CODES OF PRACTICE

FIRST AID FACILITIES AND SERVICES

WORKPLACE AMENITIES AND FACILITIES

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

2002

commission
for occupational
safety and health

Foreword

The introduction of the *Occupational Safety and Health Act 1984* (the OSH Act) enabled the establishment of the tripartite Commission for Occupational Safety and Health. The Commission, which comprises representatives of employers, unions and government, as well as experts, has the function of developing the occupational safety and health legislation and supporting guidance material, and making recommendations to the Minister for their implementation. To fulfil its functions, the Commission is empowered to establish advisory committees, hold public inquiries, and publish and disseminate information.

This code of practice has been developed through a tripartite consultative process and the views of the employers and unions, along with those of government and experts, have been considered.

The Commission's objective is to promote comprehensive and practical preventive strategies that improve the working environment of Western Australians.

The *Occupational Safety and Health Act 1984*

The OSH Act provides for the promotion, coordination, administration and enforcement of occupational safety and health in Western Australia.

The OSH Act places certain duties on employers, employees, self-employed people, manufacturers, designers, importers and suppliers. It also places emphasis on the prevention of accidents and injury.

In addition to the broad duties established by the OSH Act, the legislation is supported by a further tier of statute, commonly referred to as regulations, together with a lower tier of non-statutory codes of practice and guidance notes.

Regulations

Regulations have the effect of spelling out specific requirements of the legislation.

Regulations may prescribe minimum standards and have a general application, or they may define specific requirements related to a particular hazard or particular type of work. They may also allow the licensing or granting of approvals and certificates etc.

Codes of practice

A code of practice is defined in the OSH Act as a document prepared for the purpose of providing:

- practical advice on preventive strategies; and
- a practical means of achieving any code, standard, rule, provision or specification relating to occupational safety and health in Western Australia.

A code of practice may contain explanatory information. The preventive strategies outlined do not represent the only acceptable means of achieving a certain standard.

A code of practice does not have the same legal force as a regulation and is not sufficient reason, of itself, for prosecution under the OSH Act.

Guidance notes

A guidance note is an explanatory document providing detailed information on the requirements of legislation, regulations, standards, codes of practice or matters relating to occupational safety and health, as approved by the Commission.

Authority

On 5 July 2002, the Minister for Consumer and Employment Protection approved the *Codes of practice: First aid facilities and services; Workplace amenities and facilities* and *Personal protective clothing and equipment* pursuant to Section 57 of the *Occupational Safety and Health Act 1984*.

Scope

These codes of practice provide guidance on complying with some legislative requirements in the Occupational Safety and Health Regulations 1996 that apply in all workplaces covered by the *Occupational Safety and Health Act 1984* and relate to:

- the provision of first aid facilities and services;
- the provision of workplace amenities and facilities; and
- the selection and use of personal protective equipment.

The practical guidance in these codes should be considered in conjunction with the general duties in the *Occupational Safety and Health Act* and provisions in the regulations that relate specifically to first aid, amenities and personal protective clothing and equipment, and other relevant codes of practice or guidance notes.

Where the workplace is in a building, provisions in the *Building Code of Australia* (BCA) also apply. The BCA covers the design, construction and modification of facilities in a building, and is administered by local government.

Local government should be consulted when determining the facilities to be provided in a new building, when there is to be a change in the use of an existing building, or when an existing facility is to be altered. Employees should be involved in the consultation process.

Who should use these codes

The codes have been developed by the Commission for Occupational Safety and Health to assist employers, contractors, self-employed persons, persons in control of workplaces, employees and safety and health representatives to comply with the *Occupational Safety and Health Act* and regulations.

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CODE OF PRACTICE

FIRST AID FACILITIES AND SERVICES

2002

1. Code of practice for first aid facilities and services

First aid is the immediate treatment or care given to someone suffering from an injury or illness.

The aims of first aid are to:

- preserve life;
- prevent illness or injury from becoming worse;
- relieve pain, if possible;
- promote recovery; and
- protect the unconscious.

1.1 Establishing first aid facilities and services

The Occupational Safety and Health Regulations 1996 require the employer to provide first aid facilities.

See OSH regulation 3.12

The provision of first aid facilities and services starts with identifying all the hazards in the work environment that could lead to injury or harm to the health of people at the workplace. This should be done in consultation with workers and their elected safety and health representatives, where they exist.

An assessment of the likelihood and consequences of the hazard leading to injury or harm will assist in identifying the means of reducing the risk to employees and the first aid services and facilities appropriate for the workplace.

Hazard identification, risk assessment and risk control are covered in Appendix 1.

It is important to give consideration to high risk environments, such as:

- workplaces that use or manufacture hazardous substances;
- construction and demolition sites;
- timber harvesting sites;
- workplaces where hazardous processes may be used (eg abrasive blasting);
- where heat is used as part of any process (eg moulding or casting, welding and cutting);
- where people are required to work in any remote or isolated areas (eg agricultural, fishing or transport industry); and
- workplaces that provide assistance and care to highly dependant people.

A checklist to assist in identifying appropriate services and facilities is in Appendix 2.

During the planning or establishment stage there may be times when workers are not at the workplace or available for consultation. The employer may then need to decide what is required to provide adequate and appropriate first aid facilities and services. In these circumstances the adequacy and appropriateness of the facilities and services should be reviewed as soon as practicable after the workplace becomes operational (See section 1.2 below).

Having identified the hazards and assessed the risks at the workplace the following matters need to be determined:

See Appendix 6 Other sources of information

- the contents of first aid boxes (a guide for determining the contents and quantities is at Appendix 3);
- the number of first aid boxes and where the boxes should be located ensuring they will be readily available;
- any need for a simple oxygen supply;

- the number of people to be trained in first aid and what is approved training for the particular workplace;
- the possible need for a first aid room and the equipment it should contain (see Appendix 4);
- a system for recording and reporting occupational injuries, diseases and illness and the first aid administered. Australian Standard AS 1885.1 *Measurement of occupational health and safety performance - Describing and reporting occupational injuries and disease* (known as the National Standard for workplace injury and disease recording) may be useful as a guide in setting up such a system;
- the availability of trained first aid personnel during working hours eg on night shift; and
- the availability of professional medical care (eg local hospital, medical centre) and emergency service (eg ambulance) response time.

Providing first aid facilities and services for a workplace identified as a major hazard facility should be done in conjunction with the development of emergency plans designed to minimise the effects of any accident or near miss that occurs at that facility. These emergency plans are covered in the *National Standard for the Control of Major Hazard Facilities* [NOHSC: 1014(2002)] and *National Code of Practice for the Control of Major Hazard Facilities* [NOHSC: 2016(1996)].

1.2 Review of first aid facilities and services

Once first aid facilities and services have been established, they should be under continual review to determine if they need to be changed or expanded.

This should be done by the employer in consultation with workers and any trained first aid personnel, safety and health representatives or safety and health committee at the workplace, where they exist.

This review process is particularly important when the first aid facilities have been established before workers are at the workplace, when there is any significant change in the number of workers or where tasks, duties or processes have changed or new information becomes available which may affect the safety and health of people at the workplace.

1.3 Occupational health service

In certain high risk situations or in workplaces where there are large numbers of workers, consideration should be given to providing an occupational health service.

An occupational health service is a specialised service for the purpose of conserving, promoting and restoring the health of a person at a workplace.

See OSH regulation 5.23 and schedule 5.3

The service may include:

- provision of first aid or medical services;
- pre-placement and regular ongoing physical assessment;
- counselling;
- health promotion; and
- health surveillance.

Initially the service may include only some of the above components before being expanded as appropriate for the workplace, such as the health surveillance required following exposure to a hazardous substance and management of work-related injuries.

The occupational health service may be provided internally by an occupational health nurse in conjunction with other health professionals as necessary. Alternatively a contract service provider may be used, possibly in combination with employed professionals.

1.4 Communication

Communication is extremely important in getting first aid to an injured person in a workplace remote from available medical services.

See OSH regulation 3.3

Consideration must be given to how first aid could be provided to remote workplaces and to highly mobile workers who work away from a central base.

In an emergency, quick response is essential. An effective and readily available means of communication must be provided. All people expected to use the means of communication should be trained in its use.

The Commission *Guidance note: Working alone* describes what might be practicable in terms of providing a means of communication in certain industries. It also covers the provision of a communication system where a telephone is not available.

See Appendix 6 Other sources of information

1.5 Reporting and recording systems

A system should be developed and implemented for reporting and recording occupational injuries, diseases and illnesses and other relevant safety and health information. The system should be readily available and accessible to workers. Australian Standard AS 1885.1 *Measurement of occupational health and safety performance - Describing and reporting occupational injuries and disease* (known as the National Standard for workplace injury and disease recording) may be useful as a guide in setting up such a system.

See Appendix 6 Other sources of information

Recording information on injury and disease at the workplace is an important component in developing preventative strategies. The Occupational Safety and Health Regulations 1996 require certain injuries and diseases to be reported to the WorkSafe Western Australia Commissioner.

See OSH regulations 2.4 and 2.5

1.6 Confidentiality of information

Any information recorded about the health of a person or treatment given to a person should be treated as confidential and stored in a secure place.

1.7 Worker awareness

An employer has a duty to provide information, instruction, training to and supervision of employees to enable them to work without exposure to hazards.

Information and instruction about first aid facilities and services for workers should include:

- the location of all first aid boxes, equipment and first aid rooms (if any);
- the names, work locations and contact numbers of first aiders;
- procedures to be followed when first aid is required and for contacting external assistance when first aid is not available or further assistance is required (ie who calls the ambulance and procedures for evacuating an injured person); and
- standard precautions for the control of infection including blood-borne infections.

This information should be kept up to date and provided:

- when a worker is first employed at the workplace (ie at induction);
- if there is a change in the location of the first aid facilities or services;
- if there are any changes in the names, locations or contact numbers of trained first aiders; and
- thereafter, at regular intervals.

See Appendix 6 Other sources of information

Information and practical guidance on standard precautions for the control of infection is provided in the Commission *Code of practice: Management of HIV/AIDS and hepatitis at workplaces*.

As processes change or new information becomes available all workers should be advised and kept aware of any new or changed hazards in the workplace.

1.8 Providing information in an appropriate form

Information should be provided in a form that all workers can understand. Consideration should be given to the way information on first aid facilities and services may be provided for people with non-English speaking backgrounds and people with disabilities.

This could include using:

- audio and visual aids;
- graphics (eg posters);
- interpreters;
- simple English phrases;
- people with skills in the same language to provide information; and
- interactive practical demonstrations.

Regular checks are necessary to ensure the information provided is understood by everyone at the workplace.

See Appendix 6 Other sources of information

Signs should comply with Australian Standard AS 1319 *Safety signs for the occupational environment*.

1.9 First aiders

First aid may be administered by the first person 'on the spot'. It is generally recognised, however, that a first aider is a person who has had some level of formal training.

First aiders may have skills that range from basic expired air resuscitation (EAR) or cardio-pulmonary resuscitation (CPR) to being able to provide more complex treatment. Selection and training of first aid personnel is most important.

First aiders should be familiar with the specific conditions and hazards at the workplace and the types of injuries likely to require treatment. The number of first aiders at a workplace and the level of training that is needed should be determined according to the hazards identified at the workplace and the assessed risks.

As far as is possible, first aiders should have some practical experience before acting alone. They should volunteer to undertake the training and responsibilities of a first aider rather than be appointed without consultation. Where possible, training should be undertaken by an accredited first aid training provider using competency-based assessments.

1.10 Selection of first aiders

In selecting and determining the number of first aiders needed at a workplace consideration should be given to:

- the hazards identified at the workplace;
- an assessment of the risks associated with the hazards;
- the size and layout of the workplace;
- the location of the workplace including whether it is an isolated or remote workplace;
- the distance from the workplace to the nearest occupational health or medical service, or ambulance service; and
- the number and distribution of workers, including those working shiftwork.

1.11 First aid boxes

A first aid box may be of any size, shape or type providing it is large enough to contain all the items required for a particular workplace. It should also be able to protect the contents from dust, moisture and contamination. The first aid box should be kept securely closed to ensure its contents are kept clean and dry.

