



## Play Training Module

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# General Fire Prevention

## For commercial and industrial workplaces

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### 2. Introduction

Welcome to General Fire Prevention. During the next 15 minutes you will learn:

- How to prevent a fire starting in your workplace and,
- What to do if a fire does start.

This training is for insurance purposes only. This Training Module is a general course which covers the important ways to prevent and reduce damage from a fire. It is not a comprehensive guide and does not ensure compliance with any standards, regulations or statutory obligations and does not cover all conditions, situations, causes or controls.

Rather the module targets the most common and most important issues and concepts, in order to keep the training brief, practical and effective. Please note that effective controls will reduce risks, but will not eliminate them. Risk Management should therefore be seen as an ongoing “Continuous Improvement” process.

For more information on fire risks and controls please contact the fire service in your state, your property insurance company or other appropriate references.

- Section 2 explains the principles of avoiding fires and identifies the major causes and ways to prevent fires.
- Section 3 explains how fire detection and suppression systems work and how to ensure that they are ready for use.
- Section 4 is designed to help managers and supervisors implement a self inspection system.

Through out this training module we will refer to an example self inspection checklist which you should have printed out already. This general checklist includes the most important causes and controls of fires in most workplaces and can be used as a guide to producing a customised checklist for your business. A checklist can be used as a day to day reminder of controls or during regularly scheduled self inspections to ensure and document that controls are in place.

This training module is designed to give you the information to help reduce the fire risk at your workplace. It takes everyone working together to achieve the four basic objectives of day to day, fire prevention.

- Reduce, control or eliminate ignition sources.
- Reduce, control or eliminate combustibles.
- Maintain separation between potential ignition sources and combustibles.
- Maintain fire protection systems so they are ready for use.

You can review each section as many times as you like. At the end of each section there is a short test to ensure you have understood the important points.

Every year there are thousands of fires in this country, resulting in hundreds of serious injuries and deaths, and millions of dollars in damage. Most of these damaging fires and injuries are easily preventable with a few simple controls and a little bit of knowledge and planning.

Congratulations on correctly completing this section. The next section will describe ways to avoid starting household fires.

### 3. Avoid Starting Fires

Avoiding most workplace fires only takes a few simple precautions. These precautions or controls revolve around one simple principle; keep combustible materials away from things which can start them on fire. This seems simple, but is how, just about every workplace fire starts.

In order to keep them away from each other lets discuss what things are combustible and what things can start them on fire.

Most people underestimate the amount of combustible material in their workplace. They also underestimate the speed, size and damage from a fire involving a small amount of combustible material. Paper, cardboard, wood, plastics, electronics, electrical equipment, electrical cables, flammable liquids and oils are all combustible. In fact if it is not entirely made of metal or concrete it is probably combustible. Combustible materials make up a large proportion of the construction and content of most workplaces.

If so many things are combustible then we need to be very careful where we put things that can start them on fire. We call these potential fire starters “ignition sources”. From past experience we know that the ignition sources which start the most fires are electrical appliances, arson, hot work, open flames, hot surfaces, smoking, heaters and cooking.

The best two things we could do to avoid fires would be to get rid of the ignition sources or get rid of the combustibles. But normally it is not practical to completely get rid of ignition sources or combustibles from the workplace so we need to do the next best thing which is:

- Reduce, control or eliminate the number of ignition sources,
- Reduce, control or eliminate the amount of combustibles,
- And maintain separation between the ignition sources and combustibles that we cannot remove.

From past experience we know the situations and circumstances which start most fires in the workplace. So we know which areas and controls which are the most important when applying the principles from above. These controls are listed in the example self – inspection checklist and have been extracted to show you below. Further explanation of checklist controls is provided in italics.

Electrical Equipment	Yes / No / Action required
<ul style="list-style-type: none"> <li>▪ Combustibles are a minimum of 1 metre from switchboards, battery chargers, electrical appliances and other electrical equipment. <ul style="list-style-type: none"> <li>▫ It is normally good practice to paint lines on the floor or erect barricades around electrical switchboards, etc as a reminder of separation requirements</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>▪ No storage or combustibles in electrical areas or rooms.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Electrical Appliances, Switchboards and other electrical equipment are clean and in good condition.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Electrical equipment is being tested and maintained appropriately – including thermo scanning as appropriate.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ No circuits are over-fused or no excessive use of power boards or double adaptors.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ No temporary wiring.</li> </ul>	

