

# Guide to the Selection and Location of Portable Fire Extinguishers and Fire Blankets



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- Australian Institute of Building Surveyors
- Building Standards and Regulation
- Fire Protection Association of Australia (Tas Branch)

# INDEX

Introduction	1
Extinguisher Rating and Classification	2
Class of Buildings Relevant to the 'Guide'	3
Using the 'Guide' (Example One)	4
Using the 'Guide' (Example Two)	5
Extinguisher Location and Selection Flow Chart	6
Mounting of Portable Fire Extinguishers	7
'E' Class Extinguishers (Energized Electrical Equipment)	8
'F' Class Extinguishers (Cooking Fats and Oils)	9
'B' Class Extinguishers (Flammable Liquids)	10
'A' Class Extinguishers for Light Hazard Fire Compartments <500m <sup>2</sup>	11
'A' Class Extinguishers for Ordinary Hazard Fire Compartments <500m <sup>2</sup>	12
'A' Class Extinguishers for High Hazard Fire Compartments <500m <sup>2</sup>	13
Flammable Gas Storage and Filling Facilities	14
Motorised Transport	15
Fire Blankets	16
Fire Blanket Location Sign	17
Portable Fire Extinguisher Guide	18
Fire Extinguishers - Maintenance	19
Inspection Schedules for Portable Fire Extinguishers	20
Fire Blankets - Maintenance	25



## Introduction

Welcome to the revised "Guide for the Selection and Location of Portable Fire Extinguishers and Fire Blankets". This document has been prepared to provide advice to assist in the selection and locating of extinguishers and fire blankets in and around buildings and supersedes the previous 'Guide' dated August 2000. This guide differs from the superceded document in that it has now been directly aligned with the relevant statutory requirements so that an accurate and uniform approach to the supply, installation and maintenance of portable fire extinguishers and fire blankets is provided.

While the 'Guide' is aimed primarily at new buildings, it will also assist in the identification of suitable extinguishers for existing buildings. It should be noted that the provision and maintenance requirements for extinguishers, arise from a variety of sources including:

1. Building Legislation;
2. Workplace Health and Safety Legislation;
3. Dangerous Goods Legislation;
4. Fire Service Legislation; and
5. Public Health Legislation.

The existing arrangements for extinguishers may have stemmed from any one of these sources and confirmation should therefore be sought from the relevant authority prior to the removal of any extinguisher.

This guide is not intended to be a complete document for the selection, location and maintenance of portable fire extinguishers and fire blankets and therefore, where uncertainty exists, users of this 'Guide' are encouraged to refer to the relevant section of the Building Code of Australia or appropriate Australian Standard as detailed in the following table:

<b>Building Code of Australia</b>	Table E1.6 - Requirements for extinguishers.
<b>AS 2444 - 2001</b>	Portable fire extinguishers and fire blankets – Selection and location.
<b>AS 1851 - 2005</b>	Maintenance of fire protection equipment – Portable fire extinguishers and blankets.
<b>AS 1940 - 1993</b>	The storage and handling of combustible and flammable liquids.
<b>AS 1596 - 2002</b>	The storage and handling of LP Gas.
<b>AS 2118.1 - 1999</b>	Automatic fire sprinkler systems – General requirements.

It should be noted that any revision to the above references may render parts of this 'Guide' obsolete. In the event that uncertainty exists, it is recommended that further advice be sought from the relevant Council or a Tasmania Fire Service Building Safety Office.

Portable fire extinguishers are a first-attack fire-fighting appliance and are particularly effective for fire that is in an early stage of growth. There is no true all-purpose fire extinguisher and it is therefore important for people who are tasked with the use, selection and locating of fire extinguishers to assess the suitability of different extinguishing agents for various types of fires. Re-ignition, burns, electrocution or fire spread are some of the risks faced by the operator should the wrong extinguisher be selected.

Any queries regarding the information contained in this document should be directed to the nearest Tasmania Fire Service Building Safety office or e-mailed to **[BuildingSafety@fire.tas.gov.au](mailto:BuildingSafety@fire.tas.gov.au)**

## Extinguisher Rating and Classification

Fire extinguishers which comply with Australian Standards are marked with a classification and rating, determined in accordance with AS/NZS 1850:1997, that indicates the class and size of the fire for which the extinguisher has been tested.

An extinguisher should be selected for its capacity to extinguish a perceived type and size of fire relevant to the identified risk.

When a fire extinguisher is rated for more than one class of fire, it is expressed in alphabetical order, eg. 2A:40B(E) (As shown in the following table).

2	A	40	B	(E)
Rating relative to a specific size of carbonaceous fire	Fire involving carbonaceous materials E.g. wood, paper, timber etc.	Rating relative to a specific size of flammable liquid fire	Fire involving flammable liquid E.g. petrol, oil, turps etc.	Fire involving energised electrical equipment E.g. switchboards, photocopiers, computers etc.

For the purpose of classification, the classes are defined as follows:

**Class A:** fire involving ordinary combustible materials, such as wood, cloth, paper, rubber and many plastics.

**Class B:** fire involving flammable and combustible liquids, greases and oils.

**Class C:** fire involving combustible gases.

**Class D:** fire involving combustible metals.

**Class (E):** fire involving energised electrical equipment.

**Class F:** fire involving cooking oils and fats.

## Class of Buildings Relevant to the “Guide”

The legislative requirements for extinguishers contained in this guide apply only to the following class of building as prescribed in Clause A3.2 of the Building Code of Australia.

**Class 2:** a building containing 2 or more sole-occupancy units each being a separate dwelling.

**Class 3:** a residential building, other than a building of Class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons, including:

- (a) a boarding-house, guest house, hostel, lodging-house or backpackers accommodation; or
- (b) a residential part of an hotel or motel; or
- (c) a residential part of a school; or
- (d) accommodation for the aged, children or people with disabilities; or
- (e) a residential part of a health-care building which accommodates members of staff; or
- (f) a residential part of a detention centre.

**Class 4:** a dwelling in a building that is Class 5, 6, 7, 8, 9 if it is the only dwelling in the building.

**Class 5:** an office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.

**Class 6:** a shop or other building for the sale of goods by retail or the supply of services direct to the public, including:

- (a) an eating room, café, restaurant, milk or soft-drink bar; or
- (b) a dining room, bar, shop or kiosk part of a hotel or motel; or
- (c) a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- (d) market or sale room, showroom, or service station.

**Class 7:** a building which is:

- (a) Class 7a - a carpark; or
- (b) Class 7b - for storage, or display of goods or produce for sale by wholesale.

**Class 8:** a laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale or gain.

**Class 9:** a building of a public nature:

- (a) Class 9a – a health-care building; including those parts of the building set aside as a laboratory; or
- (b) Class 9b – an assembly building, including a trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another class; or
- (c) Class 9c – an aged care building.

## Using the “Guide”

The following examples are aimed at assisting the user to interpret how the guide is used by identifying the risks and selecting an appropriate extinguisher for that risk, as outlined in the relevant Australian Standard.

Where a particular extinguisher has been recommended by this ‘Guide’ and that extinguisher is not commercially available, an extinguisher of a greater rating is recommended appropriate to that classification (e.g 2A:20B(E) could be upgraded to 2A:30B(E)).