The first aid box should contain basic requirements and additional items appropriate to the workplace. A guide to determining the contents of a first aid box is at Appendix 3.

First aid boxes should be provided and located to ensure:

- they are immediately accessible to all workers. Access to a first aid box for people working in isolated or remote locations must be taken into account;
- all workers in mobile workplaces, such as bus and transport drivers, have immediate access to a first aid box;
- the names and contact numbers of first aiders are provided on or near the box;
- additional information such as the name, address and telephone number of the nearest medical or emergency service, is supplied on or near the box;
- instructions for emergency treatment of injuries, expired air resuscitation (EAR) and cardio-pulmonary resuscitation (CPR) are provided inside the box;
- instructions for dealing with injuries that may be specific to a workplace (eg eye injuries or chemical burns) are provided in or near the box; and
- instructions are provided on the care of first aid instruments such as scissors or splinter forceps for wound care.

First aid boxes should be clearly marked and the contents adequately maintained and replaced or added to as necessary.

Where a first aid box is to be located in a vehicle, the box should be of a material that minimises deterioration of its contents from heat and sunlight.

> First aid boxes should not contain items likely to be toxic or open to misuse. Any first aid boxes containing prescription drugs must be securely locked and accessible only to properly trained personnel.

Where the risk assessment process indicates medical oxygen should be available, it should be stored away from any heat source or reactive work process, but easily available.

Who should be responsible?

Employers should ensure at least one worker is appointed to be in charge of the first aid box and supervised access to the first aid box is available when workers are at the workplace. The person in charge of the first aid box should be responsible for making regular checks, replenishing supplies, maintaining the contents and ensuring that the contents are within their 'use by' dates. The person should have an understanding of the products and their uses, and preferably be trained in first aid.

1.12 First aid rooms

Where the hazard identification and risk assessment process indicates a first aid room is needed, a room designated specifically for first aid should be provided. It must:

- be well lit and ventilated;
- have adequate access should an injured person need to be supported or moved by stretcher or wheelchair;
- have easy access to toilets;
- be located to allow easy access and egress for ambulances or emergency vehicles;
- be able to provide privacy for people being treated;
- have sufficient space for equipment to be placed and used effectively;
- be regularly cleaned and sanitised;
- contain a means of communication; and
- contain adequate storage for first aid equipment and supplies.

A list of items to be considered for a first aid room is at Appendix 4.

Extra Facilities

Apart from a room designated specifically for first aid, extra facilities may also be required such as:

- eye wash stations;
- drench showers; and
- specialist first aid equipment (which requires specialist training).

The hazard identification and risk assessment process will determine the need for these facilities.

Any first aid facilities and services provided should be regularly reviewed in consultation with workers, trained personnel, safety and health representatives or safety and health committees, where they exist. This is particularly important if first aid facilities or services were provided before workers were present at the workplace.

Who should be responsible?

Each first aid room and its contents should be the responsibility of an appropriately qualified person. This may be a first aider who holds a current first aid certificate appropriate to the level of risk, a qualified ambulance officer, a state registered nurse or a registered medical practitioner. All these people should have relevant and recent practical experience or training in first aid.

A person in charge of the first aid room should be immediately available to attend the first aid room at all times when workers are at work.

1.13 Training for first aiders

The level of training required for first aiders at the workplace should be determined when first aid facilities and services are being planned. The first aid competency units in the *HLT07 Health Training Package*, developed and maintained by the Community Services and Health Industry Skills Council, provide the basis for defining and meeting the first aid requirements for a workplace. The National Training Information Service (www.ntis.gov.au) has a list of registered training providers that deliver the competency units in Western Australia.

The hazard identification and risk assessment process will assist in determining the training requirements of the workplace. The outcome of this process should be discussed with training providers to ensure the training is appropriate for a workplace.

When choosing the competency units and deciding the number of first aiders required, shiftworkers and workers located in isolated areas or mobile workplaces should be taken into account. Arrangements should also be in place to cover absences of first aiders from the workplace due to holidays or sick leave.

Individual competency units for first aid

HLTCPR201A – **Perform CPR** – This unit of competency describes the skills and knowledge required to perform CPR in line with the Australian Resuscitation Council Guidelines. This unit is valid for 12 months; renewal is required after this time.

HLTFA201A – **Provide basic emergency life support** – This unit of competency describes the skills and knowledge required to recognise and respond to life threatening emergencies using basic life support measures only. This unit stands alone and incorporates the content of unit HLTCPR201A.

HLTFA301B – **Apply first aid** – This unit of competency describes the skills and knowledge required to provide first aid response, life support, management of casualties, the incident and other first aiders, until the arrival of medical or other assistance. This unit incorporates the content of units HLTCPR201A and HLTFA201A.

HLTFA302A – **Provide first aid in remote situations** – This unit of competency describes the skills and knowledge required to provide first aid to a casualty in a remote and/or isolated situation. This unit should be assessed either after or in conjunction with achievement of the competency unit HLTFA301B.

HLTFA402B – **Apply advanced first aid** – This unit of competency deals with the provision of advanced first aid response, life support, management of casualty(s), the incident and other first aiders, until the arrival of medical or other assistance, and provide support to other providers. This unit builds on unit HLTFA301B and should be assessed after achievement of that unit. This unit is structured to incorporate the content of unit HLTFA404A.

HLTFA403A – **Manage first aid in the workplace** – This unit of competency addresses the establishment and maintenance of facilities to enable or facilitate the provision of first aid in the workplace. This unit should be assessed either after or in conjunction with achievement of the competency unit HLTFA402B.

HLTFA404A – **Apply advanced resuscitation techniques** – This unit of competency deals with the provision of advanced first aid resuscitation techniques, life support, and management of casualties, until the arrival of medical or other assistance, and provision of support to other providers. This unit should be assessed after achievement of the competency units HLTFA301B, HLTCPR201A and HLTFA201A.

Relevance of first aid qualification

See OSH regulation 3.12

The intent of regulation 3.12 outlining workplace first aid requirements can only be met while the first aider's qualification remains current.

People accredited in cardio-pulmonary resuscitation should be given the opportunity to renew their CPR techniques every twelve months.

When renewing or obtaining further qualifications, first aiders should consult their employer and training provider to ensure the training is appropriate for the workplace and consistent with the units of competency for first aid in the *HLT07 Health Training Package*.

Rescue and evacuation

Rescue and evacuation procedures are extremely important and people must be trained in these procedures. This training is not usually included in a first aid course.

For serious injuries, treatment must be received as soon as possible. It may be necessary to have people who are trained first aiders, particularly in remote areas, to also be trained in rescue and evacuation procedures.

Triage

Triage is a term used to describe the allocation of patient treatment in order of priority. Some information on triage may be given in a first aid training course, however, first aiders are not trained in triage.

Triage is generally considered to be relevant to a major emergency where people, with more extensive training, would be involved in making decisions on the priority treatment of patients.

CODE OF PRACTICE

WORKPLACE AMENITIES AND FACILITIES

2002

2. Code of practice for workplace amenities and facilities

Providing workplace amenities is an integral part of the employer's general duty. Workplace amenities are the facilities provided for the welfare of workers while they are at work. They include, but are not limited to, air quality, temperature controls, workspace, lighting, seating, washing facilities, toilets, change rooms, dining facilities, drinking water and the provision of suitable access and egress.

In some instances, the employer may need to decide what amenities are required before workers are at the workplace, such as in the planning stages of building a new workplace or altering an existing one.

Regulations made under the *Local Government Act 1995* require compliance with the *Building Code of Australia* (BCA). The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia. It allows for variations in climate and geological or geographic conditions.

See Appendix 6 Other sources of information

Employers should consult their local government on the provision of amenities when planning a new workplace, altering an existing one or changing the use of an existing building or structure.

2.1 Consultation with workers

If the type and number of amenities have been established before workers are at the workplace, the employer should, in consultation with workers and safety and health representatives if any, re-examine the adequacy and maintenance of what has been provided.

This process will help determine if the amenities need to be changed or expanded. A review of existing amenities is important where tasks, duties or processes change or new information becomes available which may affect the safety and health of workers or other people at the workplace.

2.2 Workplace amenities to be provided

In determining the amenities that should be available to workers and other people at the workplace, consideration should be given to the type of workplace. In this code of practice distinctions are made between different types of workplaces. Workplaces may be permanent or temporary. They may be in buildings or structures, outdoors, remote and may be mobile.

Workplaces include, but are not limited to, those described in Table 1. The table refers to different types of workplaces and locations. It also provides examples of workers who may work in them. When establishing amenities appropriate for individual workplaces, it may be useful to refer to the table and identify a similar type of workplace.

In addition, consider:

- whether the workplace is in a building or a structure;
- the location of the workplace;
- the nature of the work to be performed;
- whether there are hazards in the workplace, the type of hazard and risk;
- whether the employer is in control of the workplace;
- the number of workers at the workplace;
- providing adequate privacy and security for male and female workers;
- the distance from the workplace to the nearest available and appropriate facility;
- access for the disabled or other special needs of workers;
- the time required to access the facility; and
- whether workers travel between workplaces.

Table 1 – Nature of workplaces				
	Permanent building	**Permanent non-building**	**Temporary (Seasonal)**	**Temporary**
Work at a fixed location with access to amenities.	Workers in factorises, workshops, offices, banks, schools, libraries, hotels, restaurants, community health centres, automotive industries and warehouses.	Workers in power plants and railway depots.	Rural workers.	Road construction and maintenance workers, timber workers, construction workers.
Regularly work away from a base location and with reasonable access to amenities.	Inspectors, police, council depot workers, health care workers, teachers, consultants and domiciliary workers.	Emergency services personnel, park ranges, gardeners, couriers, drivers, sales reps.	Fruit pickers, shearers.	Emergency services personnel, trades personnel, eg plumbers and electricians.
Regularly work away from base location in remote areas.		Rural workers, truck drivers.	Rural workers.	Timber workers, road construction and maintenance workers.
Work in mobile workplaces with access to amenities.		Domestic airline crews, pilots, workers on ships and trains, drivers (trucks, buses, taxis).		

As well as the duties imposed by the *Occupational Safety and Health Act 1984*, there are a number of requirements in the Occupational Safety and Health Regulations 1996 that impose minimum conditions on the convenient and reasonable provision of amenities. Having regard to the regulations and the points under Section 2.2, decisions will need to be made about:

- suitable air quality;
- lighting;
- suitable workspace;
- temperature control;
- drinking water;
- seating;
- suitable toilet facilities;
- suitable washing or showering facilities;
- suitable facilities for eating;

- arrangements for people who are injured or become ill at work;
- where necessary, suitable facilities for changing clothes;
- suitable facilities for personal belongings;
- suitable protection from adverse weather conditions; and
- access and egress for the disabled.

2.3 Air quality

The employer and the person in charge of the workplace must take action to ensure people at the workplace are not exposed to an oxygen deficient atmosphere or a toxic atmosphere.

See OSH regulations 3.37, 3.18 and 3.39

The employer is required to reduce the level of airborne contaminants generated from any process conducted in a workplace to acceptable levels as defined in the *Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 3008(1995)] and *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 1003 (1995)]. Such control may be achieved by using mechanical extraction and ventilation methods or other suitable means. If it is not possible to reduce the level of airborne contaminants by any other means, suitable respiratory protective equipment must be provided. The *Code of practice: Personal protective clothing and equipment* (included in this booklet) provides guidance on the selection of appropriate respiratory protective equipment.

See Appendix 6 Other sources of information

2.4 Evacuation procedures

The employer must ensure evacuation procedures are developed in consultation with workers to provide for the controlled movement of people from the workplace in the event of a fire, explosion, bomb threat or structural damage within a building to a place of safety.

See OSH regulation 3.10

All employees should be trained in the procedures which should be:

- simple;
- flexible;
- written;
- distributed;
- tested; and
- reviewed.

The *Building Code of Australia* includes specific requirements designed to protect people and the building in the event of a fire. The requirements include exit doors, fire doors, fire extinguishers, emergency lighting, exit signage and smoke control.

See Appendix 6 Other sources of information

Further information on these requirements should be sought from local government.

2.5 Lighting

Workers must be provided with lighting appropriate for the nature of the work and the work location.