Arson	Yes / No / Action required
<ul style="list-style-type: none"> <li>▪ Industrial bins, bins and other combustible material are adequately separated from buildings and building canopies. <ul style="list-style-type: none"> <li>▫ Arsonists regularly use waste in bins or other combustibles up against buildings to start fires.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>▪ Combustible yard storage is appropriately separated from buildings – guideline 10m.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ No combustible wastes accumulated in yard.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Industrial bins and bins have lids locked and they are secured in position (ie to maintain separation from buildings).</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Site perimeter security (ie fences, alarms, cameras, lighting, guards) is appropriate for arson risk. <ul style="list-style-type: none"> <li>▫ This will protect your site perimeter from arsonists.</li> </ul> </li> </ul>	

Hot Work	Yes / No / Action required
<ul style="list-style-type: none"> <li>▪ Hot work procedures include: removal, covering or separation of combustibles in area (including combustibles under the work area). Appropriate manual fire fighting equipment made ready, formal fire watch during and after work.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Formal, documented Hot Work Procedure in place.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ All employees and contractors are following procedures.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Permanent Hot Work Areas have are appropriately signed and maintained.               <ul style="list-style-type: none"> <li>▫ Combustibles are removed, sparks can not escape the area, extinguishers and hose reels are provided, etc.</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>▪ Prohibited Hot Work Areas are appropriately signed and maintained.</li> </ul>	

For more information on Hot Work controls - riskcentral provides an on line, Hot Work training module at [www.riskcentral.com.au](http://www.riskcentral.com.au)

Cooking	Yes / No / Action required
<ul style="list-style-type: none"> <li>▪ Cooking equipment is in good condition.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Cooking equipment is appropriately separated from combustibles.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Hood filters and ducts are cleaned regularly to remove grease.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Cooking equipment is appropriately supervised when in use and / or fire detectors are fitted in the area.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Cooking area has appropriate extinguishers and fire blankets.</li> </ul>	

Smoking	Yes / No / Action required
<ul style="list-style-type: none"> <li>▪ No evidence of smoking in unauthorised areas.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Adequate ash receptacles are provided in smoking areas.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ No Smoking areas are properly identified, communicated and enforced.</li> </ul>	

Other	Yes / No / Action required
▪ Open flames are eliminated or adequately controlled.	
▪ Heaters, especially portable heaters are eliminated or adequately controlled.	
▪ Ovens, Kilns, furnaces, incinerators and boilers are adequately controlled or separated from combustible materials.	

Hazardous Chemicals	Yes / No / Action required
▪ Hazardous Chemicals are being labelled, stored and separated correctly.	
▪ Hazardous Chemicals are being used appropriately.	
▪ Hazardous Chemical Signs are property displayed.	
<ul style="list-style-type: none"> <li>▪ Flammable gas bottles are secured from falling over and are stored outside areas when not in use. <ul style="list-style-type: none"> <li>▫ If a gas bottle falls over the valve can be damaged. Leaking gas bottles stored inside can cause explosions and fires.</li> </ul> </li> </ul>	

Flammable and Combustible Liquids	Yes / No / Action required
▪ Are stored in Flammable Liquids Safety Room, Flammable Liquids Safety Storage Cabinet, approved containers, in a remote external area or are otherwise appropriately contained.	
▪ Quantities introduced into building areas are minimised.	
▪ Empty containers are removed from the building and/or to a safe area.	
▪ Bonding and grounding is being used where necessary to control static electricity during transfer.	
<ul style="list-style-type: none"> <li>▪ Contaminated rags are disposed of in safety cans and the cans removed from the building or to a safe area at the end of each shift. <ul style="list-style-type: none"> <li>▫ Safety cans have self closing metal lids to control a fire if rags spontaneously ignite in the can.</li> </ul> </li> </ul>	
▪ Areas of use are clean of spills and residue.	
▪ Areas of use are clear of ignition sources and all equipment is approved for use in a flammable or combustible liquids area, including explosion proof electricals.	

Housekeeping	Yes / No / Action required
▪ Housekeeping is adequate throughout (ie clean equipment, floors, etc).	
▪ Combustible wastes are disposed of as scheduled.	
▪ All mechanical and auxiliary service rooms and buildings are clear of storage and combustibles.	
▪ Storage and transient storage is neatly and systematically arranged.	
▪ No combustible dust build-up.	

Congratulations on correctly completing this section. The next section will describe how to be ready to detect and react to a fire if one starts.

#### 4. Detecting and Reacting to Fires

If a fire starts, fire detection systems must be ready to detect it and suppression systems must be ready to control it.

If you can detect a fire early enough you can extinguish the fire while it is still small or you can buy some time to help evacuate safely. This is why it is important to maintain fire detection systems.

There are basically two ways to detect a fire. The first way is for a person to notice the fire. The second, is a fire detector which can set off an alarm or activate an automatic fire suppression system such as a sprinkler system.

A lot of the time the best fire detectors are people. So it is important that when you do things that have a fire risk, that you watch or supervise them and have a plan if things go wrong. If someone doesn't raise the alarm it is important to have, in place, tested and maintained fire detectors.