### Example One

*A 450m<sup>2</sup> (15m x 30m) fire compartment used as a Telephone Exchange, no hose reels are installed nor sprinkler system. An emergency switchboard has been installed. The building has a kitchen but no stove or deep fryer.*

Following the flow chart on page 6, we gain the required information by asking – Is the compartment,

- |   |                                       |
|---|---------------------------------------|
| 1. fitted with an Emergency Services Switchboard?                   | Yes: Class ‘E’ extinguishers required |
| 2. containing a kitchen with stove or deep fryer?                   | No                                    |
| 3. where >50L of flammable liquid is stored or used?                | No                                    |
| 4. under 500m <sup>2</sup> and not provided with hose reels?        | Yes: Class ‘A’ extinguishers required |
| 5. classrooms or associated corridors not provided with hose reels? | No                                    |
| 6. subject to specific provisions requirements?                     | No                                    |

### Additional Recommendations

- |   |  |
|---|--|
| 7. containing electrical or electronic risks?                   | Yes: Class ‘E’ extinguishers recommended |
| 8. containing flammable gases?                                  | No                                       |
| 9. subject to small Class ‘A’ ‘B’ & ‘F’ or ‘human torch’ fires? | No                                       |

### Workings

- Referencing page 8 tells us that this building requires 1-2A:40B(E) rated dry chemical powder extinguisher fitted with a hose, or equivalent, installed within 2 to 20 metres of the ‘Emergency Services Switchboard’.
- Referencing a telephone exchange on Page 12 shows us the requirements for a 450m<sup>2</sup> unsprinklered compartment. Having reviewed the layout of the compartment, we decide on 5-2A rated extinguishers (approximate coverage 500m<sup>2</sup>) but most importantly, with this number of extinguishers, the 15 metre travel distance will not be exceeded.
- The Guide’s ‘Additional Recommendations’ are:
  - 2A:40B(E) rated dry chemical powder extinguisher or equivalent be installed within 2 to 20 metres of the high-density electrical equipment (e.g. computer pool room and significant switchboard etc).
  - 1A:20B(E) rated dry chemical powder extinguisher fitted with a hose, or equivalent, is recommended and should be installed within 2 to 40 metres of the low-density electrical equipment (e.g. photocopiers, minor switchboards etc).

### Summary

By combining the 5-2A rated extinguishers with a 40B(E) rating and classification, we will have 5-2A:40B(E) dry chemical powder extinguishers that, when sited appropriately, are capable of covering the Class ‘E’ and ‘A’ fire risks as well as coverage to those items mentioned under ‘Additional Recommendations’.

## Example Two

A 450m<sup>2</sup> (15m x 30m) 'Retail Hardware Store' with no hose reels or sprinkler system installed. A 2,000 litre LPG cylinder is located at the rear of the site, which is used to refill domestic cylinders and to feed the commercial kitchen of a separate tenancy café. The kitchen is fitted with a deep fryer which has an exposed surface area of less than 2m<sup>2</sup> but contains more than 50 litres of oil. There is also a storage cabinet within the building where approximately 200 litres of flammable liquid is stored.

Following the flow chart on page 6, we gain the required information by asking – Is the compartment,

- |   |                                       |
|---|---------------------------------------|
| 1. fitted with an Emergency Services Switchboard?                   | No                                    |
| 2. containing a kitchen with stove or deep fryer?                   | Yes: Class 'F' extinguishers required |
| 3. where >50L of flammable liquid is stored or used?                | Yes: Class 'B' extinguishers required |
| 4. under 500m <sup>2</sup> and not provided with hose reels?        | Yes: Class 'A' extinguishers required |
| 5. classrooms or associated corridors not provided with hose reels? | No                                    |
| 6. subject to specific provisions requirements?                     | No                                    |

### Additional Recommendations

- |   |  |
|---|--|
| 7. containing electrical and electronic risks?  | Yes: Class 'E' extinguishers recommended |
| 8. containing flammable gases?                  | Yes: Class 'E' extinguishers recommended |
| 9. subject to small Class 'A', 'B' & 'F' fires? | Yes: fire blanket recommended            |

## Workings

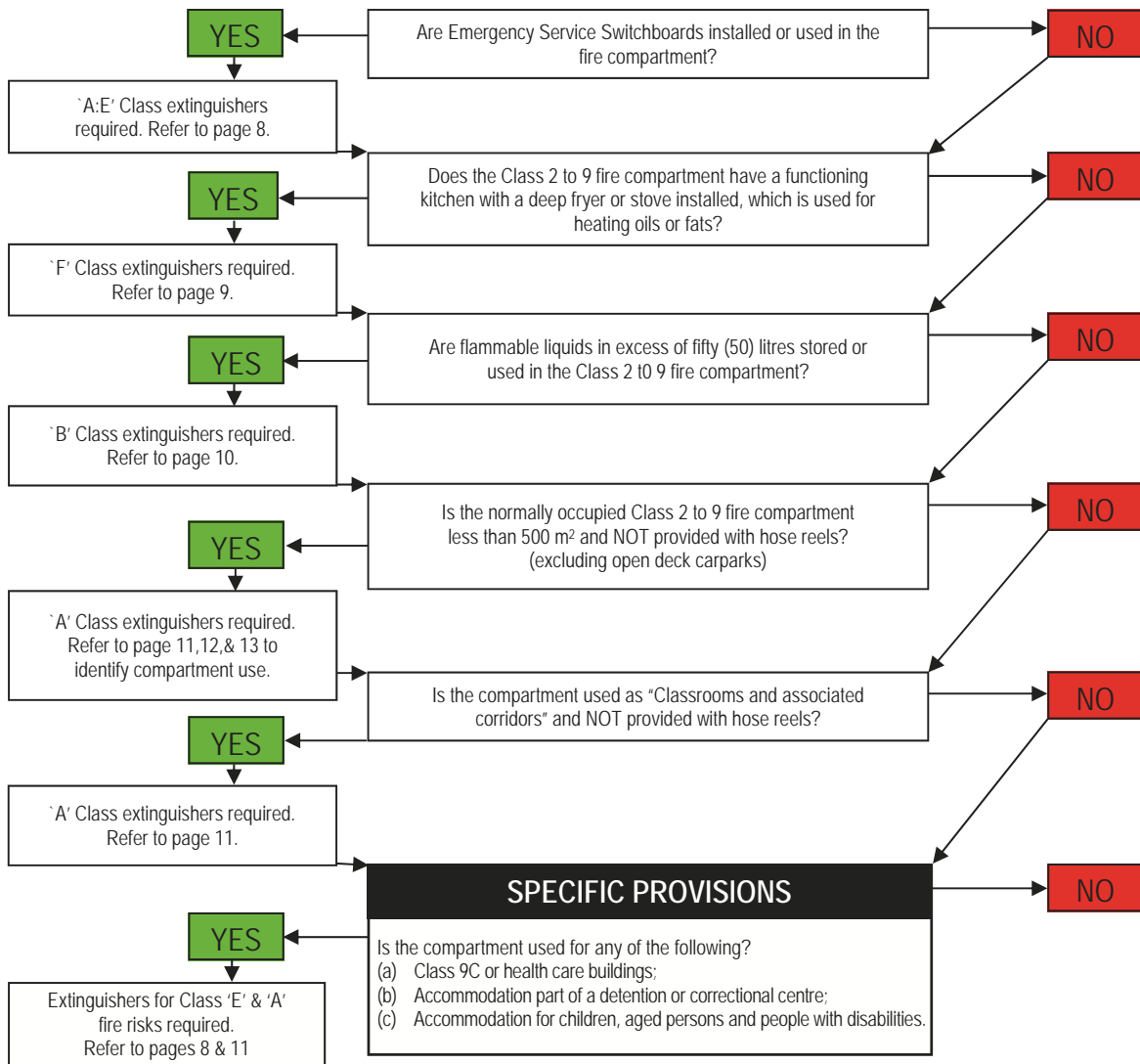
- Referencing page 9 tells us that 1-2F rated wet chemical extinguisher is required for a deep fryer with less than 2m<sup>2</sup> but more than 50 litres of oil.
- Referencing page 10 tells us that 1-40B rated foam or 1-40B(E) rated dry chemical powder extinguisher is required to be located between 3 and 10 metres from the flammable liquid cabinet.
- Referencing a Retail Store on Page 12 shows us the requirements for a 450m<sup>2</sup> unsprinklered compartment. Having reviewed the layout of the compartment, we decide once again on 5-2A rated extinguishers (approximate coverage 500m<sup>2</sup>) so that our 15 metre travel distance will not be exceeded.
- The Guide's 'Additional Recommendations' are:
  - 1A:20B(E) rated dry chemical powder extinguisher, fitted with a hose or equivalent within 2 to 40 metres of the low-density electrical equipment (e.g. photocopiers, minor switchboards etc);
  - 2A:60B(E) rated dry chemical powder extinguisher to cover the LPG risk and located adjacent to the cylinder; and
  - a fire blanket because a deep fryer oil risk is present.