See OSH regulation 3.13

Lighting should allow workers to move about safely without risk of accident or injury and to carry out their work effectively.

Some tasks may require local lighting at a particular work station in addition to general lighting for the workplace.

Factors to consider when providing lighting include:

- the nature of the work activity;
- the work environment;
- illumination levels (both natural and artificial light);
- glare;
- contrast; and
- reflections.

The *Building Code of Australia* should be referred to for lighting within buildings.

2.6 Emergency lighting

See Appendix 6 Other sources of information

Emergency lighting needs to be provided for the safe movement of people at work in the eventuality that an emergency arises and normal lighting is temporarily unavailable. Australian Standard AS 2293 *Emergency evacuation lighting for buildings*; AS 2293.1 *System design, installation and maintenance*; and AS 2293.2 *Inspection and maintenance*, are the relevant standards for emergency lighting and the maintenance of emergency lighting.

2.7 Workspace

See OSH regulations 3.6 and 3.14

Different types of work have different requirements in relation to access to the work area, the movement of people to and from the workstation, the movement of materials and equipment, storage and so on. The particular requirements of the work area should be considered to ensure that the person using the work area is not obstructed by furniture, fittings, equipment or people. The location of hazards such as noise and heat sources should be considered prior to the determination of the work area.

The space required for any particular job should be based on a risk assessment which takes into account:

- the task;
- the physical actions needed to perform the task;
- the need to move around while working;
- whether the task is to be performed from a sitting or standing position;
- access to and egress from the workstation; and
- the equipment to be handled and personal protective equipment that might have to be worn to perform the job.

The space should allow for the full range of movements required to do the job. Workers should be able to move as they need without strain or knocking against furniture or equipment.

Overcrowding

The number of people working in a building and the way in which they are grouped must be considered and arranged to prevent risk to their safety and health. Overcrowding interferes with free movement of people, obstructs access to emergency exits, may cause stressful background noise or interrupt work performance.

2.8 Air temperature

Air temperature is only one factor affecting the safety and health of workers. Whether the workplace is within a building or structure or outdoors, adequate precautions should be taken to protect workers having regard to:

- temperature (ambient and radiant);
- humidity;
- air movement;

- air contaminants;
- the worker's level of physical activity;
- the worker's degree of acclimatisation (particularly important under hot work conditions);
- whether personal protective equipment is being worn; and
- whether personal protective equipment is appropriate for the tasks being performed.

See OSH regulation 3.15

2.8.1 Air-conditioned workplaces

An air-conditioning system should:

- provide a generally acceptable environment in terms of air temperature, humidity and air movement;
- prevent the excessive accumulation of body odours or other objectionable odours;
- reduce respiratory by-products, especially carbon dioxide, to an acceptable level;
- reduce the levels of indoor air contaminants that may arise from work activities, building materials or external sources to acceptable levels; and
- supply an amount of fresh air to the air-conditioned space, exhaust some of the stale air, as well as filter and recirculate the bulk of the indoor air.

The Commission *Code of practice: Prevention and control of legionnaires' disease* provides practical guidance on the general principles of design, installation, operation and maintenance of cooling towers and air-handling systems.

See Appendix 6 Other sources of information

2.8.2 Non air-conditioned workplaces

Many workplaces are not suited to be cooled by air-conditioners, or it may be impracticable to do so. In such workplaces natural ventilation, which may be assisted by mechanical ventilation (fans or extraction units), is appropriate.

Natural ventilation should ensure adequate flow-through or cross ventilation and air-quality, including sufficient air-changes and fresh air quantities.

Air movement throughout a workplace is highly desirable for the comfort of workers. Air movement in non air-conditioned workplaces is dependent upon a number of factors including building design, outside climatic conditions, presence and adequacy of fixed ventilation systems, internal partitioning and workplace layout.

2.9 Drinking water

An adequate supply of clean drinking water must be provided at all workplaces and be readily accessible to workers. Drinking points must not be located in toilets or where the drinking water could be contaminated or polluted.

See OSH regulation 3.16

Drinking water supply points should be placed where they can be readily accessed by the people for whom they are provided. Additional drinking points should be provided where workers are likely to be exposed to excessive heat or dehydration.

Where the water is not delivered in an upward jet, a supply of clean or disposable cups or glasses must be available.

All water used for drinking should conform to the National Health and Medical Research Council *Australian Drinking Water Guidelines* (EH19, 2004).

Temperature of the drinking water

The temperature of the drinking water should be below 24 degrees Celsius. This temperature may be achieved by refrigeration or the provision of ice. Where ice is used to directly cool drinking water, the ice must be free of contaminants. Use a scoop or automatic dispenser to transfer ice to drinking containers.

When the supply of water comes from outside a building, it may be necessary to protect pipes from the sun to maintain an acceptable water temperature.

Connection to a water supply may not be possible

Where connection to a water supply is not possible, drinking water may be provided by other means such as a flask, cool water dispenser or water bag. The most appropriate method should be selected in consultation with workers. Work situations where connection to a water supply is not possible include rural workplaces, remote work locations, delivery trucks, road construction sites and logging sites.

Labelling of water supplies unfit for drinking

Water supplied for certain industrial work processes or for fire protection may not be suitable for drinking. The employer needs to ensure that water for work processes or fire protection is not inadvertently used for drinking. To guard against the accidental use of unfit drinking water, signs 'UNFIT FOR DRINKING', or words to that effect must be placed at the water supply points.

2.10 Seating

See OSH regulation 3.19

Workers must not be forced to adopt sustained, inappropriate and awkward body positions, such as work heights that are too low or too high, visual display units placed where they cannot be easily seen by the operator, or frequently used controls, tools and materials placed beyond easy reach. Such workstation layouts may result in inappropriate positions, such as bending to one side or twisting the body, which increase the risk of injury.

Workstations should be designed so that workers can do most of their work in an upright position with shoulders lowered and upper arms close to the body. The working height and objects used in the task should be roughly level with the worker's elbows, whether the work is done sitting or standing.

If the task involves close visual work or fine movements, the work level may need to be higher. Arm support should be provided if the arms must be kept raised when performing the task. Different workers require different working heights. It is best to use adjustable workstations to make the work height suitable for the person and the task. If the workstation must be shared regularly by different workers, ensure that its height can be adjusted quickly and easily. Fixed work tables at different heights can also be used to cater for different workers and different tasks.

Where work is carried out in a seated position, the employer must provide seating of a type and design enabling the work to be performed in a safe and ergonomically sound working position. This means it should be fully adjustable, provide suitable body support and be appropriate to the type of work performed. Where work is performed from a standing position and there are long periods of inactivity, seating may need to be provided to allow workers to sit down from time to time. At no time should a worker be at risk by performing manual handling tasks while seated.

Seating may need to be provided to allow workers to sit down from time to time where the following work activities are carried out:

- light manual work such as process work on production lines;
- work involving accurate control or fine manipulation such as component assembly;
- work involving the frequent use of foot controls over a long period; and
- counter duties.

In addition, it may be worth considering the provision of an anti-fatigue surface for static standing work.

2.11 Workplace facilities

2.11.1 Toilet facilities

An employer must ensure his or her workers have access to toilet facilities when they are at the workplace and that the facilities are readily accessible to all workers.

See OSH regulation 3.20

The *Building Code of Australia*, administered by local government, requires suitable toilet facilities be provided in a convenient location within or associated with a building to the degree necessary, having regard to:

See Appendix 6 Other sources of information

- the function or use of the building;
- the number and gender of the occupants; and
- the disability or other particular needs of the occupants.

The *Building Code of Australia* includes specifications for the construction of toilets. It also sets out the ratio of toilets to workers in a range of workplaces in buildings. Advice on calculating the number of toilets to be provided at the workplace should be sought from local government when planning a new building, adding to an existing building or altering the use of an existing building.

Separate toilets should be provided for male and female workers. In some small businesses where there may be only a few workers and the privacy of males and females can be assured, it may only be necessary to provide one toilet.

Where shops are situated in a shopping complex, sufficient toilets to satisfy the needs of all shops in the complex should be provided by the owner of the shopping complex. The toilet facilities need to be provided in accordance with local government requirements and having regard to the security of workers required to use them.

Consideration needs to be given to how highly mobile workers who work away from a base location, such as bus and transport drivers, police, council and government inspectors and security personnel, can access toilets.

Reasonable access to toilet facilities needs to be provided for workers at temporary or outdoor work sites such as those carrying out road maintenance, construction workers, emergency services personnel, park rangers and gardeners, bridge builders, rural workers, seasonal workers and loggers. Other examples of workers who need access to toilets include cleaners, security personnel, sales representatives, and delivery personnel. This may be in the form of access to public toilets.

Toilets should:

- be separated from any other room by a soundproof wall, or by a reasonable distance, and by a separate entrance that is clearly marked;
- be separated from another room by an airlock;
- be provided with adequate lighting and ventilation;
- be supplied with toilet paper;
- incorporate a stable toilet pan that is fitted with a seat and lid;
- provide an adequate and hygienic means for the disposal of sanitary items for female workers;
- provide an adequate means of washing and drying hands; and
- provide rubbish bins for the disposal of hand towels.

Workplaces other than in a building or structure

See Appendix 6 Other sources of information

Reasonable access to toilet facilities needs to be provided for workers at temporary or outdoor work sites such as construction sites, workplaces away from base locations or remote areas where sewer connection is not available.

While the structural design of a temporary toilet must comply with the requirements of the *Building Code of Australia*, the Health (Temporary Sanitary Conveniences) Regulations 1997 also apply. These regulations cover the standard and construction of temporary toilets and the sanitary conveniences to be provided and maintained at construction sites.

2.11.2 Washing facilities

Wash basins

An employer must provide access to wash basins for hand washing purposes at all times.

The washbasins should be separate from any trough, sink or basin used in connection with the work process at the workplace.

Each washbasin should be provided with an adequate supply of soap or other hand cleaning agent, and hand drying facilities.

Additional washing facilities

An employer will need to identify the hazard and assess the risk to safety and health to determine if additional washing facilities other than washbasins should be provided. Where the nature of the work or the usual working conditions are such that a worker needs to shower after work, the worker should have access to showering facilities.

When a shower is required it should:

- be separate from any trough, sink or basin used in connection with the work process at the workplace;
- be immediately adjacent to an adequate drying area;
- provide adequate privacy and security;
- be protected from the weather; and
- be provided with suitable soap.

Ratio of washing facilities to workers

An assessment should be made of the nature of the work to determine the ratio of washing facilities (showers) to workers. For every 15 workers (or part thereof) who complete work at any one time and require a shower, an employer should provide at least one showering facility.

Separate showering facilities should be provided for male and female workers.

At workplaces other than construction sites, where there are only a few workers and the privacy of males and females can be assured, the provision of one shower may be acceptable.

Washing facilities in permanent workplaces

Clean, hot and cold water should be supplied when the washing facilities are situated at a permanent workplace, or at any other place where more than five workers are required to work continuously for two or more weeks.

All new hot water installations shall, at the outlet of all sanitary fixtures used primarily for personal hygiene purposes, deliver hot water not exceeding:

- 45 degrees celcius for early childhood centres, primary and secondary schools and nursing homes or similar facilities for young, aged, sick or disabled people: and
- 50 degrees celcius in all other buildings.

Compliance with these temperature limits is optional for kitchen sinks and laundry tubs.

Workers who may require access to showering facilities, in addition to hand washing facilities, at permanent workplaces include:

- foundry workers;
- those carrying out abrasive blasting; and
- boilermakers and welders.

Washing facilities in temporary workplaces

When washing facilities are at a temporary workplace, the facilities should at least be supplied with clean water and soap.

Workers who may require access to showering facilities, in addition to hand washing facilities, at temporary workplaces include:

- shearers, timber workers and other rural workers carrying out hot and arduous work;
- major building and construction site workers, road workers and maintenance workers; and
- emergency services personnel involved in long duration incidents such as a fire or rescue.

In some circumstances free standing outdoor showers may be used for wash downs, for example, after chemical clean-ups or upon completion of abrasive blasting.