When a fire is detected there are basically two things you can do. Try to put out the fire if it is safe to do so or evacuate to a safe area and inform emergency services. If you do attempt to fight the fire, manual fire suppression systems such as extinguishers, hose reels and hydrants need to be ready for immediate use. Any delay could mean that you lose control of the fire.

In fact, up to 98% of fires in the workplace are extinguished by workers in the area. That is why it is so important to maintain Extinguishers, Hose Reels and Hydrants so they are ready for use

Because it is not easy to think clearly in an emergency, you should rehearse what you would do in different situations if there were a fire and how to use an

extinguisher and hose reel. You can rehearse by acting it out or maybe by just thinking about what you would do. You will be amazed at how much this will help if you are in an emergency.

Fire sprinkler systems and other automatic suppression systems are very effective at controlling fires but only if they and their water supplies are properly tested and maintained. We need to make sure that fire protection contractors are doing their job properly and that sprinkler heads, sprinkler valves and sprinkler risers are not damaged or obstructed.

From past experience we know how fire detection and suppression systems fail. Controls to help prevent these failures are listed in the example self – inspection checklist and have been extracted to show you below. Further explanation of checklist controls is provided in italics.

Fire Extinguishers, Hose Reels and Hydrants	Yes / No / Action required
▪ Appropriate size and types are protecting all locations.	
▪ Are unobstructed.	
▪ Are not damaged and operational.	
▪ Locations are clearly visible.	
▪ Are being tested and maintained to Australian Standards.	

Fire Doors	Yes / No / Action required
▪ Are unobstructed.	
▪ Are not damaged and operational.	
▪ Are being tested and maintained to Australian Standards.	

Fire Detection Systems	Yes / No / Action required
▪ Systems are being tested and maintained to Australian Standards.	
▪ Testing Contractor is notifying the business of problems and is completing maintenance logbook.	
▪ Systems are undamaged and operational.	

Fire Sprinkler Systems	Yes / No / Action required
▪ Systems are being tested and maintained to Australian Standards.	
▪ Testing Contractor is notifying the business of problems and is completing maintenance logbook.	
▪ Systems are not damaged and operational.	
▪ Sprinkler Risers are accessible.	
▪ No Sprinkler Heads are obstructed. <ul style="list-style-type: none"> <li>▫ Placing things too close to sprinkler heads can obstruct the sprinkler spray pattern in a fire.</li> </ul>	

Fire Pumps	Yes / No / Action required
▪ Systems are being tested and maintained to Australian Standards.	
▪ Testing Contractor is notifying the business of problems and is completing maintenance logbook.	
▪ Fire Pumps are not damaged and operational.	
▪ Fuel supplies are above 2/3.	
▪ Fire Pumps set to start automatically.	
▪ Fire Pumps are accessible and clear of storage and combustibles.	
▪ If applicable, Water Tank Reservoir is above minimum required level.	

Although not fire related, a significant amount of water damage occurs each year in workplaces. This is many due to a roof failure. The next few controls have traditionally been included in a property self inspection check list.

Building Maintenance	Yes / No / Action required
▪ Roof surface is in good condition.	
▪ No evidence of any water leaks.	
▪ Roof drains are cleared of blockages and rubbish which could block drains. <ul style="list-style-type: none"> <li>▫ Rubbish and leaves sometime block drains during rain and cause roof leaks or collapse.</li> </ul>	
▪ Building is generally in good condition.	

Congratulations on completing this section. The next section is designed to help managers and supervisors implement a self inspection system but maybe of interest to others.

## 5. Implementing a System and Embedding a Culture to Get Results

A property loss prevention system should be designed to provide ongoing training and motivate personnel to maintain appropriate controls. The implementation and maintenance of an effective system should consider the following principles:

- Gain senior management commitment. If the system is not openly supported by senior management it will not be effective
- A manager or supervisor, with authority to correct deficiencies, should be made responsible for the maintenance of fire prevention controls in each building area (eg Area Manager – Property Loss Prevention).
- The Area Manager should be made responsible for the completion of regular scheduled self inspections (eg weekly, monthly, etc as appropriate). From time to time the inspections of a particular area maybe conducted by another area manager or the site manager to provide a different perspective.
- A manager or supervisor, with authority to correct deficiencies, should be made responsible for the maintenance of fire prevention controls at each site (eg Site Manager – Property Loss Prevention). That is, someone should be responsible to ensure that area managers are maintaining controls.
- Self inspection checklists (defect reports) should be completed and reviewed by the Site Manager. Defects should be rectified and larger problems should be escalated to higher levels in the organisation. Reports should be kept on record as proof of due diligence.

Congratulations on completing this training module. For more information please contact your state fire service, your property insurance company or other appropriate references.