

**Figure 17 Hazards from Toxic Fumes, Building Collapse and Explosions**

Hazard	Cause
Injury from building collapse or explosions	<ol style="list-style-type: none"> <li>1. Flashover, which occurs when the products of combustion and surrounding combustibles reach their ignition temperature. Carbon monoxide is a flammable gas and is produced due to incomplete combustion through lack of sufficient oxygen.</li> <li>2. The unburnt products of combustion (carbon monoxide) are extremely hot, and can get above their ignition temperature.</li> <li>3. An explosion can also occur with the rapid introduction of fresh air (oxygen) into an area where there is a fire. Essentially the same as flashover.</li> </ol>
Explosions caused by dust	Because dust is made from a combustible material, when the conditions are right, that is, the correct air mixture and a source of ignition, dust will explode.
BLEVE or Boiling Liquid Expanding Vapour Explosion	Occurs when the container holding flammable liquefied gas breaks open, and the contents are ignited, converting the liquefied gas immediately into its vapour state. It expands rapidly into an immense fireball. LP gas, for example, increases 270:1 on expanding from a liquid to a gas.

The equipment required in an emergency may include:

- fire extinguishers and equipment
- equipment for internal communication
- evacuation alarms
- evacuation equipment, especially that for disabled persons
- torches
- clothing items such as coloured hats and vests
- communication systems to external emergency agencies.



### Meet Legislative and Industry Standards

The duty of care responsibilities of employers and employees mean that their emergency equipment and plans must meet national and industry standards.

An example of a body that consults and contributes to industry standards is the Australian Building Codes Board (ABCB). *The ABCB's mission is to address issues relating to health, safety, amenity and sustainability by providing for efficiency in the design, construction and performance of buildings through the BCA and the development of effective regulatory systems.*

**The ABCB:**

- maintains and updates the Building Code of Australia (BCA);
- provides the community with cost-effective and efficient regulations to aid the design, construction and use of buildings throughout Australia;
- responds to government and industry calls for minimum necessary regulation to facilitate, not inhibit, business;
- supports the Council of Australian Government (COAG) in the pursuit of its National Reform Agenda that aims to address issues relating to climate change, human capital, competition and regulatory reforms to lift Australia's prosperity. (viewed 15 May 2009)

The technical requirements imposed by governments on buildings are collected in the Building Code of Australia. The Building Code of Australia has been prepared in the interests of the safety, health and wellbeing of the community that must live and work in buildings.

The Building Code of Australia is used in conjunction with the relevant State regulations and Australian standards when initiating building works. The code and its regulations offer a minimum standard of fire safety. For a brief history of the Building Code of Australia, visit the Australian Building Codes Board's home page [www.abcb.gov.au](http://www.abcb.gov.au) and enter 'Building Code of Australia' into the search box.

The checklist in Figure 18 can be used as a general guide to audit the effectiveness of your organisation's preparation to respond to a fire emergency. Check the Building Code of Australia for any amendments and the most recent information.

The audit allows those planning for an emergency to identify the resources (both people and equipment) required for an immediate response to a fire emergency.

**Figure 18 Checklist: General Guide**

<b>Have the Organisation and Those Planning for an Emergency ensured Fire Safety Provisions are Met by:</b>	<b>Yes</b>	<b>No</b>
Accessing the Building Code of Australia?	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring fire safety equipment is in the building(s)?	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining emergency lighting?	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring the means of escape and exit make for easy egress from the building?	<input type="checkbox"/>	<input type="checkbox"/>

**Figure 18 (cont.)**

Have the Organisation and Those Planning for an Emergency ensured Fire Safety Provisions are Met by:	Yes	No
Maintaining fire doors and smoke doors in good working order?	<input type="checkbox"/>	<input type="checkbox"/>
Having procedures for isolation of lift shafts, passageways, stairs?	<input type="checkbox"/>	<input type="checkbox"/>
Installing active and passive fire protection such as fire detectors and fire extinguishers?	<input type="checkbox"/>	<input type="checkbox"/>
Providing for compartmentalisation of sections of the building?	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring the protection of openings in case of a fire?	<input type="checkbox"/>	<input type="checkbox"/>
Having adequate procedures for control of smoke spread?	<input type="checkbox"/>	<input type="checkbox"/>
Providing a checklist of fire safety procedures?	<input type="checkbox"/>	<input type="checkbox"/>
Documenting actions to take and displaying the document in appropriate locations?	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring any variations from the regulations are approved?	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring the fire safety requirements comply with the regulations and any other prescriptive standards?	<input type="checkbox"/>	<input type="checkbox"/>
Preparing, documenting and communicating an emergency plan that identifies the actions to take in the initial response to a fire and during the post-response phase?	<input type="checkbox"/>	<input type="checkbox"/>