2.11.3 Rest areas

Provision of a rest area

A rest area should be provided where a worker who becomes ill at work can rest. An employer should consider the nature of the work and the number of workers to determine whether or not it is appropriate to provide a rest area with a bed, or one with a comfortable chair.

Facilities for a rest room may be combined with those of a first aid room, if a first aid room is considered necessary and reasonable privacy of a worker can be assured. The first aid requisites must be relevant to the hazards in the workplace and the risk to the safety and health of a worker.

Where a first aid room or a rest room is not available, suitable arrangements, including access to medical attention if required, or transport home, should be made to ensure the well being of anybody who becomes sick at work.

Workers undertaking remote or isolated work need access to some form of emergency communication device in the event that a worker becomes sick while at work. This could include provision of a mobile telephone or two-way radio or some form of regular security check.

A person such as a carer who accompanies or cares for a highly dependent person away from that person's normal residence or the carer's usual workplace should also be provided with some form of emergency communication device.

Specifications of a rest area

Where a rest area is to be provided, it should be:

- clean and hygienic;
- separate from any main working area (but not necessarily a separate room);
- furnished with a bed, pillow and blankets or a comfortable chair with a blanket as appropriate;
- quiet and well ventilated;
- able to provide some privacy; and
- able to be supervised.

Supervision of a rest area

An employer should ensure that discrete and appropriate supervision of a worker using a rest room is maintained primarily to ensure there is no deterioration in their condition while resting.

2.12 Facilities for eating

An employer should provide workers with reasonable access to hygienic facilities for eating meals at work.

The type of facility provided should be appropriate to the nature of the work, the number of workers and the working environment. A range of facilities may be considered appropriate.

In small workplaces where dining facilities cannot be accommodated in the premises, the employer needs to arrange access to alternate facilities. As a minimum requirement, access to a separate area needs to be provided that is equipped with a sink, a clean and hygienic storage cupboard, an appliance in which to boil water to make tea or coffee, and running water (preferably hot and cold) for washing utensils such as crockery and cutlery.

Seating should be appropriate for adults. In a larger workplace, it is reasonable that a separate dining area or room should be provided. If less than 25 workers usually eat a meal at a particular time at the workplace, an eating area should be provided that is:

- separate from the work area;
- protected from the weather, surface and airborne contaminants,
- free of tools and work materials;
- have facilities for boiling water, facilities for washing and cleaning utensils and facilities for storage of utensils free from contamination; and
- regularly cleaned.

Where insecticides, pesticides or substances used for cleaning and polishing are used in an eating area, care must be taken to ensure any residue is removed prior to surfaces being used for food preparation or consumption.

If more than 25 people usually eat a meal at a particular time at the workplace an eating room should be provided. The eating room should:

- be hygienic and waterproof;
- be separated from any hazard produced by any work process (including noise, heat and atmospheric contaminants, including toilet facilities);
- be fitted with a sink, draining board and hot and cold running water (where reticulated water is available);
- have facilities for storing food in a cool and hygienic place, for storing utensils free from contamination and for boiling water; and
- have a reasonable number of rubbish bins which are maintained in a clean and hygienic manner.

Local government should be consulted on the provision of eating facilities during the planning of new building or redesign of an existing one.

Access to eating facilities

An eating area, canteen or cafeteria may be available to workers in a building near the workplace. If it is proposed that these facilities are appropriate eating facilities, an employer should ensure that such a facility is available to all employees.

Eating facilities in mobile or remote workplaces

Where the work involves regularly going to different workplaces or working in a remote area, an employer should provide workers with reasonable access to facilities. The type of facility provided should be appropriate to the nature of the work, the number of workers and the working environment. A range of facilities may be considered appropriate. For example, some workers work in remote locations where the only enclosed facility may be a vehicle.

2.13 Change rooms

Provision of change rooms

Where the work process or the workers requires workers to change clothes before or after work, a facility for changing clothes should be provided. Workers who may need to change clothes include hospital workers, meat processors or handlers, and those where a work uniform is not to be worn outside the workplace.

Where the nature of the work performed by workers involves working with hazardous substances and workers are required to wear protective clothing which must be decontaminated, additional facilities should be provided. Such additional facilities include change rooms separate from other change rooms and storage facilities for protective clothing which is separate from that provided for personal clothing.

The nature of the change rooms

Separate change rooms should be provided for male and female workers. In some cases there may be only a few people who are required to change before or after work. If the privacy of males and females can be assured one change room may be acceptable.

Change rooms should have sufficient space and adequate seating for the maximum number of people who are changing at any one time. They should be equipped with a reasonable number of hooks, mirrors and adequate shelving.

When calculating the size of the room required, there should be sufficient clear space allowed for each person changing clothes at any one time. This space should be in addition to that required for lockers, storage space or other facilities.

Lockers

Each person who usually makes a change of clothes at the workplace should be provided with a locker for storing clothing and personal belongings. The locker should be big enough for the clothing to be stored, well ventilated, fitted with a hook on the back of the door, have a shelf at the top of the locker compartment, a coat hanger rail below the shelf and a lockable door.

Temporary workplaces

In temporary workplaces where a worker is required to change clothes before, during or after work, an employer should provide access to facilities for changing clothes that are convenient to the workplace, hygienic and afford reasonable privacy and security.

2.14 Personal belongings

Where work does not require a change of clothes, secure storage facilities should be provided for personal belongings.

Facilities for personal belongings in buildings or structures

Where the workplace is in a building or structure, these facilities should at least consist of hanging space with provision for safe custody of personal property. If there is communal hanging space rather than lockers, a lockable drawer may be acceptable for other personal property.

Facilities for personal belongings in temporary or mobile workplaces

Safe custody of personal property should be assured when workers are not normally working at one workplace. Where the workplace is temporary or mobile, lockable containers that can be held in a safe place may be acceptable.

Safe storage of tools

Where any work involves the use of tools provided by a worker, reasonable provision should be made for the secure and weatherproof storage of those tools during non-working hours.

2.15 Shelter

An employer should provide workers with reasonable access to shelter while weather conditions make work unsafe.

The type of shelter should be suitable for the type of work, the number of workers and the working environment. In many workplaces the facilities for eating may be suitable shelter from weather.

2.16 Communication procedures and systems

See OSH regulation 3.3

Workers in remote workplaces must have access to emergency communication systems in case they become ill or injured while at work. An employer must ensure communication is made on a regular basis with workers working in a remote workplace to ensure their safety and health and appropriate procedures are in place for this purpose.

A person is alone at work when they are on their own, when they cannot be seen or heard by another person, and when they cannot expect a visit from another worker or member of the public for some time.

The person who is working alone may be an employer, self-employed person, contractor or employee.

In some situations, a person may be alone for a short time. For example: a firefighter may work as part of a team, but others in the team may be unable to see or hear the person for an hour or more if the team has spread out in a bush fire. In other situations, the person may work on their own for days or weeks in remote locations.

In Western Australia, the size and geography of the state means that there are many situations where a person could work alone in a remote location such as on a farm or pastoral station, in a forest or exploration work.

A person may also work alone in a metropolitan area, because of the time, location or nature of their work. For example, a worker is alone when he or she:

- works in a depot or business where there are no other workers;
- works in a workplace when everyone else has gone home;
- cleans offices in high rise buildings or other facilities outside normal business hours when there is no-one else in the area being cleaned;
- is called out at night to check on security alarms or faults in business premises that are closed; or
- accompanies a highly dependant person on an excursion or for treatment away from the workplace.

See Appendix 6 Other sources of information

The Commission *Guidance note: Working alone* provides practical guidance on meeting the requirements of regulation 3.3.

2.17 Accommodation

Workers working in remote areas are often obliged to make use of employer-provided accommodation, as there is no alternative. So called 'found' arrangements apply where the workers is provided, either free of charge or at a nominal cost, temporary accommodation while the work is being completed. An example of such arrangements would be where accommodation is provided to shearers on a sheep station or workers engaged in construction work at an isolated location.

These situations differ from arrangements where leased or let accommodation is provided in association with employment. In those situations, workers have a choice to accept the tenancy or lease arrangements and have some protection under relevant legislation, for example, housing for a miner at a mining town.

Where:

- accommodation is essential to the performance of the work and the workers is required to live there; and
- no practicable alternative accommodation is provided or available,

the person responsible should ensure the accommodation and equipment supplied is maintained in good repair.

Where practicable the accommodation should be separated from any hazards at the workplace likely to adversely affect the safety or health of a worker using the accommodation.

In determining what is reasonable in these circumstances, the following should be considered:

- safe access and egress;
- fire safety;
- electrical safety;
- appropriate toilets and washing facilities;
- cleanliness;
- drinking water;
- suitable sleeping accommodation;
- crockery and dining facilities;
- rubbish collection;
- heating and cooling;
- ventilation;
- lighting;
- clothes washing facilities;
- storage cupboards and other appropriate furniture; and
- refrigerator or cool room.

It is not intended these requirements should apply in outback areas where established practices exist, such as in the pastoral and grazing industry, where it would not be reasonable for mustering and fencing camps to provide the same accommodation standards as the homestead.

CODE OF PRACTICE

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

2002

3. Code of practice for personal protective clothing and equipment

In this code a reference to personal protective equipment, unless specifically stated otherwise, also refers to personal protective clothing.

This code provides general advice about using personal protective equipment to minimise exposure to risks associated with workplace hazards. It provides guidance on selecting, using, storing and maintaining such equipment.

The use of personal protective equipment and administrative controls is lowest in the order of control priorities. These controls should not be relied on as the primary means of risk control until the options higher in the list of control priorities have been exhausted (See Table 2, Appendix 1). Personal protective equipment may be used in conjunction with other controls where the risk of exposure is high.

If personal protective equipment has been identified as one of the control measures to minimise exposure to a risk, the employer must make sure such equipment is provided.

The employer should also provide training and instruction in the use of personal protective equipment to ensure workers receive the desired level of protection from the equipment.

3.1 Selection of personal protective equipment

See the OSH Act s.19, s.20 and OSH regulations 3.1, 3.32, 3.34 and 3.35

The selection of appropriate personal protective equipment requires consideration of the hazards and risks of the work processes. The hazard identification and risk assessment required by the regulations should ensure hazards and risks of the work processes are clearly identified.

If, in addition to implementing control measures to eliminate or reduce the risk, it is determined there is a need for personal protection, the next step is to ensure the provision of personal protective equipment is appropriate to the hazard and the risk.

In selecting personal protective equipment it should be considered whether the protection is required for a specific risk or to control multiple risks presented by the same hazard or a combination of hazards. For example, using a power saw to cut wood presents risks to the eyes (flying chips, dust), lungs (dust), whole of body (electrical), hands (cuts) and ears (noise).

Personal protective equipment should be selected that will best protect workers in the circumstances. In some cases use of personal protective equipment may create a secondary risk not identified in the original assessment. These risks should be evaluated. An assessment of the effectiveness of the equipment chosen should be made to ensure it is providing the desired protection and is not creating any additional safety or health problems.

Personal protective equipment should be checked to ensure it fits properly and is worn correctly. Comfort of personal protective equipment is an important factor in ensuring its use. To ensure personal protective equipment is selected appropriately, the following process should occur:

- employers and workers should familiarise themselves with the potential hazards and the availability of personal protective equipment;
- employers and workers should have an understanding of the criteria for selecting appropriate personal protective equipment which provides an adequate level of protection against the risks present; and
- employers and workers should evaluate the selected equipment to ensure it fits properly, is used appropriately, can be maintained according to manufacturers' specifications and does not create secondary safety or health risks.

3.1.1 Records

See Appendix 6 Other sources of information

Records of risk assessment should be retained at the workplace. Such records would assist the employer and workers in examining where hazards have been controlled and improvement made through design, substitution, separation or administration rather than the provision of safety equipment.

Records of use allow the maintenance and effectiveness of personal protective equipment to be monitored. Certain Australian Standards require the keeping of records, for example, the use of eye filters to protect against radiation generated in welding and allied operations (AS/NZS 1338 *Filters for eye protectors*).

3.1.2 Consultation with workers

Consultation with workers is one of the easiest and most effective means of identifying hazards and establishing controls at the workplace. Workers are usually well aware of what can go wrong and why, based on their experience with a job. This consultation should be done after the initial risk assessment, which should take place during the design stage, prior to commencement of the project or process.

