

FIRE PROTECTION SYSTEMS

Welcome to Passive Fire Warehouse: Technical Information on fire protection systems.

The following information is intended to provide you with a brief summary and overview of Fire Protection Systems. The content is for your general information only and is subject to change without notice.

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FIRE PROTECTION SYSTEMS

Fire protection is the practice of either controlling or limited the effects of fire. It involves different aspects of containing, putting out or controlling a fire including compartmentation and suppression. Buildings must be constructed in accordance with the version of the building code that is in effect when an application for a building permit is made. Building inspectors check on compliance of a building under construction against this building code. Once construction is complete, a building must be maintained in accordance with the current fire code.

This page will explore Fire Classifications, FRL (Fire Resistance Levels), Passive Fire Protection and Active Fire protection using suppression systems.

Classifying Fires

When deciding on what fire protection is appropriate for any given situation, it is important to assess the types of fire hazard that may be faced. Some jurisdictions operate systems of classifying fires using code letters. Whilst these may agree on some classifications, they also vary. Below is a table showing the standard operated in Australia.

Type of Fire	Australia
Fires that involve flammable solids such as wood, cloth, rubber, paper and plastics.	Class A
Fires that involve flammable liquids or liquefiable solids such as petrol/gasoline, oil, paint, some waxes & plastics, but not cooking fats or oils	Class B

Fires that involve flammable gases, such as natural gas, hydrogen, propane, butane Class C

Fires that involve combustible metals, such as sodium, magnesium, and potassium Class D

Fires that involve any of the materials found in Class A and B fires, but with the introduction of an electrical appliances, wiring, or other electrically energized objects in the vicinity of the fire, with a resultant electrical shock risk if a conductive agent is used to control the fire. Class E

Fires involving cooking fats and oils. The high temperature of the oils when on fire far exceeds that of other flammable liquids making normal extinguishing agents ineffective. Class F

FRL (Fire Resistance Level) - Sometimes incorrectly referred to as Fire Rating Level

The FRL or Fire Resistance Level is made of of three separate components and is defined in minutes. for example, a 120/120/120 means that each of the three elements maintained a fire resistance of at least 120 minutes. Sometimes, when there is a dash, it means only the other timed elements were tested for and there was no requirement for this element - for example: - / 60 / 60.

All Fire Resistance Levels are tested within Australia to AS1530 Part 4.

The three components are:

- A structural Adequacy (The system did not collapse - the main outer frame for example)
- Integrity of 60 minutes (Parts of the system did not deteriorate - no holes in panels/joints for example)
- Insulation of 60 minutes. (Heat transfer from the fire side to the non-fire side. This is 180 degrees above ambient temperature)

The difference between passive and active fire protection?

PASSIVE FIRE PROTECTION

Passive fire protection systems are systems which require no mechanical activation or maintenance and are designed to slow the growth of fire and/or maintain compartmentation between the fire side and non-fire side - Generally products relating to passive fire are:

- Intumescent (expanding material which expands on heat, to roughly 20 times its original size)
- Fire doors (containing Vermiculite, which is noncombustible and has good sound and insulation properties)
- Fire rated boards, foams and panels (such as fire rated plasterboard)

- Fire rated Vermiculite and sprays

ACTIVE FIRE PROTECTION

Active fire protection systems are systems which seek to extinguish the fire through:

- Detecting the fire early and evacuating the building
- Alerting emergency services at an early stage
- Controlling the movement of smoke and fire (such as the use of Smoke Curtains for example)
- Suppress and/or starve the fire of oxygen and fuel (Such as the use of Sprinkler systems for example)

For further information or to purchase Active or Passive Fire products online, please [click here](#):