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# DOMESTIC SPRINKLER SYSTEMS

The purpose of this document is to provide information relating to domestic sprinkler systems as a fire safety measure.

## Types

There are three types of domestic sprinkler systems that are commonly referred to in terms of fire safety.

1. The first is installed within the ceiling of the dwelling for the purpose of suppressing domestic fires and limiting the damage they cause.
2. The second is installed on the outside of the roof for the purpose of protecting the building from ember attack in bushfires.
3. The third is installed on the ground, surrounding the house, for the purpose of protecting the property from an approaching bushfire front.

## Internal sprinklers

### How do internal ceiling sprinklers work?

A sprinkler head is really an automatic (open once only) tap. The sprinkler head is connected to a pressurised water system. When the fire heats up the sprinkler head, it opens at a preset temperature, allowing pressurised water to be sprayed both down onto the fire and also up to cool the hot smoky layer and the building structure above the fire. This spray also wets combustible material in the vicinity of the fire, making it difficult to ignite, thereby slowing down or preventing fire spread and growth. Sprinkler systems also bring other benefits such as reducing heat, smoke and toxic gas emissions.

### Internal domestic sprinklers are designed to:

- Activate quickly once the operating temperature (57-79°C) is reached.
- Suppress the fire to increase the time for occupants to escape.
- Restrict the fire to the room it starts in.
- Reduce property damage.

### Did you know...

*The combined damage from a fire and the water used by firefighters dramatically exceeds that likely from a properly installed sprinkler system.*

### Benefits of domestic sprinklers:

- Reduces property damage and the associated costs caused by fire or the water used to put out the fire.
- Reduced toxins in the air means less damage to lungs and clearer exit paths (Reduction in toxic smoke/contaminants by up to 97% (FM Global research)).
- Fire remains at a lower temperature reducing the likelihood of escalation.
- Reduces the risk for firefighters in entering properties on fire.
- Reduces the temperature in the house.
- Improves conditions for firefighters searching for occupants and battling (fighting) the fire.
- Structural integrity is more likely to remain, meaning occupants can return sooner.
- Spread of fire to neighbouring properties is reduced.
- Reduced environmental damage in terms of air quality and physical resources.

## External sprinklers

### How do external sprinklers work?

The objective of an external sprinkler system is to help extinguish embers that land on the roof or other parts of the building.

To operate effectively, this type of sprinkler system needs to have an appropriate, adequate water supply, an activation mechanism and a delivery system including pipes and heads that will discharge water at appropriate densities.

Pipes must be made of non-combustible materials. The spray heads need to be carefully chosen so that they provide an appropriate spray pattern and discharge density that can operate effectively during a bushfire.

### External sprinklers are designed to:

- Be activated by the occupant when threat of bushfire (ember attack or fire front) is imminent.
- Saturate the property, thus protecting the structure from fire.
- Reduce property damage.

### Benefits of external sprinklers:

- Creates a more resilient community.
- Reduces the likelihood of property damage from approaching fire or ember attack.
- Improved conditions for firefighters battling bushfires.
- Structural integrity is more likely to remain meaning occupants can return sooner.
- Reduced environmental damage in terms of air quality and physical resources.

#### Remember

*It is important to contact a company with experience in this field to determine what is needed for your circumstances.*

## Australian Standards

Australian Standard 2118.4 Automatic fire sprinkler systems - Residential.

Australian Standard 2118.5 Automatic fire sprinkler systems - Home Fire Safety Sprinkler Systems.