## Summary

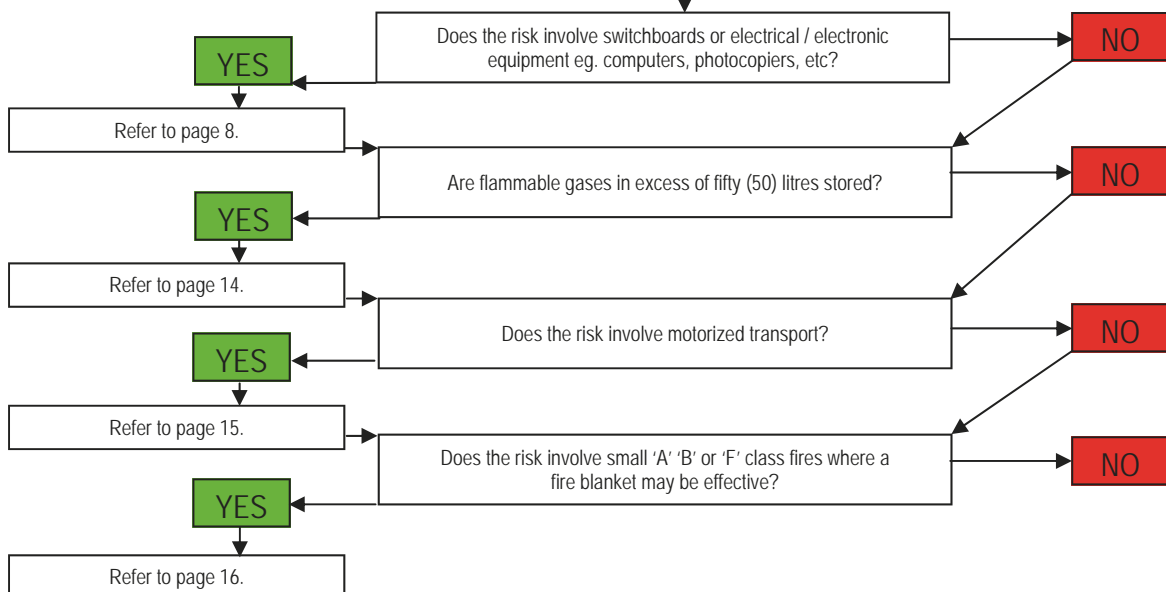
We know that we require 1-2F wet chemical extinguisher for the heated oil risk. Next, by combining the 5-2A extinguishers with the 40B(E) rating and classification, we will have 5-2A:40B(E) dry chemical powder extinguishers. When sited appropriately, these extinguishers are capable of covering the flammable liquid risk, the 'A' class risks and the Class 'E' risks mentioned under 'Additional Recommendations'. In addition, the client also accepted the recommendation for 1-2A:60B(E) rated dry chemical powder extinguisher for the flammable gas risk and a 1200mm x 1800mm fire blanket to support the Class 'A', 'B' & 'F' fire risk.



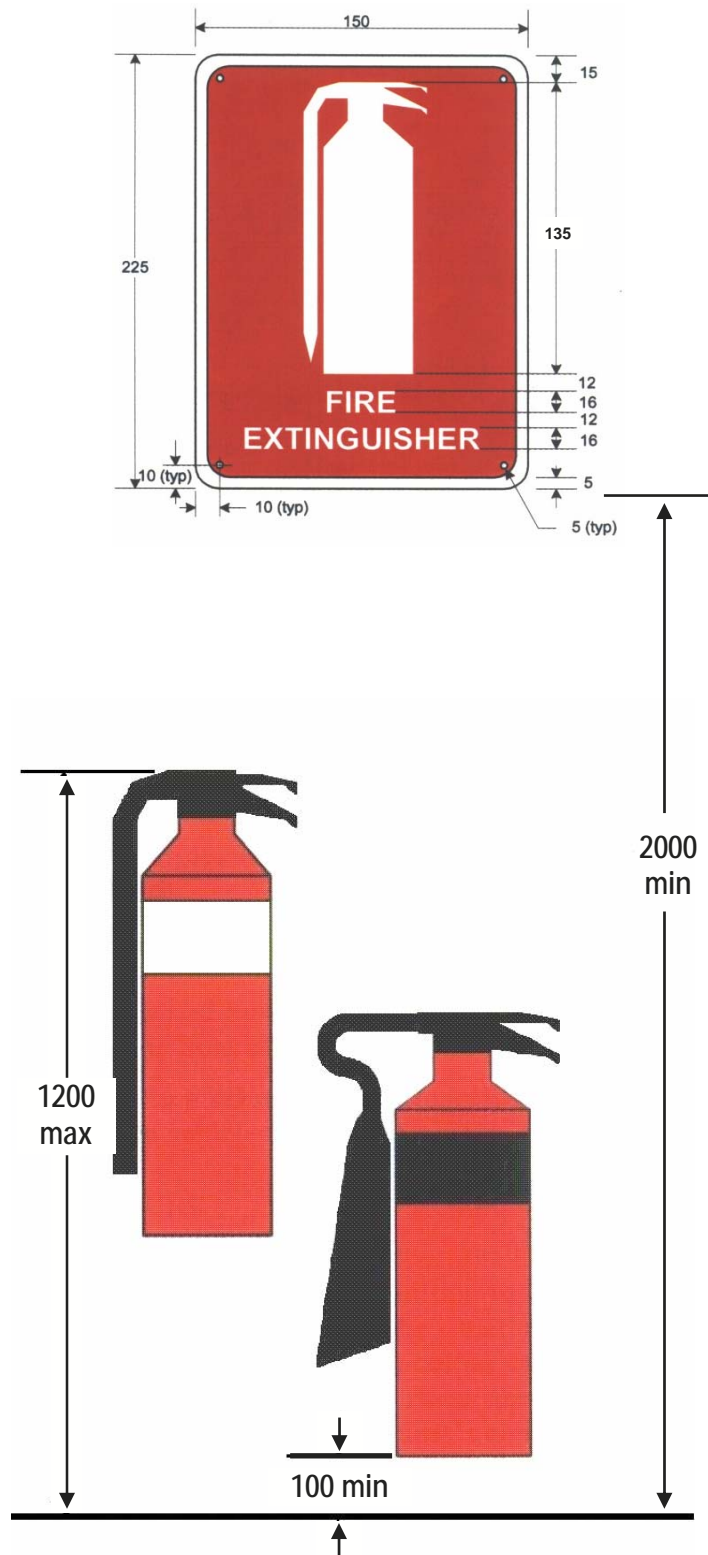
## Extinguisher Location and Selection Flow Chart