Where a safety and health committee exists, the committee and safety and health representatives should be part of the consultative process.

3.2 Provision of personal protective equipment

See the OSH Act s.19(1)(d)

Where it is not practicable to avoid the presence of a hazard and workers need personal protective equipment to protect them against the hazard, the employer must provide personal protective equipment.

Factors to be considered in deciding the most appropriate equipment for a particular workplace include:

- the absolute requirement for personal protective equipment at that workplace;
- the availability of the personal protective equipment;
- the location of the workplace;
- the need for a personal fit;
- the training and information to be given to workers;
- industry practice, such as personal protective equipment being a normal requirement for that industry sector;
- the nature of the work and associated hazards; and
- the ability to properly maintain the personal protective equipment in the workplace.

The need for personal protective equipment at the workplace should be made known to workers before they start any new work, and before they are required to use the equipment.

Where individual fit is important for the safe use of personal protective equipment, it may be better for workers to choose their own.

3.3 Use of personal protective equipment

3.3.1 Training

See the OSH Act s.19(1)(d)

All workers exposed to workplace hazards should be trained in safe work practices including the correct use of personal protective equipment. The employer has a duty to provide this training and relevant information. Where items of personal protective equipment are to be worn by non-employees at a workplace, sufficient instruction should be provided to ensure the correct wearing of these items.

A follow-up assessment of workers' safety training should be carried out periodically to ensure the work is being done in a safe manner and personal protective equipment is being properly used and is effective. Training should also cover maintenance of the personal protective equipment where required.

Training can be separated into induction and more specific job training.

Induction training

General information about personal protective equipment should form an integral part of an induction training program for new workers.

An induction program relevant to personal protective equipment should include:

- duty of care under the Act;
- safety and health policies and procedures;
- provision, use, storage and maintenance of personal protective equipment, particularly the risks caused by incorrect use or maintenance of the equipment; and
- emergency procedures in case of special risks, eg chemical spills or fires.

Job training

Training of new workers for their specific jobs should cover the hazards and risks identified in a hazard identification and risk assessment process. It should also include instruction in the use of personal protective equipment required by the job including:

- correct selection, use and wearing of personal protective equipment;
- comfort and fit requirements;
- limitations in use and effectiveness; and
- maintenance and replacement procedures.

Ongoing training should be provided to workers as work practices or equipment are up-dated or changed.

3.3.2 Consultation with the supplier

The employer must consult with the supplier to ensure personal protective equipment is suitable for the work and workplace conditions.

There is no singular form of personal protective equipment that can be used universally for all types of hazards and work conditions.

3.3.3 Signs

Signs posted in conspicuous locations at the workplace are a useful reminder of the kind of personal protective equipment that should be worn. Signs should comply with AS 1319 *Safety signs for the occupational environment*.

See Appendix 6 Other sources of information

3.4 Storage and maintenance of personal protective equipment

3.4.1 Storage

An employer or principal contractor should ensure that personal protective equipment is stored in a clean and fully operational condition. Storage arrangements should ensure the equipment is safe from interference and damage, and is easily accessible when needed. Personal protective equipment should also be checked regularly, both during storage and in use as specified by the manufacturer or supplier, to ensure it is in a good condition.

3.4.2 Maintenance

An employer should ensure personal protective equipment is maintained in a condition that ensures its continued effective use. Damaged or defective personal protective equipment should be discarded or repaired according to the manufacturers' specifications.

A system to ensure appropriate maintenance of personal protective equipment should be implemented.

The system should cover:

- the responsibilities for maintenance according to the manufacturers' specifications;
- the designation of personnel;
- storage procedures;
- cleaning procedures;
- checking procedures;
- protective life of gloves, respiratory canisters, etc;
- training on correct maintenance of personal protective equipment; and
- criteria for replacement, maintenance or calibration of personal protective equipment.

3.4.3 Soiled protective clothing

Soiled protective clothing may pose a risk during laundering. To minimise the risk, laundering should preferably be done at the workplace or by a specialist laundry service. If disposable clothing is worn, suitable procedures need to be developed to ensure the clothing is appropriately disposed of without risk to the safety and health of others.

3.5 Risk protection through personal protective equipment

See OSH regulation 3.1

A risk assessment should have identified the types of hazards and risks present at the workplace. Some of the more common hazards and risks and the types of personal protective equipment used to reduce them are outlined below.

3.5.1 Objects or people falling from heights

Falling objects

Protective headwear is standard protection against injury from falling objects. AS/NZS 1800 *Occupational protective helmets – Selection, care and use* contains recommendations for the selection, care and use of safety helmets for head protection in building and construction work, underground work, mining, quarrying, forestry and other occupations with similar hazards.

Some circumstances may require head protection other than a safety helmet. The selection of appropriate protection will depend on circumstances. Bump hats may be appropriate, for example where small objects are likely to fall short distances on to the head.

Protective headgear is highly recommended on building and construction sites higher than one level.

See Appendix 6 Other sources of information

Appropriate footwear to guard against objects falling on feet should be selected according to the hazards and risks identified by the risk assessment. Safety footwear that complies with AS/AZS 2210 *Occupational protective footwear* is generally required in workplaces where there is a risk of heavy objects falling and causing crush injuries to feet. Where smaller objects fall short distances, footwear that covers the foot may be sufficient.

Some workers may need eye protection against falling objects. Goggles or face shields may be suitable protection.

Falling people

Fall arrest systems and devices are designed to prevent falls from elevated workplaces where redesign of the work area is not practicable. In many circumstances, guard rails are effective protection against falling and provide greater mobility to workers than safety harnesses. The Commission *Code of practice: Prevention of falls at workplaces* should be referred to for further information and guidance.

See Appendix 6 Other sources of information

Table 2 summarises some of the risks associated with objects or people falling from elevated workplaces. It also indicates some of the occupations commonly exposed to these risks and personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 2 – Objects or people falling from elevated workplaces

Area of exposure	Risks	Protection
Head	Falling objects	Safety helmets
	Moving objects	Bump hats
Eyes	Falling fragments	Safety goggles, face shields
Hands	Falling objects	Safety gloves
Feet	Heavy falling & rolling objects	Safety footwear
	Light objects	Protective shoes
Whole body	Falls from one level to another level	Fall injury prevention system
	Falls from slippery surfaces	Slip resistant shoes
People who may fall or be struck by a falling object include: painters, labourers, construction workers, agricultural workers, timber workers, roof workers, window cleaners, welders, manual handlers, storemen and packers, metal workers, shipping and receiving clerks, assemblers, machine operators, freight handlers, maintenance workers and demolition workers.		

3.5.2 Non-mechanical penetration or impact injuries

Non-mechanical moving objects likely to strike against or penetrate the body include hand tools, ie hammers, spanners, knives and screw drivers, materials being worked on or handled, and debris from work processes.

A variety of protective headwear may be used depending on the mass, velocity, and texture of the moving object. Bump hats, for example, may provide adequate protection against injury caused by slowly moving objects on an assembly line. A safety helmet may be required where objects are larger and are moving more quickly. A risk assessment will identify the particular risks associated with such hazards. Separation of people from the hazard is better than personal protective equipment.

Protective gloves are useful to prevent cuts where knives or other sharp tools are used. Arm guards may be required in hazardous tasks such as meat cutting.

Protective footwear can prevent sharp objects from penetrating and injuring the foot. It can also be effective protection from knocks and against items and materials used in the work process. See AS/NZS 2210 *Occupational protective footwear*.

See Appendix 6 Other sources of information

Table 3 summarises some of the risks associated with non-mechanical objects striking or penetrating the body. It also indicates some of the occupations commonly exposed to these risks and appropriate personal protective equipment designed to protect against them, where other controls (eg design, substitution, redesign etc) are not practicable.

Table 3 – Non-mechanical penetration or impact injuries

Area of exposure	Risks	Protection
Head	Cutting, flying, protruding objects, sharp objects	Safety helmets, protective headwear
Eyes	Protruding, flying objects	Eye protectors, face shields
Hands	Cutting, flying, protruding objects, sharp objects	Safety gloves
Feet	Cutting, flying, protruding objects, sharp objects	Safety shoes
Whole body	Cutting, flying, protruding objects, sharp objects	Protective clothing
People who may incur impact and penetration injuries caused by a non-mechanical object include: timber or logging workers, agricultural workers, mechanics, labourers, carpet layers, welders, cloth cutters, metal workers, carpenters, cabinet makers, chefs and cooks, butchers, abattoir workers, doctors, nurses, veterinarians, gardeners, groundsmen and cleaners.		

3.5.3 Being crushed or caught in or between moving machinery and equipment

Injuries associated with the operation of machinery and equipment include being caught between moving parts, or being struck by moving machinery, or striking against an object while operating machinery and equipment.

Due to the serious risks posed by moving parts of many industrial machines, guarding devices are usually a more appropriate form of protection than personal protective equipment. Risks associated with industrial presses, for example, can only be controlled effectively by guarding of the pinch point on the machine, rather than by the use of personal protective equipment by the operator.

Some mechanical equipment may present a risk of striking a worker. In some cases, the danger is that the operator will be struck by the equipment. In other cases, materials or debris associated with the operation of machinery will present the risk. In both these cases, a combination of redesign and personal protective equipment may be necessary to protect workers from injury.

See Appendix 6 Other sources of information

Safety eyewear is required in many industrial processes involving chipping, grinding, drilling, sawing, etc. Spectacles with side protection, goggles or face shields may be required depending on the hazards and risks involved in the work process. AS/NZS 1336 *Recommended practices for occupational eye protection* contains recommendations for safe work practices for eye protection, and AS/NZS 1337 *Eye protectors for industrial applications* outlines the requirements for industrial eye protection.

Face shields may be more appropriate than either spectacles with side protection or goggles where there is risk of facial injury. In any event, guarding of the work process may prevent the risk at the source, thereby reducing the possibility of injury.

Another common type of risk associated with the operation of machinery and equipment is the risk of collision. Drivers of vehicles may be thrown from the vehicle on collision, or crushed if the vehicle overturns. Other workers are exposed to the risk of being hit by vehicles or by materials being lifted, moved or carried. The design of vehicles and the provision of operator protective devices (eg seat belts, roll bars etc) should, for the most part, protect drivers of vehicles. Reflective clothing will make other workers more visible to the driver of vehicles.

Other hazards related to machinery and equipment (eg noise emissions) will be covered in the relevant hazard and risk categories.

Table 4 summarises some of the risks associated with the operation of machinery and equipment. It also indicates some of the occupations commonly exposed to the risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 4 – Being crushed or caught in or between moving parts of machinery and equipment

Area of exposure	Risks	Protection
Head/Hair	Moving, swinging parts of machinery	Safety helmets, hairnets
Eyes	Projected debris, off-cuts	Safety goggles, face shields
Hands	Crushing	Machine guards are an effective means of preventing crushing of hands by machines in general and presses in particular.
Feet	Moving, swinging parts of machinery	Safety shoes
	Crushing	Safety shoes
Whole body	Collisions, crushing	Seat belts, ROPS, reflective coats
People who may be caught in or between, or crushed by moving machinery or equipment include: drivers, construction and building workers, labourers, machine operators, mechanics, process workers, shipping and receiving clerks, maintenance workers, lathe and press operators, agricultural workers and demolition workers.		

3.5.4 Hazardous substances

Hazardous substances generally affect the skin, eyes, respiratory system or body. Splashes from chemical substances may result in burns to the skin or eyes. Harmful vapours may harm the eyes or the respiratory system. Substances handled without protection may result in contact dermatitis. Other substances may be carcinogenic and could lead to long term health effects.

The use of Material Safety Data Sheets (MSDS) in the control of hazardous substances is critical. The MSDS, which must be made available by manufacturers and suppliers, will list both the harmful properties of these substances as well as the range of control measures required to control their effects. Control measures outlined in the MSDS should be assessed with regard to the work environment in which the substance is used. Product labels are also a valuable primary source of information.

The Australian Safety and Compensation Council publications *Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 3008(1995)] and *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 1003 (1995)] contains information regarding the upper levels for airborne concentrations of a large number of individual hazardous substances.

