Specialist Disability Accommodation Alliance

HOME FIRE SPRINKLER COALITION AUSTRALIA
A Partnership of AFAC and FPA Australia

Frequently Asked Questions: Home and Residential Fire Sprinklers

Can fire sprinklers save lives?

Yes. Most fatal home fires occur at night when people are sleeping. The very young, older adults and people with disabilities are at the greatest risk. Fires are fast: they can become deadly in just three minutes. House fires today are more deadly than ever before due to toxic fumes from modern synthetic furniture and furnishings, and modern designs.

Fire sprinklers offer the highest degree of fire protection and are critical in saving lives and property. Each year, fire sprinklers save thousands of properties across the country. Numerous Australian and international studies have repeatedly demonstrated that automatic sprinklers give occupants around a 90% improvement in surviving a typical house fire. No other single residential fire safety measure is comparable to the life-saving benefits of fire sprinklers.

Why are fire sprinklers important in Specialist Disability Accommodation?

Fire sprinklers are advisable for all Australians. However, for people living with disability in Specialist Disability Accommodation, fire sprinklers are vital. This is because a person living in Specialist Disability Accommodation will require more time and assistance to evacuate the building. Worldwide examples highlight the dire consequences when effective fire protection and evacuation systems are lacking for people with disability.

Specialist Disability Accommodation seeks to provide a less institutional, more homelike environment: it allows people to live in the community with an appropriate level of support and safety. At night, when most fatal fires occur, people living in Specialist Disability Accommodation have the lowest staffing ratios (and people cannot smell fire when they are asleep). Carers who assist people with disability are not firefighters: they have neither the specialist operational training nor equipment to put out a significant fire and cannot be expected to risk their own lives by returning to a blazing building.

Fire sprinklers not only put out fires but create a safer environment, extending the time all occupants have to safely escape, including residents and carers, and significantly reduce the risks to responding firefighters. In some cases, the fire will be out before firefighters arrive.

Occupants of Specialist Disability Accommodation are over-represented in preventable fire fatality statistics, so the early activation of home fire sprinklers maximises their chance of surviving a fire.

Are fire sprinkler systems cost-effective?

Home sprinkler systems are far cheaper than the systems installed in commercial buildings. The cost of installing a home sprinkler system into most new dwellings is typically below $5,000, depending on the size of the dwelling, the water supply and how many sprinkler heads are installed.

There are a number of options available on the market. For example, the FPAA101D system – a Deemed-to-Satisfy solution referenced in the National Construction Code – offers a cost-effective solution. The 2018 Australian Building Codes Board Regulatory Impact Statement calculated that installing FPAA101D rather than an AS 2118 system would save approximately $100,000 in construction and maintenance costs per typical mid-rise apartment building (in 2023 AUD).

Will fire sprinklers negatively impact the aesthetics of a home and create an 'institutional' feel to a building?

No. There are several types of automatic fire sprinkler heads, each designed to be used in a particular application and dwelling. For example, pendant sprinkler heads are typically used in commercial, retail and industrial buildings. For residential installations, concealed heads are recommended as they can be mounted behind a colour-matched cover plate that sits flush to the ceiling. Concealed heads are as unobtrusive as possible, while still offering protection against accidental damage or tampering.

Why are fire sprinklers necessary if a smoke alarm is installed in a home?

Smoke alarms are mandatory in every home. However, they can only detect and warn of a fire, not suppress or control it. Fire sprinklers detect the fire and automatically control it, saving lives and property. In the 7-10 minutes an urban fire department needs to respond, an uncontrolled fire can grow and spread throughout the home, causing tremendous smoke and fire. A sprinkler can detect and activate in a much shorter time, controlling a fire and increasing the time for occupants to safely escape.

What temperature needs to be reached for fire sprinklers to activate, and does this temperature present any risk to residents?

Heat from a fire rises, so fire sprinklers activate quickly once the operating temperature of 57-79°C is reached at the ceiling level, where sprinkler heads are typically installed. The sprinkler head acts as a heat detector that quickly applies water to suppress or extinguish a fire in its initial stages, before it grows exponentially in heat, smoke and damage.

Will fire sprinklers result in water damage that is worse than fire damage?

No. A sprinkler head flows at around 38–50 litres of water per minute. Only the one sprinkler head closest to the fire opens. All the other sprinklers remain sealed, so the water is confined to just the area of the fire. If a fire does grow to activate the next nearest sprinkler head, the fast application of water to limit fire, smoke and heat damage is still preferable to the significant fire loss resulting from an uncontrolled fire. The property loss in a sprinklered home fire is a small fraction of the typical loss in an unsprinklered home fire.

It is a common misconception that when a smoke alarm activates, the sprinklers activate. In home systems, the smoke alarms give residents critical early warning but are not connected to the fire sprinklers.

Are fire sprinklers prone to malfunctioning?

Fire sprinklers are simple, reliable and proven: sprinkler mishaps (such as leaks) are generally less likely and less severe than home plumbing system problems. In fact, there's only a 1 in 16 million chance they'll discharge accidentally.

Can fire sprinklers minimise the environmental impact?

Yes. Building fires can have a significant impact on the environment. For example, as combustible materials burn, they release carbon dioxide and other toxic gases. Firefighter intervention in an uncontrolled fire requires a large amount of water to extinguish the flames, and the wastewater from firefighting often contains pollutants from the burnt material in the home, which can end up in waterways.

Fire sprinklers are effective in minimising the environmental impact of building fires as outlined below:

- Fire sprinklers control the spread of fire significantly reducing its size and damage (up to 97%).
- Reducing the size and amount of combustible material consumed by the fire subsequently reduces the carbons and toxic gases released (by 97.8%).
- Firefighter intervention in a sprinkler-controlled fire requires much less water resulting in a fraction of the waste water (up to 91% less total water used).
- Smaller fires result in less disposal of damaged material and less reconstruction, consuming less carbon overall.