### Additional Risks and Recommendations Installed at owners/occupiers discretion.



## Mounting of Portable Fire Extinguishers



Dimensions in millimetres

**NOTE:** Where the extinguisher is located in a corridor or walk-way then the indicator sign must connect to the wall so that it is visible on approach.

## Class "E" Extinguishers

In areas containing sensitive electrical/electronic equipment, the installation of an appropriately rated Carbon Dioxide (CO<sub>2</sub>) Extinguisher is recommended.

An Emergency Services Switchboard is one which sustains emergency equipment operating in the emergency mode.

Emergency equipment includes but is not limited to the following: Pumps for fire hydrant boosters; sprinkler systems; water sprays; chemical fluid suppression systems or the like; a pump for a building's sole protection hose reel; air handling systems; emergency lifts; control and indicating equipment and emergency warning and intercommunications systems.

**Minimum Rating:**

2A:40B(E) or 5kg CO<sub>2</sub>

**Travel Distance:**

2 to 20 metres

### Specific Provisions

Where extinguishers for Class 'E' fire risks are to be installed in health care buildings, detention and correctional occupancies, accommodation for children, aged persons and people with disabilities or aged care buildings, fire extinguishers need only be located at each nurses, supervisors station or the like.

### Additional Recommendations

With any significant electrical or electronic risk, the extinguisher located closest to the risk should have a minimum classification as shown below and fitted with a hose. Alternatively, a CO<sub>2</sub> extinguisher, as recommended may be installed.

**Significant Risk:** Significant switchboards and areas where there is a large density of electrical/electronic equipment (e.g. Computer centres, broadcasting studios, telephone exchange equipment rooms and the like).

**Minimum Rating:**

2A:40B(E) or 5kg CO<sub>2</sub>

**Travel Distance:**

2 to 20 metres from risk

**Minor Risk:** Areas where there is a lesser distribution of electrical/electronic equipment (e.g. an office using computers and photocopies).

**Minimum Rating:**

1A:20B(E) or 3.5kg CO<sub>2</sub>

**Travel Distance:**

2 to 40 metres from risk

## Class "F" Extinguishers

Selecting an appropriately rated Class 'F' wet chemical extinguisher is dependant on the volume and the exposed surface area of the risk (Normally oil in a deep fryer but may also include oil or fat heating on a stove top or similar). The table below sets out the recommended rating applicable to both the exposed surface area and volume of the hazard. AS 2444 Appendix B clause 6.6 recommends that where the volume is less than 50 litres, a B(E) rated dry powder extinguishers may be used in lieu of an 'F' rated extinguisher.

<b>50 litres or Less:</b>	<b>Recommended rating:</b>
2m <sup>2</sup> or less of surface area	40B(E) or 2(F)
More than 2m <sup>2</sup> of surface area	60B(E) or 4(F)

<b>More than 50 litres:</b>	<b>Recommended rating:</b>
2m <sup>2</sup> or less of surface area	2(F)
More than 2m <sup>2</sup> of surface area	4(F)

Extinguishers for Class 'F' risks should be located between 2 and 20 metres from the risk and should be the closest extinguisher to the risk.

## Class "B" Extinguishers

Where between 50 litres and 250 litres of flammable liquid is stored in closed or open top containers with no more than 2m<sup>2</sup> of exposed surface, Class "B" extinguishers should be installed as per the tables shown below:

### BUILDING DOES NOT HAVE A SPRINKLER SYSTEM INSTALLED

Storage Amount	Travel Distance to Hazard	Minimum Rating
50 to 100 litres	3 to 5 metres	20B or 20B(E)
100 to 175 litres	3 to 7.5 metres	30B or 30B(E)
175 to 250 litres	3 to 10 metres	40B or 40B(E)

### BUILDING HAS A SPRINKLER SYSTEM INSTALLED

Storage Amount	Travel Distance to Hazard	Minimum Rating
50 to 100 litres	3 to 10 metres	20B or 20B(E)
100 to 175 litres	3 to 12.5 metres	30B or 30B(E)
175 to 250 litres	3 to 15 metres	40B or 40B(E)

Where storage **EXCEEDS** 250 litres, reference should be made to AS 2444 Tables 4.2 & 4.3 and AS 1940 Table 10.3 for guidance on the appropriate selection of Class 'B' extinguishers.



## Class "A" Extinguishers for Light Hazard Fire Compartments <500m<sup>2</sup>

### Compartment Use: (Ref AS 2118.1-1999)

- Art Galleries
- Baths (Turkish and Sauna)
- Boarding Houses
- Churches and Chapels
- Hospitals, Orphanages, Homes and Asylums
- Libraries (excluding stack rooms)
- Lodging Houses
- Medical and Dental Consulting Rooms
- Museums (low combustible loading)
- Offices
- Prisons
- Residential Portions of Clubs, Hotels, Motels etc
- Schools, Colleges, Universities
- Sewerage Works
- Waterworks and Pumping Stations

The travel distance from any point to the nearest extinguisher shall not exceed 15 metres and depending on the layout and positioning of features within the building, the maximum floor area covered may be effected.