See Appendix 6 Other sources of information

A wide variety of personal protective equipment is available to guard against risks from hazardous substances. Basic equipment includes respirators, goggles, face masks, gloves, footwear and aprons.

More extensive protection will be required where the risk of exposure is great due to working in confined spaces or in emergency conditions such as chemical fires or accidental spillages of hazardous substances. In such cases, self contained breathing apparatus or hazardous chemical suits may be required.

In many working environments, workers are exposed to a variety of substances that may be in the form of gas, vapour, dust, mist, fume or smoke. Not all substances in working environments have been tested for their toxicological effects, however most substances are capable of causing harm if exposure is sufficiently high. For airborne substances with defined properties and known toxic effects, reference should be made to NOHSC: 3008 (1995) and NOHSC: 1003 (1995) to ensure workers are not exposed beyond acceptable limits.

A substance may have a harmful effect if it comes into contact with a susceptible site in or on the body. The basic routes of entry into the body of gaseous substances are inhalation, skin absorption and ingestion.

Respiratory protection

See Appendix 6 Other sources of information and OSH regulations 3.40 and 3.41

Inhalation is by far the most common route by which substances enter the body. Where it is not practicable to prevent workers being exposed to toxic atmospheres the employer must provide respiratory equipment. Respiratory equipment must be selected in accordance with AS/NZS 1715 *Selection, use and maintenance of respiratory protective devices* and comply with *AS/NZS 1716 Respiratory protective devices.*

Before selecting a respirator, the physical characteristics of the contaminant or combination of contaminants needs to be known, ie whether it is particulate, a gas, vapour or a combination of them, and such conditions as the boiling point and vapour pressure. In some cases gas detectors may be required to ensure that levels of toxic, noxious or explosive gases remain within acceptable limits.

Where the type or extent of atmospheric contamination, gaseous or particulate, remains unknown and a safe level of oxygen cannot be assured, respirators designed to give protection against all three types of hazard, gas, particulate matter or oxygen depletion, should be used.

There are two ways of providing personal respiratory protection. These are:

- Purifying the air that the person breathes by way of the inhaled air being drawn though a filter. The type of filter will be determined by the composition and physical state of the contaminant. Filters do not provide protection in an oxygen deficient atmosphere or give protection against all contaminants.
- Supplying the person with respirable air from a source independent from the working environment, conveying respirable air to the person via an airline or a self contained breathing apparatus.

The selection process for respiratory equipment should include:

- the nature, toxicity, physical form and concentration of the contaminant, whether particulate, gas or vapour, or a combination of these;
- whether failure of the respirator could result in immediate danger to life or health;
- the need to wear other personal protective equipment eg eye or skin protection against irritants;
- the adequacy of the exposure warning symptoms given by the contaminant;
- the possibility of the contaminated atmosphere being flammable or explosive; and
- the ability to effectively detect the contaminants likely to be present, eg availability of correct detection equipment.

See Appendix 6 Other sources of information

It is essential when selecting a respirator to determine the reduction in exposure that different respirators can be expected to provide. AS/NZS 1715 *Selection use and maintenance of respiratory protective devices* (Tables 6.1 to 6.5) sets out respirator selection considerations for mechanically generated particulates, thermally generated particulates, gases and vapours and combined particulates and gases.

Consult the supplier on suitability of equipment for the level of protection required. Insist that the supplier provides equipment complying with the relevant standard and all necessary information on correctly fitting, cleaning, maintaining and storing the equipment.

Skin protection

To protect workers from the effects of hazardous substances to the skin, consideration must be given to the selection of protective equipment such as gloves, aprons and chemical suits. When selecting gloves and clothing to help protect workers from the harmful effects of toxic, corrosive or hazardous chemicals, several performance factors have to be considered.

Penetration, degradation and **permeation** are key factors to be considered in the selection process.

- **Penetration** In selecting chemical resistant clothing it is important to select material that is designed to resist penetration of a hazardous substance through seams, pores, zippers and material imperfections.
- **Degradation** is the reduction in the physical properties of gloves and protective equipment whereby exposure to hazardous substances, heat and sunlight may cause the protective equipment to become brittle, weak, soft, swell, shrink or lose its permeation factor and thereby reduce the level of protection.
- **Permeation** is the process by which hazardous substances pass through gloves or clothing without going through pinholes, seams or other openings.

Before selecting gloves and protective clothing, the employer must consult with the supplier to ensure appropriate consideration is given to each of the above.

Table 5 summarises some of the risks associated with hazardous substances. It also indicates some of the occupations where people are commonly exposed to the risks and refers to appropriate personal protective equipment designed to protect them, where other controls (eg design, substitution, redesign etc) are not practicable.

Table 5 – Hazardous substances

Area of exposure	Risks	Protection
Head	Splashes, burns to the face	Face shields
Eyes	Burns, splashes, irritation	Face shields, goggles. Irritation to the eyes from harmful vapours may be effectively controlled by changing work methods to isolate harmful chemicals from workers.
Hands	Burns, dermatitis, absorption into body tissue and blood, defatting	Impervious safety gloves
Feet	Burns	Safety footwear, impervious footwear
Whole body	Respiratory vapours, inhalation, ingestion	Respirators, breathing apparatus
	Burns, absorption into body tissue and blood, defatting	Impervious, hazardous chemical suit
People who may be exposed to hazardous substances include: gardeners and groundkeepers, agricultural workers, laboratory technicians, storemen and packers, freight handlers, painters, labourers, maintenance workers, chemical process operators, emergency workers, firefighters, manufacturing workers, metal workers, paper workers, textile workers and plastics workers.		

Appendix 5 covers the suitability of certain types of gloves for handling a range of hazardous substances.

3.5.5 Temperature extremes

Burns, scalds, spills or splashes

Foundry and furnace operations are examples where workers are exposed to heat for which protective suits, face masks and complete skin protection may be required. Plant and substances at cryogenic temperatures can also create the risk of burns. Fire fighters should have clothing that is both fire retardant and thermally insulating, for protection against burns.

Hazards in this category include spills or splashes of hot substances and contact with hot surfaces. These hazards may be found in foundries, galvanising works, welding workshops and a variety of other workplaces.

In addition to the provision of personal protective equipment against burns, consideration must be given to the design of such protective clothing so that it does not present a hazard in itself. For example, fire proof clothing, worn by a worker who is very active may lead to an increase in metabolic heat to dangerous levels, thereby contributing to a secondary effect of temperature hazard.

Table 6 summarises some of the hazards and risks associated with heat. It also indicates some of the occupations that are commonly exposed to these hazards and risks, and appropriate personal protective equipment designed to protect against them and where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 6 – Burns, scalds, splashes

Area of exposure	Risks	Protection
Head	Burns, scalding, splashes, contact with heat	Face masks, fire protective clothing, protective headwear
Eyes	Splashes, sparks, burns	Eye protectors, protective eyewear
Hands	Burns, scalding, splashes, contact with heat, spills	Protective gloves
Feet	Burns, scalding, splashes, contact with heat, spills	Protective footwear, gaiters
Whole body	Burns, scalding, splashes, contact with heat, spills	Respiratory equipment, fire protective clothing including aprons
People who may receive burns or be scalded include: welders, foundry workers, mechanics, metal process workers, chemical process operators, agricultural workers, labourers, glass and ceramic workers, boilermakers, chefs and cooks, train drivers and engineers, and firefighters, plumbers and maintenance workers, boiler attendants, engineering workshops, auto and heavy equipment mechanics using steam cleaners etc.		

Excessive heat or cold

Extremes of heat and cold can create direct hazards to workers in the form of heat exhaustion, heat stress, hypothermia and frostbite. Indirect hazards may be created by continuous and energetic activity by a worker in an environment of high ambient temperature.

Foundry and furnace operations and boiler rooms are examples where workers are exposed to extreme heat for which protective suits, hooded respiratory equipment and complete skin protection may be required.

Workplaces where hazards in this category exist include those in which mechanical equipment generates heat by its operation, or where the ambient temperature is typically high or low. These hazards may be found in a variety of workplaces, from bakeries to boiler rooms to cold stores.

Table 7 summarises some of the hazards and risks associated with extremes of temperature. It also indicates some of the occupations commonly exposed to these hazards and risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 7 – Extremes of temperature hazards		
Area of exposure	**Risks**	**Protection**
Whole body	Heat exhaustion, heat stress, burns, scalding, contact with hot surfaces	Respiratory equipment, fire protective clothing, gloves
	Contact with cold surfaces, frostbite, hypothermia	Thermal clothing, footwear, headwear, gloves
People who may be exposed to extremes of temperature include: welders, foundry workers, electricians, mechanics, metal workers, chemical process operators, agricultural workers, machine operators, labourers, transport drivers, glass and ceramic workers, boilermakers, chefs and cooks, train drivers and engineers, drycleaners, firefighters, cold store workers, mechanical services plumbers, and all persons working in high or low ambient temperatures.		

3.5.6 Radiation hazards

Electromagnetic radiation includes ultraviolet radiation, lasers and microwaves. A range of risks are associated with electromagnetic radiation including cancer, skin burns, reproductive toxicity, and changes to the nervous or cardiovascular systems. Radiation can lead to long term health problems.

Due to the wide range of the spectrum of electromagnetic radiation, the risk assessment must identify the type of radiation that workers are exposed to and the risks presented by that exposure. Various types of shields, aprons and masks are available where it is not practicable to protect workers from radiation by other means.

It is often possible, and always preferable, to isolate workers from radiation through controls other than personal protective equipment. For example, medical workers have adopted the simple procedure of leaving the room where a patient is undergoing an X-ray.

Ultra violet radiation from the sun is recognised as a hazard to the health of outdoor workers. The risk of exposure to sunlight should preferably be reduced by providing shade or scheduling outdoor work to hours other than the middle of the day.

Where this is not practicable, personal protection should be provided by protective clothing eg broad brimmed hat, long sleeve shirt and sunscreen lotion (SPF 15+) in accordance with AS/NZS 2604 *Sunscreen products - Evaluation and classification*.

See Appendix 6 Other sources of information

Light may present a hazard whether it originates from natural or artificial sources. Continuous exposure to glare from the sun reflecting off surfaces may cause irritation and swelling of the eyes. It can also lead to accidents resulting from poor vision. Sunglasses can reduce the risk to the eyes.

Intense forms of light from welding operations are another source of hazard. Electric arc welding flash can cause damage to the eyes so welding operations should be shielded by suitable flash-resistant screens to protect workers other than the welder. The welder will require a welder's helmet or other appropriate shield to protect the eyes.

Table 8 summarises some of the risks associated with radiation hazards. It also indicates some of the occupations commonly exposed to these risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 8 – Radiation hazards		
Area of exposure	**Risks**	**Protection**
Head	Cancer, skin burns	Face shields, protective headwear (wide brims)
Eyes	Optical radiation, glare, corneal damage, cataracts	Eye filters, protective eyewear
Hands	Cancer, skin burns	Protective gloves
Feet	Cancer, skin burns	Protective footwear
Whole body	Cancer, skin burns, reproductive toxicity, damage to nervous or cardio-vascular system	Shields, aprons, protective clothing, sunscreen lotions
People who may be exposed to radiation include: welders and foundry workers, electricians, medical staff, health workers, glass and ceramic workers, agricultural workers, laboratory technicians, luminous paint workers, electronic equipment workers, transport drivers, outdoor workers, machine operators, metal workers, illuminating engineers and electrical engineers.		

3.5.7 Noise

Many workplaces generate noise. In some, this will be to a level of noise leading to hearing loss and tinnitus. A risk assessment should identify sources of noise, assess noise exposure levels and evaluate the risk to exposed workers. The Commission *Code of practice: Managing noise at workplaces* should be referred to for further information relating to noise control and hearing protection. Noise can lead to long term hearing problems, and a variety of hearing protectors are available where exposure cannot be controlled by other means.

Personal hearing protectors should be selected in accordance with AS/NZS 1269.3 *Occupational noise management – Hearing Protection Program*.