Every organisation should plan to meet the prescriptive standards, particularly those required by legislation. The AS 2118 standard, for example, states the standard for the installation of sprinklers. When sprinklers are installed in buildings this standard must be complied with. Portable fire extinguishers must be checked in accordance with the *AS/NZS 1841.1-07 Portable Fire Extinguishers (Part 1 General Requirements)*. The requirements for fire blankets are identified in *AS/NZS 3504-06 Fire Blankets*.



1. a. Do you know what to do to contribute to the implementation of emergency procedures in a fire emergency in your workplace?

YES NO (please circle)

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## Why are Actions Required in an Emergency Documented?

Procedures are the actions required in an emergency. Every workplace may face an emergency such as those shown in Figure 4 on page 425.

Emergency procedures document the actions to take should an emergency evacuation of the workplace occur.

As you document actions for a number of major types of emergency take into account standards, current industry practice, specialist advice and input by emergency agencies. An effective procedure is not only established, but it is also promoted, monitored and reviewed.



Document actions required for a number of major types of emergency.

Figure 23 identifies the typical steps to follow as you prepare an emergency procedure.

Always review procedures when there are:

- changes to the work environment
- changes to work equipment or systems
- problems in the practice emergency evacuation procedures.

**Figure 23 Steps in Establishing an Emergency Procedure**

Steps	Questions to Answer
Responsibility	Who will be responsible for the procedure? Who will write the procedure? Who will promote the procedure? Who will schedule emergency evacuation practice exercises? Who will monitor and review the procedure?
Signal to evacuate	What signal(s) will initiate the evacuation? Where will these signals be located? Who has the authority to activate the signal?

**Figure 23 (cont.)**

Steps	Questions to Answer
Procedure for evacuation	<p><b>Evacuation Wardens</b> Who will manage the evacuation?</p> <p><b>Assembly Points</b> Where will people evacuate to?</p> <p><b>Head Counting</b> What checks will be put in place to ensure everyone is accounted for?</p> <p><b>All Clear</b> What signal will give the all clear to return and who will give it?</p> <p><b>Re-entry</b> How and who will manage the re-entry?</p>



## Developing Emergency Procedures

Figure 24 is an example of an emergency procedure for a power outage.

**Figure 24 Emergency Procedure for Power Outage**

On those occasions when an emergency arises because of power failure caused by faults and overloads, protection equipment operates to switch off supply, limit any damage and prevent further problems.

When an emergency occurs due to a power outage follow the steps in the **Emergency Response Checklist** here to evacuate the building.

Emergency Response Checklist	Responsibility
<ul style="list-style-type: none"> <li>○ Evacuation initiated by pressing the evacuation break glass alarm to alert wardens and call security to the building</li> </ul>	Person discovering emergency or member of ERT
<ul style="list-style-type: none"> <li>○ Evacuate staff and others without delay to safe day and night time assembly point</li> </ul>	Area Warden and ERT (emergency response team)
<ul style="list-style-type: none"> <li>○ Switch off all electrical appliances especially those with heating elements (if safe to do so)</li> </ul>	
<ul style="list-style-type: none"> <li>○ Leave one light switch turned on so you know when power is restored</li> </ul>	
<ul style="list-style-type: none"> <li>○ DO NOT ENTER LIFTS</li> </ul>	
<ul style="list-style-type: none"> <li>○ Count heads and all to wait at assembly point until the all clear is given</li> </ul>	

**Figure 24 (cont.)**

Emergency Response Checklist		Responsibility
o Do not enter buildings until the power has been restored		
o Monitor expected duration of outage regularly using battery-powered radio		
o <b>After the event</b> submit incident report to Chief Warden		
General Guidelines		
<ul style="list-style-type: none"> <li>o Notify warden and security in the case of an emergency</li> <li>o Be aware of the location of your evacuation assembly area</li> <li>o Be aware of the location of power supply to the site and each building</li> <li>o Determine the extent of the emergency response contingent upon the time of night or day and duration of the power outage</li> <li>o Use battery-powered portable radios to obtain regular broadcasts about the duration of the outage</li> <li>o Avoid the use of lifts and escalators</li> <li>o Transfer responsibility for management of the incident to emergency services personnel upon their arrival</li> </ul>		
Hazard/risk identification	Assess priority	Current controls
Fall, trip, slip Cause injury or permanent disability	1	<ul style="list-style-type: none"> <li>o Emergency evacuation plans displayed in all building</li> <li>o Emergency warning and evacuation system in all buildings</li> <li>o Emergency evacuation lighting in all buildings and maintained in accordance with AS 2293.2</li> <li>o Battery-operated equipment with fully charged batteries available</li> <li>o Solar lighting above emergency assembly areas</li> <li>o Emergency control organisation and security on duty while buildings are occupied</li> </ul>