### Maximum Floor Area: (Ref AS 2444-2001)

Unsprinklered	Sprinklered	Extinguisher Rating
100m <sup>2</sup>	150m <sup>2</sup>	1A or 1A:B(E)
300m <sup>2</sup>	450m <sup>2</sup>	2A or 2A:B(E)
450m <sup>2</sup>	500m <sup>2</sup>	3A or 3A:B(E)
500m <sup>2</sup>		4A or 4A:B(E)

## “A” Class Extinguishers for Ordinary Hazard Fire Compartments <500m<sup>2</sup>

### Compartment Use: (Ref AS 2118.1-1999)

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>- Abattoirs/Meat Processing</li> <li>- Abrasive Wheel and Powder Manufacturing</li> <li>- Aerated Water Manufacturing (not on Brewery Premises)</li> <li>- Aircraft Engine Works (excluding engine testing)</li> <li>- Aircraft Factories (excluding hangers)</li> <li>- Artificial Stone Manufacturing</li> <li>- Athletic Goods Manufacturing (excluding plastic components)</li> <li>- Battery Manufacturing (excluding stationary types with</li> <li>- Bleach, Dye and Print Works</li> <li>- Boat Houses</li> <li>- Boiler Composition Manufacturing</li> <li>- Brake and Clutch Lining Manufacturing</li> <li>- Breweries/Wineries (bottling section)</li> <li>- Briquette and Patent Fuel Manufacturing</li> <li>- Broadcasting Studios and Transmitters</li> <li>- Brush Manufacturing</li> <li>- Candle Manufacturing</li> <li>- Carpet Manufacturing</li> <li>- Cement Works</li> <li>- Chrome Plating</li> <li>- Clothing/Textile Manufacturing</li> <li>- Clubs/Hotels/Motels (excluding public areas)</li> <li>- Copra Kilns</li> <li>- Cork Processing Cutting and Dealing</li> <li>- Cotton Mills</li> <li>- Creamery and Wholesale Dairies</li> <li>- Data Processing</li> <li>- Departmental Stores</li> <li>- Electrical/Electronic Manufacturing and Assembly<br/>Predominantly non-plastic</li> <li>- Electrical Signal Cable Manufacturing</li> <li>- Electric Lamp and Neon Light Manufacturing</li> <li>- Emery Paper/Cloth Manufacturing</li> <li>- Enamelling Works</li> <li>- Engineering Works</li> <li>- Fibreglass Products Manufacturing</li> <li>- Fibre Goods Manufacturing</li> <li>- Fibrous Cement Millboard Manufacturing</li> </ul> | <ul style="list-style-type: none"> <li>- Film and Television Studios</li> <li>- Flax and Hemp Mills</li> <li>- Food/Beverage Processing</li> <li>- Footwear Manufacturing</li> <li>- French Polishing</li> <li>- Furniture Manufacturing and Repairing Premises</li> <li>- Furrier's Premises</li> <li>- Galvanizing Works</li> <li>- Glass Manufacturing</li> <li>- Glasspaper and Sandpaper Manufacturing</li> <li>- Glue Works</li> <li>- Gold and Silver Smelting</li> <li>- Granaries, Grain and Seed Mills</li> <li>- Instrument and Tool Manufacturing (Metal)</li> <li>- Jewellery Manufacturing and Engraving</li> <li>- Laundries and Dry Cleaner's Premises-</li> <li>- Leather Goods Manufacturing</li> <li>- Market Halls</li> <li>- Match Manufacturing</li> <li>- Mirror Manufacturing</li> <li>- Motor Garages, including Public and Private Car Parks</li> <li>- Ice Factories</li> <li>- Motor Vehicle Manufacturing and Assembly</li> <li>- Museums (with high combustible loadings)</li> <li>- Nitrate Storage</li> <li>- Oil Mills</li> <li>- Paint Manufacturing (water-based only)</li> <li>- Paper Goods Manufacturing</li> <li>- Paper Mills</li> <li>- Pharmaceutical and Chemical Manufacturing</li> <li>- Photographic Materials Works</li> <li>- Plant Rooms (building services only)</li> <li>- Plaster Manufacturing</li> <li>- Plating Works</li> <li>- Potteries</li> <li>- Pre-Cast Concrete and Brick Manufacturing</li> <li>- Printing and Allied Trades</li> <li>- Retail Stores</li> </ul> | <ul style="list-style-type: none"> <li>- Restaurants and Cafes</li> <li>- Rope and Twine Manufacturing</li> <li>- Rubber and Rubber Goods Manufacturing</li> <li>- Salt Manufacturing</li> <li>- Sawmills and Timber Yards</li> <li>- Shale Oil Refineries</li> <li>- Ship/Boat Building (excluding plastic)</li> <li>- Sports Pavilions and Stands</li> <li>- Stables</li> <li>- Stained Glass Manufacturing</li> <li>- Starch Works</li> <li>- Stone Working Premises</li> <li>- Sugar Manufacturing</li> <li>- Tanneries</li> <li>- Tea Manufacturing</li> <li>- Telephone Exchanges</li> <li>- Theatres, Cinemas and Public Entertainment Areas</li> <li>- Tobacco Manufacturing</li> <li>- Tram and Railway Depots</li> <li>- Tyre Manufacturing</li> <li>- Video Stores – Retail/Rental</li> <li>- Wallpaper Manufacturing</li> <li>- Warehouses and Storage Buildings</li> <li>- Waste Paper Dealers</li> <li>- Wood Working</li> <li>- Woollen and Worsted Mills</li> </ul> |
|--|--|---|

The travel distance from any point to the nearest extinguisher shall not exceed 15 metres and depending on the layout and positioning of features within the building, the maximum floor area covered may be effected.

### Maximum Floor Area: (Ref AS2444-2001)

Unsprinklered	Sprinklered	Extinguisher Rating
100m <sup>2</sup>	150m <sup>2</sup>	2A or 2A:B(E)
300m <sup>2</sup>	450m <sup>2</sup>	3A or 3A:B(E)
450m <sup>2</sup>	500m <sup>2</sup>	4A or 4A:B(E)
500m <sup>2</sup>		6A or 6A:B(E)

## "A" Class Extinguishers for High Hazard Fire Compartments <500m<sup>2</sup>

### Compartment Use: (Ref AS 2118.1-1999)

- Aircraft Engine Testing
- Aircraft Hangers
- Distilleries (Still Houses)
- Electrical/Electronic Manufacturing and Assembly Premises (Predominantly Plastic)
- Exhibition Halls (with unusually high ceiling and high concentration of combustibles)
- Firelighter Manufacturing
- Fireworks Manufacturing
- Flammable Liquid Spraying
- Foam Plastics Goods Manufacturing and Processing
- Foam Rubber Goods Manufacturing and Processing
- Nitrocellulose Manufacturing and Nitrocellulose Goods Manufacturing
- Paint and Varnish Works, Solvent-based
- Plastic Goods Manufacturing and Processing (Plastic is basic material in operation)
- Resin and Turpentine Manufacturing
- Tar Distilleries
- Theatrical Scenery Stores
- Vehicles Repair Shops

The travel distance from any point to the nearest extinguisher shall not exceed 15 metres and depending on the layout and positioning of features within the building, the maximum floor area covered may be effected.

### Maximum Floor Area: (Ref AS 2444-2001)

Unsprinklered	Sprinklered	Extinguisher Rating
150m <sup>2</sup>	225m <sup>2</sup>	2A or 2A:B(E)
200m <sup>2</sup>	300m <sup>2</sup>	3A or 3A:B(E)
300m <sup>2</sup>	450m <sup>2</sup>	4A or 4A:B(E)
450m <sup>2</sup>	500m <sup>2</sup>	6A or 6A:B(E)
500m <sup>2</sup>		10A or 10A:B(E)

## Flammable Gas Storage

The requirements shown below do not apply to gas-free cylinders or domestic portable cylinders used in a residential situation.

When converting liquid LPG from kilograms to litres, the approximate conversion rate is;

**1 kilogram of LPG = 2 litres of LPG**

e.g. A 45kg LPG cylinder contains approximately 90 litres of LPG when fully charged.