See Appendix 6 Other sources of information

When selecting suitable hearing protectors the following should be considered:

- **type of working environment** – for example, ear muffs can be more uncomfortable than ear plugs in hot environments or, alternatively, ear plugs can be difficult to keep clean in situations where they are inserted or adjusted with dirty hands;
- **comfort, weight and clamping force** – a hearing protector with unnecessarily high sound reduction may cause communication difficulties and ultimately be rejected by the wearer on the grounds of discomfort and inconvenience;
- **combination with other items of personal protective equipment eg safety glasses, hard hats, etc** – these may affect the performance of the protector;
- **safety of the wearer** – hearing protectors should not mask or hide warning sounds. Visible warning devices (such as flashing lights) may also need to be considered in situations where hearing protection is required; and
- **opportunity for individual choice** – a selection of two or three hearing protectors should be provided where possible, provided the choices available are suitable to the protection required.

Table 9 summarises some of the risks associated with noise. It also indicates some of the occupations commonly exposed to these risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 9 – Noise		
Area of exposure	**Risks**	**Protection**
Ears	Over exposure to noise (hearing damage, loss)	Personal hearing protectors
People who may be exposed to noise hazards include: construction and building workers, demolition workers, explosives workers, miners, heavy machinery operators, agricultural workers, process workers, sanding and grinding machine operators, timber and logging workers, jackhammer operators, excavation equipment operators, transport drivers, metal workers, sawmillers, carpenters, assemblers, maintenance workers, labourers, lathe and press operators and music concert technicians.		

3.5.8 Biological hazards

Biological hazards that can occur in workplaces are predominantly infectious agents or micro-organisms such as viruses and bacteria. Such infections may be transmitted through exposure to human or animal secretions, blood, and body fluids or waste matter.

People who may be exposed to biological hazards include doctors, nurses, ambulance workers, dentists, other health workers, prison officers, abattoir workers, stock handlers, farmers, shearers, butchers, veterinarians, laboratory technicians, sanitation and sewerage workers.

Health care workers may be at risk from hepatitis, HIV/AIDS and tuberculosis (TB). Routes of transmission may be faecal-oral eg Hepatitis A; blood-borne eg HIV/AIDS, Hepatitis B and C; or air-borne (aerosol) eg TB. Meat industry workers are at risk of acquiring diseases from animals, eg Q fever, through inhalation of infected aerosols or dust; leptospirosis by entry through open wounds. Penetrating wounds also present an opportunity for entry of bacteria that cause tetanus.

Prevention of infectious diseases is not reliant on personal protective equipment, as the higher level controls, elimination, substitution, isolation, engineering and administrative controls, are more effective. These include vaccination and immunisation, standard precautions and personal hygiene, which are covered in the Commission *Code of practice: The management of HIV/AIDS and hepatitis at workplaces*. Table 10 summarises some of the associated risks and personal protective equipment that may be used where higher level controls are not practicable or where there is a need to increase the level of protection.

Table 10 – Biological hazards		
Area of exposure	**Risks**	**Protection**
Head	Inhalation, ingestion, irritation, needlestick, absorption through cuts, open sores, skin pores	Masks, shields, protective head coverings
Eyes	Splashes, squirts, irritation	Protective eyewear
Hands	Absorption, irritation, needlestick, absorption through cuts, open sores, skin pores	Protective gloves, protective barrier substance (cream, lotion)
Feet	Irritation, needlestick, absorption through cuts, open sores, skin pores	Protective footwear
Whole body	Inhalation, ingestion, irritation, needlestick, absorption through cuts, open sores, skin pores	Protective clothing, aprons, gaiters
People who may be exposed to biological hazards include: doctors, nurses, ambulance workers, health workers, dentists, abattoir workers, stock handlers, animal waste handlers, butchers, veterinarians, laboratory technicians, prison officers, cleaners, sanitation workers and sewer workers.		

See Appendix 6 Other sources of information

3.5.9 Electricity

Electricity can result in burns, shocks and electrocutions. Proper maintenance of equipment and training in the proper use of tools will substantially reduce risks from electricity.

Risks from electricity are present in all workplaces where electrical equipment is used, and in workplaces where contact with overhead or buried conductors may occur. Apart from obvious risks at workplaces where electricity is generated, electrical hazards are present at any workplace where portable or semi-portable electrical equipment is used. All electrical equipment must be isolated or de-energised for repair and repaired only by authorised personnel.

Electrical hazards pose common risks where power tools are subject to rough handling and used at various locations of a workplace.

Protective footwear may provide some protection against electric shock. In situations where contact with overhead wires is possible head protection is available that provides protection from electric shock and burns. When selecting head protection, knowledge of potential electrical hazards is important as different helmets provide different levels of protection.

See Appendix 6 Other sources of information

An important way of preventing injuries from electricity is to ensure electrical equipment is properly insulated. AS/NZS 3100 *Approval and test specification - General requirements for electrical equipment* specifies approval and test specification, definitions and general requirements for electrical materials and equipment.

Table 11 summarises some of the risks associated with electricity. It also indicates some of the occupations commonly exposed to these risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign etc) are not practicable.

Table 11 – Electricity

Area of exposure	Risks	Protection
Head	Burns, electric shock	Protective headwear
Eyes	Sparks, glare	Eye protectors
Hands	Burns, electric shock	Safety gloves
Feet	Burns, electric shock	Protective footwear
Whole body	Burns, electric shock	Protective clothing
People who may be exposed to electrical hazards include: electricians, linesmen, welders, machine operators, lathe and press operators, labourers, electric equipment operators, electrical engineers, maintenance workers, illuminating engineers and agricultural workers.		

3.5.10 Vibration

Reduction of vibration through personal protective equipment is limited to localised body parts, such as the hands. Continuous vibration of the hands can cause white finger or Raynaud's Syndrome.

Gloves designed to minimise the transmission of vibration to the hands are available. Most are not very effective over the whole range of damaging frequencies, and their bulkiness can reduce manipulative efficiency. Their main advantage appears to be in maintaining normal hand temperature, which in itself appears to reduce the risk from Raynaud's syndrome. Whole body vibration can lead to long term health problems. Equipment re-design can eliminate or reduce the risk of whole body vibration.

Table 12 summarises some of the risks associated with vibration. It also indicates some of the occupations commonly exposed to these risks and appropriate personal protective equipment designed to protect against them, where the other controls (eg design, substitution, redesign, job rotation, work-rest regimes) are not practicable.

Table 12 – Vibration

Area of exposure	Risks	Protection
Hands	Raynaud's Syndrome (from continuous vibration)	Protective gloves (anti-vibration)
Whole body	Spine disorders, gastrointestinal disturbance, circulation, muscle and joint disorders	Redesign of work process, equipment, work practices
People who may be exposed to vibration hazards include: jackhammer operator, timber and logging workers, machine operators, heavy equipment operators, transport drivers, agricultural workers, sanding and grinding machine operators and metal workers.		

3.6 Design and manufacture of personal protective equipment

3.6.1 Design and construction

A person who designs, manufactures, imports or supplies personal protective equipment for use at a workplace has a duty of care to ensure that the equipment is so designed and constructed as to be safe and without risk to safety or health when used properly. Personal protective equipment is 'used properly' when it is used in accordance with the manufacturer's instructions, provided such instructions contain adequate information about conditions for which the equipment is designed and has been tested and examined, as well as any other information necessary to ensure that the equipment is without risks to safety or health.

3.6.2 Information

A person who designs, manufactures, imports or supplies personal protective equipment has a duty to ensure the availability of adequate information about the use for which the equipment is designed and manufactured and has been tested and examined, as well as any other information necessary to ensure that the equipment may be used without risks to safety or health.

3.6.3 Testing and examination

A person who designs, manufactures, imports or supplies personal protective equipment has a duty to ensure that the appropriate tests and examinations have been carried out on the equipment.

3.6.4 Applicable standards

Items of personal protective equipment should be manufactured, selected and used according to an appropriate Australian or equivalent overseas standard. Relevant Australian Standards covering the selection and manufacture of personal protective equipment include:

AS/NZS 1067 Sunglasses and fashion spectacles

AS/NZS 1269 Occupational noise management

AS/NZS 1270 Acoustics - Hearing protectors

AS 1319 Safety signs for the occupational environment

AS/NZS 1336 Recommended practices for occupational eye protection

AS/NZS 1337 Eye protectors for industrial applications

AS/NZS 1338 Filters for eye protectors

AS/NZS 1715 Selection, use and maintenance of respiratory protective devices

AS/NZS 1716 Respiratory protective devices

AS/NZS 1800 Occupational protective helmets - Selection, care and use

AS/NZS 1801 Occupational protective helmets

AS/NZS 1891 Industrial fall arrest systems and devices

AS/NZS 2161 Occupational protective gloves

AS/NZS 2210 Occupational protective footwear

AS 2225 Insulating gloves for electrical purposes

AS 2375 Guide to the selection, care and use of clothing for protection against heat and fire

AS/NZS 2604 Sunscreen products - Evaluation and classification

CODES OF PRACTICE

APPENDICES

2002

Appendix 1: General principles for managing occupational safety and health in workplaces

1. Access to the Act, regulations and other relevant documents

Employers are required to provide information to workers, to alert them to areas where hazards may exist and to improve their understanding of safe work practices. Regulations specify documents that must be made available upon request for perusal by workers at the workplace.

See OSH regulation 3.2 and Appendix 6 Other sources of information

2. The general duties – an overview

The Act contains general duties that describe the responsibilities of people who affect safety and health at work. Employers must, so far as is practicable:

- provide a workplace and safe system of work so that, as far as practicable, employees are not exposed to hazards;
- provide employees with information, instruction, training and supervision to enable them to work in a safe manner;
- consult and co-operate with safety and health representatives in matters related to safety and health at work;
- provide adequate protective clothing and equipment where hazards cannot be eliminated; and
- ensure plant is installed or erected so it can be used safely.

Employees are required to take reasonable care to ensure their own safety and health at work and the safety and health of others affected by their work.

Self-employed people also must take reasonable care to ensure their own safety and health at work and, as far as practicable, ensure their work does not affect the safety and health of others.

Designers, manufacturers, importers and suppliers of plant must ensure the plant is safe to install, maintain and use at workplaces. Safety and health information must be supplied with all plant and substances used at work.

Designers or builders of a building or structure for use as a workplace must ensure, so far as is practicable, that people constructing, maintaining, repairing, servicing or using the building or structure are not exposed to hazards.

The Commission *Guidance note: The general duty of care in Western Australian workplaces* provides detailed information on the 'duty of care'.

3. Hazard identification, risk assessment and risk control

The Occupational Safety and Health Regulations 1996 require employers to identify hazards and assess and control risks.

See the Act s.19 and OSH regulation 3.2

The regulation outlines three basic steps:

- **Identification of hazards** This involves recognising things that may cause injury or harm to the health of a person, such as flammable materials, ignition sources or unguarded machinery.
- **Assessing risk** This involves looking at the possibility of injury or harm occurring to a person if exposed to a hazard.
- **Controlling the risk of injury or harm** This involves introducing measures to eliminate or reduce the risk of a person being injured or harmed.

It is important to regularly review the steps, especially if there are changes in the work environment when new technology is introduced, or standards are changed. Employers should consult with safety and health representatives, if any, and workers during these steps.

3.1 Identifying hazards

There are a number of ways of identifying potential sources of injury or disease. Selection of the appropriate procedure will depend on the type of work processes and hazards involved.

Procedures may range from a simple checklist for a specific piece of equipment or substance to a more open-ended appraisal of a group of related work processes. A combination of methods may provide the most effective results.

Methods of identifying workplace hazards include:

- developing a hazard checklist;
- conducting walk-through surveys;
- reviewing information from designers or manufacturers;
- analysing unsafe incidents, accident and injury data;
- analysing work processes;
- consulting with employees;
- examining and considering Material Safety Data Sheets and product labels; and
- seeking advice from specialist practitioners and representatives.

A hazard means anything that may result in injury or harm to the health of the person.

Some hazards such as mechanical hazards, noise, or toxic properties of substances are inherent in the work process. Other hazards result from equipment or machine failures and misuse, control or power system failures, chemical spills, and structural failures.

3.2 Analysing and assessing risks

Risk in relation to any injury and harm, means the probability of that injury or harm occurring.