Visit [www.seymour.usyd.edu.au/boxoffice/kids\\_sinfo\\_emerg.shtml](http://www.seymour.usyd.edu.au/boxoffice/kids_sinfo_emerg.shtml) to view the General Procedure In The Event Of A Fire Or Other Emergency for the Seymour Centre. The procedure gives clear directions and instructions for the initial response to an emergency.

To be effective a procedure must not only be established, but it must also be promoted and reviewed as required.

Emergency procedures are promoted on the intranet, notice boards, and through induction training and refresher training. They are also promoted in emergency evacuation exercises that enable people to practise the actions they need to take in an emergency.

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## How are Training Needs and Appropriate Providers Identified?

Training enables people to engage in the appropriate initial response and post-event actions in an emergency situation. The training or learning need is the difference between what a person can do in an emergency and what they need to be able to do to respond to the standard required in their workplace.

Consult with those who:

- prepared the emergency plans and procedures
- will need to contribute to the implementation of the procedures (team leaders, supervisors)
- are part of the external emergency agencies and specialists.

Consultation with the stakeholders in emergency control ensures training needs are:

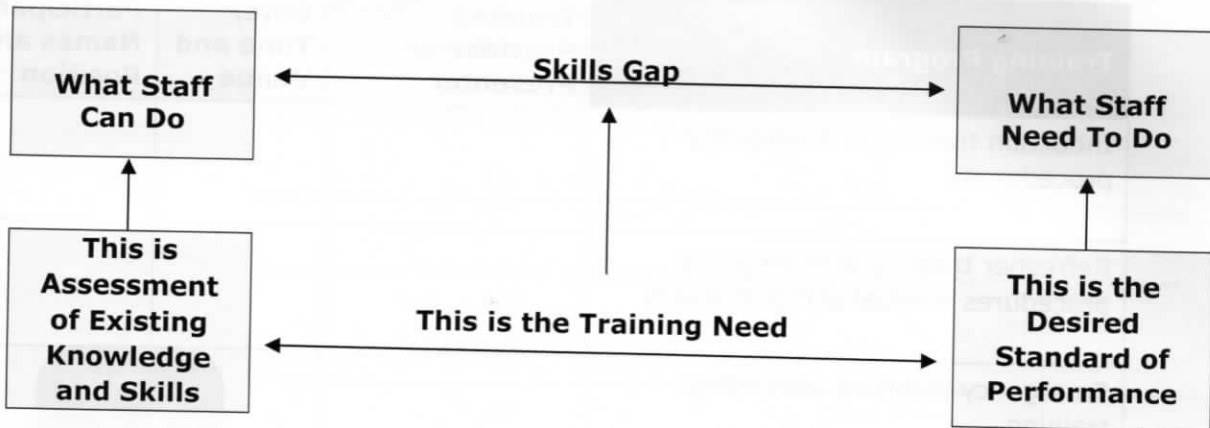
- identified against the skills and knowledge people need to be able to implement emergency procedures competently
- identified against the documents such as legal requirements, industry standards and emergency procedures required to meet the necessary standard of performance.



Identify training needs and appropriate providers.

A skills gap is what your organisation needs to train its people in to enable them to implement emergency procedures. Figure 25 illustrates the relationship between a skills gap and a training need.

**Figure 25 Relationship between Skills Gap and Training Need**



### Identify Appropriate Training Providers

When a skills gap and hence a training need for the purposes identified in Figure 26 is identified contact the training provider with the appropriate expertise.

**Figure 26 Training Achieves These Purposes**

- To:
- meet statutory requirements such as occupational health and safety
  - fill a performance gap in planning emergency procedures
  - fill a performance gap in implementing initial response procedures
  - fill a performance gap in contributing to post-event activities
  - fill a performance gap in monitoring the responses to an emergency and addressing any deficiencies.

Training is the answer for each of these needs. Training is not always the answer for:

- low motivation
- poor equipment
- poor communication systems
- inadequate supervision and support.

Figure 27 is an example of a training calendar for emergency response training.

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