



Lightning and outdoor work

Lightning strikes can severely injure or kill outdoor workers. This fact sheet provides information about lightning and includes duties for employers of outdoor workers and precautions to be taken to reduce the risk of injuries and deaths as a result of lightning strikes.



In Australia, each year it is estimated lightning causes:

6 to 10
deaths a year

100
severe injuries

What is lightning?

During thunderstorms clouds build up an electrical charge. Lightning is a sudden electrostatic discharge caused by imbalances between storm clouds and the ground or within the clouds.

A lightning flash is always accompanied by the sound of thunder. If the flash is far away, the thunder may be inaudible. Light travels faster than sound. Sound travels at approximately 330m/s. Therefore the time between the flash and the bang gives an estimate of how close the lightning is. Three seconds represents roughly one kilometre. The risk of being struck by lightning increases when there is less than 30 seconds between the flash and the bang.

Lightning can cause injuries or death in a number of ways, including:

- direct strike – when a person is directly struck by lightning;
- contact voltage – when a person is in direct contact with a conductor that has been struck by lightning, either inside or outside a structure;
- side flash – when a person is struck by an arc or flash from a conductor carrying a lightning strike near the person; and
- ground current – injuries can occur when standing in the area of a lightning strike as the current can flow through the ground and enter and exit the body through the feet.

Lightning can also travel long distances in electrical conducting materials such as metal wires, fences, pipes, plumbing or other metal surfaces. Metal does not attract lightning but it provides a path for the lightning to follow. Whether inside or outside, contact with metal wires, electrical appliances, pipes, plumbing, landline telephones, windows and doors should be avoided.

There is no danger in touching a person who has been struck by lightning. If a person is struck by lightning, first aid is required urgently and should be started without delay.

Lightning in Western Australia

Thunderstorm activity occurs throughout the year in metropolitan and regional areas in Western Australia. Lightning activity is particularly prevalent during summer months in the inland regions from the southern wheat belt through the central and eastern Goldfields and from the Pilbara to the Kimberley region.

Regional Offices

Employers and workers must take precautions to prevent exposure to lightning as it is an occupational hazard. Workers whose jobs involve working outdoors in open spaces, on or near tall objects or near metal or other conductive materials are at increased risk.

Occupations at risk for lightning strikes include:

- workers in forestry and logging;
- farming and field workers (eg broad acre farms, stations, vineyards, orchards);
- rangers;
- linesman and electrical workers;
- construction workers (eg roofing, scaffolding, building maintenance, steel erection);
- plumbers and pipefitters;
- telephone and cabling installers;
- railway workers (eg installation and maintenance);
- pipeline workers (eg installation and maintenance);
- operators of heavy equipment;
- workers in gardening services, lawn mowing, landscaping and horticulture;
- pool and beach lifeguards;
- airport ground personnel;
- drilling crews;
- mine workers;
- geologists;
- surveyors;
- workers involved in storage and handling of explosives;
- workers at outdoor events;
- workers on sport fields, golf courses; and
- racetrack workers and jockeys.



Duties for employers of outdoor workers

Employers need to have systems in place to ensure the safety of outdoor workers during lightning. As part of the risk management process employers need to:

- identify hazards associated with lightning, assess the risk and implement control measures to prevent workers exposure to lightning;
- monitor the latest weather forecast and warnings and take action when required;
- provide instruction and training to outdoor workers on lightning risks and actions to be taken when lightning is forecasted or occurs; and
- develop an evacuation plan, detailing actions to be followed when outdoor work is affected by lightning.



Precautions to be taken when working outdoors and there is a risk of lightning

- Seek shelter in a substantial building or a metal bodied car when the lightning-thunder gap is less than 30 seconds.
- Never shelter under trees.
- If boating or engaged in aquatic activities, head for shore straight away. If this is not practicable when on a boat deck, keep a low profile and avoid contact with or being close to masts, rails, stay wires or metallic objects, avoid unnecessary contact with communication or navigations equipment and avoid contact with water.
- Avoid touching, handling and proximity to metal objects that may become part of the discharge path, for example towers, mobile plant, power lines, fences and pipes.
- Avoid using electrical equipment, hand tools and landline telephones.
- Avoid handling fishing rods, umbrellas, golf clubs or any metal objects and stay clear of sheet metal, wire fences, clotheslines, streams, pools of water and so on.
- If caught in the open, crouch down with your feet together as low as possible with minimal contact with the ground. Do not lie down. If in a group, stay approximately three meters from other persons.

Further information

- WorkSafe website: www.dmir.wa.gov.au
- Bureau of meteorology: [Preparation and safety during thunderstorms](#)
- Australian/New Zealand Standard 1768-2007 Lightning protection

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