Aggregate Capacity (L)	Minimum Rating
<i>Indoors:</i>	
Up to 1,000 litres	1 x 2A:60B(E) (see NOTE 1)
<i>Outdoors:</i>	
1,000 litres up to 12,000 litres	1 x 2A:60B(E) (see NOTE 1)
12,000 litres up to 60,000 litres	1 x 2A:60B(E)
Over 60,000 litres	2 x 2A:60B(E)
Cylinder filling/decanting points	1 x 2A:60B(E)

**Location:** Fire extinguishers installed for the protection against Class 'C' fire risks should be located so as to be reasonably adjacent to the equipment or facility being protected but also accessible in an emergency.

**NOTE 1:** Where fire hose reels are installed and provide acceptable coverage of the area, extinguishers are not required.

## Motorised Transport

Installation Type	Minimum rating and class	Minimum Number
<b>Light vehicles:</b>		
Sedan	1A:5B(E)	1
Station wagon	1A:5B(E)	1
Panel van	1A:5B(E)	1
Utility	1A:5B(E)	1
Fork lift (petrol type)	1A:5B(E)	1
<b>Passenger carrying vehicle:</b>		
Urban areas	2A:20B(E) (fitted with hose)	1
Outside urban areas	2A:20B(E) (fitted with hose)	2
Cargo carrying vehicle	1A:10B(E) (fitted with hose)	1 in cabin
<b>Caravans &amp; Campervans:</b>		
Single compartment	1A:5B(E)	1
Multi compartment	1A:5B(E)	2
<b>Outboard powered boats:</b>		
With small fuel tank (<25 litres)	5B(E)	1
With large fuel tank (>25 litres)	20B(E)	1
<b>Inboard powered boats:</b>		
House boats, motor boats and cruising yachts	2A:20B(E)	2
<b>Automotive filling installations:</b>		
Service stations	2A:60B(E)	2
Sites other than service stations	2A:60B(E)	1

**NOTE 1:** Vehicle fires often present difficulties in getting to the seat of the fire, therefore extinguishers with a hose attached are recommended. Where the recommended extinguisher is not commercially available with a hose attached, then an extinguisher of a greater size and rating which has a hose attached is recommended.

**NOTE 2:** Where vehicles enter a building for the purpose of loading, unloading or extended parking, it is recommended that the building owner/occupier ensure that an appropriate fire extinguisher is carried on that vehicle or that additional fire extinguishers are installed within the immediate area to meet this additional risk.



# Fire Blankets

## Requirement

The installation of a fire blanket in a building is not a legislative requirement, therefore the following information is advisory only and the decision as to whether or not a fire blanket is to be installed is at the discretion of the building's owner or occupier.

## General

Used to attack small Class 'A', 'B' and 'F' fires. May also be used as a thermal barrier against radiated heat and to control a fire in the clothes being worn by a person.

Blankets are either square or rectangular in shape and available in sizes from 0.9m x 0.9m up to 1.8m x 1.8m.

## Selection

Fire blankets should be of a size to meet the expected hazard. The Tasmania Fire Service strongly recommends however that for user protection, the fire blanket be no smaller than 1.2m x 1.8m unless a lack of space warrants the use of a smaller blanket.

## Location and Mounting

Fire blankets should be located in a conspicuous and readily accessible position which should not present an access hazard to the potential user (e.g. sited too close or an excessive distance from the hazard). Where practicable, they should be located along normal paths of travel, near exits and mounted so as to withstand the loads imposed when removing the fire blanket from its container. Sufficient room should be allowed so that the fire blanket can be quickly removed without being obstructed.

## Location Signs


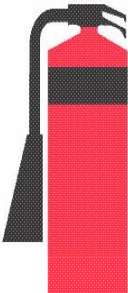
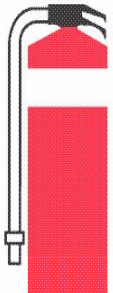
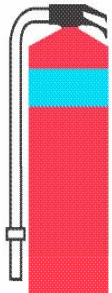
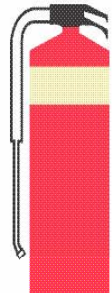
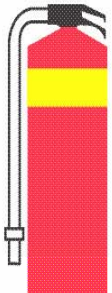
Location signs are NOT required for domestic installations.

For non-domestic installations, locations are to be clearly indicated by placement of the location sign above or adjacent to the fire blanket and should be clearly visible on approach to the blanket. The signs should be mounted not less than 2.0m above floor level and have a symbol and border in white on a red field with black lettering on a white field (Refer to example on page 17).



Typical Fire Blanket Location Sign

# Portable Fire Extinguisher Guide

<p>Fires are divided into different classes. The word YES or NO signifies the suitability of each extinguisher for use on a particular class of fire.</p>	<p>WATER</p> 	<p>CARBON DIOXIDE (CO<sub>2</sub>)</p> 	<p>DRY CHEMICAL POWDER</p> 	<p>FOAM Pre: 1999 All Blue</p> 	<p>WET CHEMICAL Pre: 1999 All Oatmeal Brown</p> 	<p>VAPOUR-IZING LIQUID</p> 
<p><b>A</b> Ordinary combustibles (wood, paper, plastic, etc.)</p>	<p>YES</p>	<p>Limited</p>	<p>YES AB(E) NO B(E)</p>	<p>YES</p>	<p>YES</p>	<p>YES</p>
<p><b>B</b> Flammable &amp; combustible liquids (petrol, paints, etc.)</p>	<p>NO</p>	<p>Limited</p>	<p>YES</p>	<p>YES</p>	<p>NO</p>	<p>Limited</p>
<p><b>C</b> Flammable gases (LPG, Acetylene, etc.)</p>	<p>NO</p>	<p>NO</p>	<p>YES</p>	<p>NO</p>	<p>NO</p>	<p>Limited</p>
<p><b>(E)</b> Fire involving energised electrical equipment</p>	<p>NO</p>	<p>YES</p>	<p>YES</p>	<p>NO</p>	<p>NO</p>	<p>YES</p>
<p><b>F</b> Fire involving cooking oils &amp; fats</p>	<p>NO</p>	<p>NO</p>	<p>NO AB(E) YES B(E)</p>	<p>Limited</p>	<p>YES</p>	<p>NO</p>



## Fire Extinguishers - Maintenance

This section outlines the requirements for maintenance of portable and wheeled fire extinguishers installed in accordance with AS 2444.

**Location:** Where there are more than 10 extinguishers located in or on a property a site plan or other means clearly describing the extinguishers and their locations is to be provided.

**Records:** A maintenance record system shall be provided by the property owner or occupier to sequentially record the maintenance carried out on fire extinguishers.

**Reporting:** A report including any discrepancy found with the location, type, size, rating or identification mark during servicing shall be provided to the owner of the equipment in writing.

**Maintenance record tag/label:** For maintenance purposes, maintenance work involving inspecting and servicing shall be classified according to inspection and service intervals as follows: **(The tag or label shall not carry any information other than that shown in examples "A" and "B" below)**

- a) The number '1' shall denote 6-monthly intervals.
- b) The number '2' shall denote yearly intervals.
- c) The number '4' shall denote 5-yearly intervals.

The level of inspection, test, preventive maintenance and survey routine carried out shall be etched, embossed, stamped or indelibly marked on the tag or label in the box corresponding to the year and month in which the routine was performed.

