads, etc.

The table attached provides guidance on safety switch and inspection and test requirements to help you meet your electrical safety obligations.

Further information can be found at www.worksafe.qld.gov.au or by calling 1300 650 662 for electrical safety matters or 1300 369 915 for workplace health and safety matters.

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Guide to inspection and test requirements - Tree trimming/arboricultural industry

	Specified Electrical Equipment must be inspected, tested and tagged:	A Fixed safety switch must be tested in accordance with AS/NZS 3760:	A portable safety switch must be tested in accordance with AS/NZS 3760:
When used for Manufacturing Work²	<ul style="list-style-type: none"> for double insulated equipment – at least once every 12 months by a licensed electrician or a <i>competent person</i>; or for protectively earthed equipment – at least once every six months by a licensed electrician or a <i>competent person</i>; AND connected to a safety switch.³ 	<ul style="list-style-type: none"> immediately after it is connected by a licensed electrician or a <i>competent person</i>; AND at least once every six months by the user (push-button test only); AND at least once every 12 months by a licensed electrician or a <i>competent person</i>. 	<ul style="list-style-type: none"> immediately after it is connected by the user (push-button test only); AND daily or before each use, whichever is longer, by the user (push-button test only); AND at least once every 12 months by a licensed electrician or a <i>competent person</i>.
When used for Office Work	<ul style="list-style-type: none"> at least once every five years by a <i>competent person</i>; OR connected to a safety switch. 	<ul style="list-style-type: none"> tested immediately after it is connected by a licensed electrician or a <i>competent person</i>; AND at least once every six months by the user (push-button test only); AND at least once every 12 months¹ by a licensed electrician or a <i>competent person</i>. 	<ul style="list-style-type: none"> tested immediately after it is connected by the user (push-button test only); AND at least once every three months by the user (push-button test only); AND at least once every 12 months¹ by a licensed electrician or a <i>competent person</i>.

Notes:

- If the safety switch protects electrical equipment that is NOT in an environment where the supply cord is subject to flexing during normal use, and is NOT open to abuse, and is NOT in a hostile environment, then **the test interval is at least once every two years**, instead of 12 months.
- The use of piggyback plugs and double adaptors is NOT permitted in manufacturing work.
- From 1 March 2008 fixed safety switch protection is required for power points that supply the *specified electrical equipment*.
 - Records of all tests performed on safety switches and electrical equipment should be made and kept.
 - Consider testing safety switches outside normal trading hours, because when a safety switch is tested, the power to all equipment connected through it will be turned off.
 - If a safety switch does not trip immediately when the test button is pushed, it may be faulty. You should immediately turn the suspected faulty safety switch off, attach a warning tag and make sure the safety switch is NOT used until it has been inspected by a licensed electrician (this includes fixed safety switches).
 - Competent person** means a person who has acquired, through training, qualifications, experience or a combination of these, the knowledge and skill enabling the person to inspect and test electrical equipment.
 - Specified electrical equipment** includes extension leads, portable outlet devices (e.g. power boards) and plug-in electrical equipment (other than a portable safety switch). Note for the performance of **office work**, plug-in electrical equipment is only considered to be *specified electrical equipment* if it is **moved** during its normal use for the purpose of its use.