A risk assessment of the hazards identified in the first step should result in a list of potential injuries or harm and the likelihood of these occurring. The potential for fatal injury should be considered for each identified hazard. If hazards are listed, they should be in the order of the most to the least serious, eg from fatal to minor injury.

In assessing risks matters to be considered include:

- **Frequency of injury** – how often is the hazard likely to result in an injury or disease?
- **Duration of exposure** – how long is the workers likely to be exposed to the hazard?
- **Outcome** – what are the consequences or potential severity of injury?

Assessing these three factors will indicate the probability or likelihood of injury or harm occurring to workers involved in a particular work process. It will also indicate the likely severity of this harm.

Risk assessment requires good judgement and awareness of the potential risks of a work process. A person undertaking a risk assessment must have knowledge and experience of the work process. Risk assessment will be more complicated or difficult if the data or information regarding hazards of a work process is incomplete.

Risk assessment should include:

- assessing the adequacy of training or knowledge required to work safely;
- looking at the way the jobs are performed;
- looking at the way work is organised;
- determining the size and layout of the workplace;
- assessing the number and movement of all people on the site;
- determining the type of operation to be performed;
- determining the type of machinery and plant to be used;
- examining procedures for an emergency eg accident, fire and rescue; and
- looking at the storage and handling of all materials and substances.

3.3 Identifying control measures

The final step in risk assessment is to determine the control measures that need to be taken and the ongoing review of those measures. Controls involve implementing measures that reduce the hazard and risk in the workplace. Where regulations require specific methods to control the risk, these must be complied with.

There is a hierarchy or preferred order of control measures ranging from the most effective to the least effective. The preferred order is outlined in the Table 1.

Table 1 – Hierarchy or preferred order of control

Elimination – removing the hazard or hazardous work practice from the workplace. This is the most effective control measure.

Substitution – substituting or replacing a hazard or hazardous work practice with a less hazardous one.

Isolation – isolating or separating the hazard or hazardous work practice from people involved in the work or people in the general work areas from the hazard.

Engineering control – if the hazard cannot be eliminated, substituted or isolated, an engineering control is the next preferred measure. This may include modifications to tools or equipment, providing guarding to machinery or equipment.

Administrative control – includes introducing work practices that reduce the risk. This could include limiting the amount of time a person is exposed to a particular hazard.

Personal protective equipment – should be considered only when other control measures are not practicable or to increase protection.

Control measures are not mutually exclusive. That is, there may be circumstances where more than one control measure should be used to reduce exposure to hazards.

4. The meaning of practicable

Some of the general duty provisions in the Act and some requirements in the regulations are qualified by the words 'so far as is practicable'.

'Practicability' applies to general duties for employers, self-employed people, people with control of workplaces, designers, manufacturers, importers, suppliers, erectors and installers, and to certain requirements in the regulations. These people are expected to take practicable and reasonable measures to comply with the requirements.

If something is practicable, it is capable of being done. Whether it is also reasonable takes into account:

- the severity of any injury or harm to health that may occur;
- the degree of risk, or likelihood, of that injury or harm occurring;
- how much is known about the hazard and the ways of reducing, eliminating or controlling it; and
- the availability, suitability and cost of the safeguards.

Common practice and knowledge throughout the relevant industry are taken into account when judging whether a safeguard is 'reasonably practicable'. Individual employers could not claim that they did not know what to do about certain hazards if those hazards are widely known by others within industry, and safeguards were available.

The cost of putting safeguards in place is measured against the consequences of failing to do so. It is not a measure of whether the employer can afford to put the necessary safeguards in place. While cost is a factor, it is not an excuse for failing to provide appropriate safeguards, particularly where there is risk of serious, or frequent but less severe, injury.

Where a regulation exists and is not qualified by the words 'as far as is practicable', the regulation must be complied with as a minimum requirement.

The Commission *Guidance note: The general duty of care in Western Australian workplaces* provides detailed information on the 'duty of care'.

Appendix 2: Checklist for assessing the requirements for first aid facilities

This check list should be used to assess first aid facilities required at the workplace.

- How many people are employed in the workplace?
- Is the workplace isolated?
- What specific hazards are in the workplace?
- Where is the nearest available and appropriate occupational health, medical or ambulance service? What is the distance involved? What is the expected response time in a worse-case situation?
- What types of injury, disease or illness are occurring at the workplace?
- What first aid supplies are needed?
- Is a simple oxygen supply needed?
- How many first aid boxes are needed?
- Who will have responsibility for the contents of first aid boxes?
- Are supplies specific for identified hazards included?
- Which first aid competencies are needed?
- Which training packages will deliver the competencies needed?
- Is a first aid room needed?
- Who will be responsible for the first aid room?
- Has contact or consultation taken place with:
  - workers at the workplace;
  - safety and health representatives, if any, at the workplace;
  - first aiders at the workplace;
  - the nearest available ambulance service;
  - the nearest available emergency medical service or hospital; and
  - an appropriate occupational health service?
- Is there an effective means of communication for workers in the event of an emergency?
- How will an injured person be transported to medical help?
- Is specialist training required to deliver any service or administer any first aid supplies?
- How will first aid be provided if trained first aid personnel are not available at work?

Appendix 3: First aid boxes

This list should be used as a guide for determining the contents and quantities for a basic first aid box. Individual items and quantities may vary according to identified hazards.

- Adhesive dressing strips individually wrapped
- Gauze squares 75 millimetre x 75 millimetre sterile packets
- Eye pads sterile
- Triangular bandages
- Safety pins
- Scissors (blunt or universal)
- Splinter probe or forceps
- Torch (small pencil type)
- Paracetamol or similar analgesics
- Saline disposable 10 or 30 millilitre bottle for eye wash and wound dressing
- Wound dressings
- Dressing sterile, non-adherent, small
- Dressing sterile, non-adherent, large
- Cleansing swabs
- Cotton tipped applicators
- Gauze bandages five centimetres
- Conforming bandages (crepe or cotton)
- Non-stretch adhesive tape hypo-allergenic 1.25 centimetres wide
- Disposable gloves
- Cold packs (ice or chemical)
- Note pad and pencil
- Instruction booklet for emergency treatment
- Expired air resuscitation (EAR) and cardio-pulmonary resuscitation (CPR) guides
- Face shields

Appendix 4: First aid rooms

This list should be used as a guide for determining the contents of a first aid room.

- Telephone and backup communications
- List of emergency/medical contact numbers
- Wash basin with hot and cold water supplied
- Disposable hand towels, nail brush and soap
- Work bench or dressing trolley
- Refrigerator or immediate access to a refrigerator for the storage of cold packs and medical supplies
- Examination couch or bed, and pillow with appropriate blankets and covers
- Stretcher
- Chairs (2)
- Cupboards for storage of supplies
- Lockable cabinet for storage of records
- Lockable storage container for poisons/prescription drugs
- Refuse containers eg bucket with plastic liner and lid
- Electric power outlets
- Electric kettle
- Additional quantities of the basic requirements for a first aid box, together with other supplies relevant to specific hazards identified in the workplace
- Disposable gloves and protective glasses
- Torch/back-up emergency lighting
- Critical spares for specialist equipment eg oxy viva replacement bottles

Subject to risk assessment, consideration should be given to including:

- Stretcher
- Biohazard container
- Movable screen
- Angle poise lamp or other suitable lamp
- Recommended treatments for known hazards in the workplace

If it is determined by a hazard identification and risk assessment process that more sophisticated resuscitation equipment such as automatic external defibrillation equipment and simple oxygen administration equipment is required in a workplace, ensure appropriately trained staff and first aiders are available to use and maintain such equipment.

In larger workplaces or workplaces where there is a particular hazard, additional space, rooms and equipment may be necessary.

Appendix 5: Types of gloves

Type of glove	Examples of usage	Not suitable for
Natural rubber	acetonitrile, ethylene glycol, butyl alcohol, sodium hydroxide (caustic soda)	benzene, sulphuric acid, mineral spirits
Neoprene	ethylene glycol, ammonium fluoride, nitric acid, sodium hydroxide (caustic soda), hydrochloric acid	methylene chloride, carbon disulfi de, toluene
Nitrile	butyl alcohol, sodium hydroxide (caustic soda), hydrofl uoric acid, hydrochloric acid	Freon TMC, trichloroethylene, nitric acid
PVA	styrene, xylene, benzene, methylene chloride	water, sodium hydroxide (caustic soda), hydrochloric acid, sulphuric acid, ethyl alcohol
PVC	cyclohexanol, sulphuric acid, nitric acid	acetone, acrylic acid, xylene

It is essential to contact your supplier to ensure gloves are selected appropriately. Depending on the nature of the chemical hazard, a number of other types of gloves are also available such as Butyl, Viton, Viton-Neoprene, Nitrile-PVC, Butyl-Neoprene gloves etc. The use, thickness, chemical make-up and manufacturing process can have a bearing on the level of protection. For more information see the WorkSafe Bulletin 10/2005 *Gloves: Selection use and maintenance*, available from www.worksafe.wa.gov.au

Appendix 6: Other sources of information

Legislation

The *Occupational Safety and Health Act 1984* and the Occupational Safety and Health Regulations 1996 can be purchased from the State Law Publisher, 10 William Street, Perth, Tel. (08) 9321 7688, or can be downloaded from the State Law Publisher website (www.slp.wa.gov.au).

Commission for Occupational Safety and Health publications

The following codes of practice and guidance notes and other publications can be purchased from WorkSafe, Westcentre, 1260 Hay Street, West Perth, Tel. 1300 307 877. They are available from www.worksafe.wa.gov.au and copies are also held in the WorkSafe library.

Codes of practice referenced in these codes

- *Prevention and control of legionnaires' disease*
- *Management of HIV/AIDS and hepatitis at workplaces*
- *Prevention of falls at workplaces*
- *Managing noise at workplaces*

Guidance notes referenced in these codes

- *General duty of care in Western Australian workplaces*
- *Working alone*

Australian and Australian/New Zealand Standards

These are available from Standards Australia. See the website at www.saiglobal.com

- AS/NZS 1067 *Sunglasses and fashion spectacles*
- AS/NZS 1269 *Occupational noise management*
- AS/NZS 1270 *Acoustics - Hearing protectors*
- AS 1319 *Safety signs for the occupational environment*
- AS/NZS 1336 *Recommended practices for occupational eye protection*
- AS/NZS 1337 *Eye protectors for industrial applications*
- AS/NZS 1338 *Filters for eye protectors*
- AS/NZS 1715 *Selection, use and maintenance of respiratory protective devices*
- AS/NZS 1716 *Respiratory protective devices*
- AS/NZS 1800 *Occupational protective helmets - Selection, care and use*
- AS/NZS 1801 *Occupational protective helmets*
- AS 1885 *Measurement of occupational health and safety performance*
- AS/NZS 1891 *Industrial fall arrest systems and devices*
- AS/NZS 2161 *Occupational protective gloves*
- AS/NZS 2210 *Occupational protective footwear*
- AS 2225 *Insulating gloves for electrical purposes*
- AS/NZS 2293 *Emergency evacuation lighting for buildings*

- AS 2375 *Guide to the selection, care and use of clothing for protection against heat and fire*
- AS/NZS 2604 *Sunscreen products - Evaluation and classification*
- AS 2985 *Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust*
- AS/NZS 3100 *Approval and test specification - General requirements for electrical equipment*
- AS 3640 *Workplace atmospheres - Method for sampling and gravimetric determination of inspirable dust*

Australian Safety and Compensation Council publications

ASCC publications referenced in these codes are available from www.ascc.gov.au

- *Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 3008(1995)]
- *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC: 1003 (1995)]
- *National Standard for the Control of Major Hazard Facilities* [NOHSC: 1014(2002)]
- *National Code of Practice for the Control of Major Hazard Facilities* [NOHSC: 2016(1996)]

Building Code of Australia

The *Building Code of Australia* (BCA) is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia. It allows for variations in climate and geological or geographic conditions. The BCA is produced and maintained by the Australian Building Codes Board on behalf of the Commonwealth Government and each State and Territory Government. The BCA is available as a stand-alone product or with value-added products included. See the website www.accb.gov.au

Contacts for further information

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