Commencement of the maintenance schedules shall be based on the pressure test at the time of manufacture of the extinguisher, or the month and year of the last pressure test, whichever is the later. If the date of manufacture or last pressure test is unknown, a 5-yearly maintenance procedure shall be applied to the extinguisher.

Upon installation, a six monthly inspection shall be carried out.

Labels are to be adhered to the back of the extinguisher cylinder with additional labels located adjacent to the existing. When a new maintenance record tag/label is provided, the final year maintenance record and the last hydrostatic test date shall be transferred from the expired tag/label to the new tag/label in the pressure test column at the appropriate year.

**Aggressive environments:** Extinguishers located in an aggressive environment, shall be subject to a more comprehensive maintenance program by conducting the five-yearly inspection, test and preventive maintenance schedules, every three (3) years.

AS 1851 MAINTENANCE RECORD													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
06													00
07													01
08													02
09													03
10													04
11													05
12													06
13													07

**Example A:** Typical maintenance record label

AS 1851 MAINTENANCE RECORD													
YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR
02		1						2					94
03		1						2					95
04		1						4					96
05		1						2					97
06		1						2					98
07		1						2					00
08		1						2					01
09		1						4					02

**Example B:** Tag with eight years of service levels

## Inspection and Records Schedule - Fire Extinguishers

Item No	Component or Function	Action Required	Frequency (Months)		
			6	12	60
1.1	Accessibility	Check the extinguisher is conspicuous, readily accessible and in its assigned Location.  <b>All Extinguisher Types</b>	✓	✓	✓
1.2	Anti-tamper device	Check that the anti-tamper device is intact.  <b>All Extinguisher Types</b>	✓	✓	✓
1.3	Exterior and operating instructions	Check that the extinguisher is clean and the operating instructions are legible.  <b>All Extinguisher Types</b>	✓	✓	✓
1.4	Maintenance record tag/label	Check that the maintenance record tag/label is firmly attached to the extinguisher. (Labels are to be attached to the back of the cylinder).  <b>All Extinguisher Types</b>	✓	✓	✓
1.5	External damage	Check that the extinguisher, including any attachments, is not damaged (see AS 2337.1).  <b>All Extinguisher Types</b>	✓	✓	✓
1.6	External corrosion	Check that the exterior of the extinguisher is not pitted, or otherwise damaged, by corrosion. (see AS 2337.1)  <b>All Extinguisher Types</b>	✓	✓	✓
1.7	Outlet hose assembly	Check that the outlet hose is securely fitted, the nozzle is securely attached, the assembly is free from obstruction, and the hose shows no cracking or other signs of damage or deterioration.  <b>All Extinguisher Types</b>	✓	✓	✓
1.8	Pressure indicator	Where fitted, check that the pressure indicator is legible, registering within the operable range and is operating correctly.  <b>All Extinguisher Types</b>	✓	✓	✓
1.9	Operating head or cap	Determine that the threads on operating head or cap are not damaged, vent(s) are not blocked and any strainer or expansion device is unobstructed. For heads with no screw thread, determine that security locking device is undamaged and operational.  1) Water (soda acid), water (gas container), water with additive (stored pressure), foam (chemical), foam (gas container), foam (stored pressure), powder (gas container).  2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid	- -	✓ -	✓ ✓
1.10	Signage	Check the location sign is visible.  <b>All Extinguisher Types</b>	✓	✓	✓
1.11	Support bracket	Check that the appropriate support bracket is securely attached to wall or other suitable feature.  <b>All Extinguisher Types</b>	✓	✓	✓



## Inspection and Records Schedule - Fire Extinguishers (cont)

Item No	Component or Function	Action Required	Frequency (Months)		
			6	12	60
1.12	Discharge nozzle	Check that the appropriate discharge nozzle is fitted and is not blocked or damaged.  <b>All Extinguisher Types</b>	✓	✓	✓
1.13	Discharge nozzle and control valve	Check that the discharge nozzle is not blocked and the control valve is functional.  <b>All Wheeled Extinguishers</b>	✓	✓	✓
1.14	Carriage assembly	Check that the carriage assembly is functional and free from corrosion.  <b>All Wheeled Extinguishers</b>	✓	✓	✓

## Test and Records Schedule - Fire Extinguishers

2.1	Contents	Weigh the extinguisher to determine if it is fully charged.  <b>All Extinguisher Types</b>	✓	✓	✓
2.2	Compressed gas container	Determine that the compressed gas container is the correct size and type, in good condition, fully charged and subjected to maintenance in accordance with AS 2030.1.  <b>All Gas Container Type Extinguishers</b>	✓	✓	✓
2.3	Discharge	Determine that the extinguisher functions in accordance with the operating instructions and that the discharge is satisfactory. Recharge in accordance with Table 15.4.3 Item 3.3.  1) Water (soda acid), water with additive (stored pressure), foam (chemical), foam (stored pressure).  2) Water (gas container), water (stored pressure), wet chemical, foam (gas container), powder (gas container), powder (stored pressure), carbon dioxide, vaporizing liquid.	-	✓	✓
2.4	Actuating device	<b>(A)</b> Determine, where possible and without discharging any contents, that the actuating device is free of corrosion, moves freely and is undamaged.  1) Foam (stored pressure). 2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid.  <b>(B)</b> Determine that the actuating device is free of corrosion, moves freely, and is undamaged; any cutting edge is sharp; and all sealing gaskets are in good condition.  1) Water (soda acid), water (gas container), foam (chemical), foam (gas container), foam (stored pressure), powder (gas container). 2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid.	✓ ✓	✓ ✓	✓ ✓
			-	-	✓

## Test and Records Schedule - Fire Extinguishers (cont)

Item No	Component or Function	Action Required	Frequency (Months)		
			6	12	60
2.5	Internal components	(A) Determine if the acid bottle/inner container, lead stopper and cage/ carrier are undamaged; lead stopper moves freely; and strainer is clear. 1) Water (soda acid), foam (chemical).	✓	✓	✓
		(B) Determine if the internal discharge tube, strainer and expansion device (where fitted) provide clear passage and are securely attached. 1) Water (gas container), foam (gas container).	✓	✓	✓
		(C) Determine if the internal discharge tube, strainer and anti-overfill tube (where fitted) provide clear passage and are securely attached, and that the anti-overfill device is undamaged. 1) Water (stored pressure), wet chemical. 2) Water with additive (stored pressure), foam (stored pressure).	-	-	✓
		(D) Determine that the internal discharge tube, or the gas inlet tube or ports, provide clear passage and are correctly installed, and that powder is free-flowing. 1) Powder (gas container).	-	✓	✓
		(E) Determine if the internal discharge tube provides clear passage, is securely attached, and there is no evidence of moisture or foreign matter in the cylinder. 1) Powder (stored pressure), carbon dioxide, vapourizing liquid.	-	-	✓
2.6	Internal condition-Portable extinguishers	Determine that the interior of cylinder is clean, is not pitted by corrosion (refer AS 2337.1), and any internal lining is in good condition. 1) Water (soda acid), water (gas container), water with additive (stored pressure), foam (chemical), foam (gas container), foam (stored pressure), powder (gas container). 2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide (see note below), vaporizing liquid. <b>Note:</b> For <b>carbon dioxide</b> extinguishers, this examination shall be in accordance with AS 2030.1, and is only to be performed by an approved gas cylinder test station (refer AS 2337.1 and MP-48).	-	✓	✓
			-	-	✓
2.7	Internal condition-Wheeled extinguisher	(A) Determine that the interior of cylinder is clean, is not pitted by corrosion, and any internal lining is in good condition. 1) Water (gas container), foam (gas container), foam (stored pressure)	-	✓	✓
		(B) Examine the interior of the cylinder in accordance with the internal examination requirements of AS 2030.1 at an approved gas cylinder test station (see AS 2337.1 and MP 48) 1) All wheeled extinguishers	-	-	✓

## Test and Records Schedule - Fire Extinguishers (cont)

Item No	Component or Function	Action Required	Frequency (Months)		
			6	12	60
2.8	Seals	Determine if the operating head or cap seal is in good condition.			
		1) Water (soda acid), water (gas container), water with additive (stored pressure), foam (chemical), foam (gas container), foam (stored pressure), powder (gas container). 2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid.	-	✓	✓
2.9	Leak detection	Determine if there are any leaks at the joints and seal that were renewed or disturbed during recharging.			
		1) Water with additive (stored pressure), foam (stored pressure). 2) Water (stored pressure), wet chemical, powder (stored pressure), carbon dioxide, vaporizing liquid.	-	✓	✓
2.10	Tyres	Determine that pneumatic tyres, where fitted, are pressurised to the recommended pressure.			
		<b>All Wheeled Extinguishers</b>	✓	✓	✓

## Preventive Maintenance and Records Schedule - Fire Extinguishers

3.1	Pressure test-Portable fire extinguishers	A) Subject the extinguisher body to a hydrostatic pressure test of 1.5 times the working pressure, the marked periodic test pressure, or 2 MPa, whichever is the greater (see also note below).			
		1) Water (gas container), water (stored pressure), wet chemical, foam (gas container), foam (stored pressure), powder (gas container), powder (stored pressure), carbon dioxide (see note below), vaporizing liquid.  <b>Note: Carbon dioxide</b> type extinguishers are to be tested in accordance with the requirements of AS 2030.1, and the testing is only be performed by an Approved Gas Cylinder Test Station (refer AS 2337.1 and MP-48).  B) Subject the complete extinguisher, or the extinguisher body and operating head or cap individually, to a hydrostatic pressure test of 2 MPa.  1) Water (soda acid), foam (chemical).	-	-	✓
3.2	Pressure test-Wheeled extinguishers	Subject the extinguisher body to a hydrostatic pressure test, in accordance with the requirements of AS 2030.1, at an Approved Gas Cylinder Test Station (see AS 2337.1 and MP 48).			
		<b>All Wheeled Extinguishers</b>	-	-	✓

## Test and Record Schedule - Fire Extinguishers (cont)

Item No	Component or Function	Action Required	Frequency (Months)		
			6	12	60
3.3	Extinguisher agent replacement	<p>Recharge the extinguisher with fresh extinguishing agent in accordance with the manufacturer's instructions.</p> <p>1) Water (soda acid), water with additive (stored pressure), foam (chemical), foam (gas container), foam (stored pressure).</p> <p>2) Water (stored pressure, without additive), wet chemical, foam (gas container, with sealed foam liquid container), powder (gas container), powder (stored pressure), carbon dioxide, vaporizing liquid, see Clause 15.4.2.</p> <p>Upon completion of recharging stored pressure type extinguishers, perform a leak test as per Item 2.9.</p>	-	✓	✓
As specified by manufacturer					
3.4	Powder-Portable extinguishers	<p>Invert the extinguisher and ensure that the powder remains free flowing.</p> <p>1) Powder (stored pressure), powder (gas container).</p>	✓	✓	✓
3.5	Seals and gaskets	<p>Renew all seals and gaskets fitted to the actuating device, operating head, or cap.</p> <p style="text-align: center;"><b>All Extinguisher Types</b></p>	-	-	✓
3.6	Wheels	<p>Lubricate wheel bearings.</p> <p style="text-align: center;"><b>All Extinguisher Types</b></p>	✓	✓	✓
Survey Schedule - Fire Extinguishers					
4.1	Fire hazard	<p>Check that the fire hazard/risk to be protected has not changed.</p> <p style="text-align: center;"><b>All Extinguisher Types</b></p>	-	✓	✓
4.2	Suitability	<p>Check that the extinguisher is the correct type, class, size and/or rating for the hazard to be protected.</p> <p style="text-align: center;"><b>All Extinguisher Types</b></p>	-	✓	✓
4.3	Obstructions	<p><b>A)</b> Check that no alterations have been made to the building that may impede access to the extinguisher or increase the travel distances to more than those specified in AS 2444.</p> <p>1) All portable extinguishers.</p> <p><b>B)</b> Check that no alterations have been made to the building that may impede access to, or restrict the movement of, the extinguisher.</p> <p>1) All wheeled extinguishers.</p>	-	✓	✓
			-	✓	✓

## Fire Blankets - Maintenance

This section sets out the requirements for the maintenance of fire blankets manufactured to comply with AS/NZ 3504 and installed in accordance with AS 2444.

**General:** Fire blankets shall be inspected 6-monthly or when defects are suspected. A maintenance record shall be provided by the property owner or agent to sequentially record the maintenance carried out on each fire blanket.

**Identification:** Fire blankets shall bear a permanently fixed, unique, site identification mark, suitable for cross-referencing with the maintenance record.

**Recording:** The level of the inspection routine carried out shall be etched, embossed, stamped or indelibly marked on the tag or label with the Figure '1' in the box corresponding to the year and month in which the routine was performed. Where tags are used, the routine may, as an option, be indicated by a hole punched in the tag in the appropriate space.

When a new maintenance record label is provided the label shall be applied to the blanket container adjacent to the completed label so that the previous service history is not obscured.

**Corrective action:** Where a blanket, container or location sign does not conform to the requirements of AS 1851 section 16, it shall be rectified or condemned. Blankets that have been used on a fire shall be condemned.

Inspection and Records Schedule—Fire Blankets			
Item No.	Item	Action required	6 Monthly
1.1	Accessibility	Check that the fire blanket is: (a) Conspicuous. (b) In its assigned location. (c) Readily accessible. (d) Installed in accordance with AS 2444.	✓ ✓ ✓ ✓
1.2	Signage	Check that the location sign is visible and correct	✓
1.3	Blanket container	Check that the fire blanket container: (a) Is securely and correctly supported. (b) Is clean and free from damage. (c) Has clear and legible instructions. (d) Has a maintenance record tag or label attached.	✓ ✓ ✓ ✓
1.4	Fire blanket	Remove the fire blanket from the container and check: (a) For any damage or contamination to the fire blanket (see also Clause 16.2.2). (b) For insecure or damaged hand-holding devices. (c) That the fire blanket is correctly folded.  Where the fire blanket conforms to the above, repack the blanket into the container as recommended by the manufacturer.  Note: It is important that fire blankets are always folded in the manner prescribed by the manufacturer in order that they can be removed from the container quickly (see AS/NZS 3504).	✓ ✓ ✓

## Notes