Managing the work environment and facilities

Code of Practice

**Disclaimer**

Safe Work Australia is an Australian Government statutory agency established in 2009. Safe Work Australia includes Members from the Commonwealth, and each state and territory, Members representing the interests of workers and Members representing the interests of employers.

Safe Work Australia works with the Commonwealth, state and territory governments to improve work health and safety and workers’ compensation arrangements. Safe Work Australia is a national policy body, not a regulator of work health and safety. The Commonwealth, states and territories have responsibility for regulating and enforcing work health and safety laws in their jurisdiction.

ISBN 978-0-642-33295-0 (PDF)

ISBN 978-0-642-33296-7 (DOCX)

**Creative Commons**

This copyright work is licensed under a Creative Commons Attribution-Noncommercial 4.0 International licence. To view a copy of this licence, visit creativecommons.org/licenses In essence, you are free to copy, communicate and adapt the work for non-commercial purposes, as long as you attribute the work to Safe Work Australia and abide by the other licence terms.

**Contact information**

Safe Work Australia | [info@swa.gov.au](mailto:info@swa.gov.au) | [www.swa.gov.au](http://www.swa.gov.au/)

Contents

[Foreword 4](#_Toc513470239)

[1. Introduction 5](#_Toc513470240)

[1.1. Who has health and safety duties in relation to the work environment and facilities? 5](#_Toc513470241)

[1.2. Managing risks associated with the work environment and facilities 9](#_Toc513470242)

[1.3. Monitoring and maintaining the work environment and facilities 9](#_Toc513470243)

[2. The work environment 11](#_Toc513470244)

[2.1. Entry and exit 11](#_Toc513470245)

[2.2. Work areas 12](#_Toc513470246)

[2.3. Workstations 12](#_Toc513470247)

[2.4. Floors and other surfaces 13](#_Toc513470248)

[2.5. Lighting 14](#_Toc513470249)

[2.6. Housekeeping 16](#_Toc513470250)

[2.7. Ventilation 16](#_Toc513470251)

[2.8. Heat and cold 17](#_Toc513470252)

[3. Facilities 20](#_Toc513470253)

[3.1. Access to facilities 20](#_Toc513470254)

[3.2. Drinking water 21](#_Toc513470255)

[3.3. Toilets 21](#_Toc513470256)

[3.4. Hand washing 23](#_Toc513470257)

[3.5. Eating facilities 23](#_Toc513470258)

[3.6. Personal storage 24](#_Toc513470259)

[3.7. Change rooms 25](#_Toc513470260)

[3.8. Shower facilities 25](#_Toc513470261)

[4. Guidance for specific types of work 27](#_Toc513470262)

[4.1. Outdoor work 27](#_Toc513470263)

[4.2. Remote or isolated work 27](#_Toc513470264)

[4.3. Accommodation 30](#_Toc513470265)

[5. Emergency plans 31](#_Toc513470266)

[5.1. Preparing emergency procedures 32](#_Toc513470267)

[Appendix A—Glossary 33](#_Toc513470268)

[Appendix B—Work environment and facilities checklist 35](#_Toc513470269)

[Appendix C—Examples of facilities for different workplaces 44](#_Toc513470270)

[Temporary workplace—Gardening 44](#_Toc513470271)

[Permanent workplace—Office 45](#_Toc513470272)

[Amendments 47](#_Toc513470273)

# Foreword

This Code of Practice on managing the work environment and facilities is an approved code of practice under section 274 of the [*Work Health and Safety Act*](https://www.safeworkaustralia.gov.au/doc/model-work-health-and-safety-act) (the WHS Act).

An approved code of practice provides practical guidance on how to achieve the standards of work health and safety required under the WHS Act and the [*Work Health and Safety Regulations*](https://www.safeworkaustralia.gov.au/doc/model-work-health-and-safety-regulations) (the WHS Regulations) and effective ways to identify and manage risks.

A code of practice can assist anyone who has a duty of care in the circumstances described in the code of practice. Following an approved code of practice will assist the duty holder to achieve compliance with the health and safety duties in the WHS Act and WHS Regulations, in relation to the subject matter of the code of practice. Like regulations, codes of practice deal with particular issues and may not cover all relevant hazards or risks. The health and safety duties require duty holders to consider all risks associated with work, not only those for which regulations and codes of practice exist.

Codes of practice are admissible in court proceedings under the WHS Act and WHS Regulations. Courts may regard a code of practice as evidence of what is known about a hazard, risk, risk assessment or risk control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code of practice relates. For further information see the [Interpretive Guideline: *The meaning of ‘reasonably practicable’*](https://www.safeworkaustralia.gov.au/doc/interpretive-guideline-model-work-health-and-safety-act-meaning-reasonably-practicable).

Compliance with the WHS Act and WHS Regulations may be achieved by following another method if it provides an equivalent or higher standard of work health and safety than the code.

An inspector may refer to an approved code of practice when issuing an improvement or prohibition notice.

Scope and application

This Code is intended to be read by a person conducting a business or undertaking (PCBU). It provides practical guidance to PCBUs on how to manage the work environment and facilities.

This Code may be a useful reference for other persons interested in the duties under the WHS Act and WHS Regulations.

This Code applies to all types of work and all workplaces covered by the WHS Act.

How to use this Code of Practice

This Code includes references to the legal requirements under the WHS Act and WHS Regulations. These are included for convenience only and should not be relied on in the place of the full text of the WHS Act or WHS Regulations. The words ‘must’, ‘requires’ or ‘mandatory’ indicate a legal requirement exists that must be complied with.

The word ‘should’ is used in this Code to indicate a recommended course of action, while ‘may’ is used to indicate an optional course of action.

# Introduction

## Who has health and safety duties in relation to the work environment and facilities?

Duty holders who have a role in ensuring work environments and facilities are without risk to health and safety include:

* persons conducting a business or undertaking (PCBUs)
* persons with management or control of a workplace
* designers, manufacturers, importers, suppliers and installers of plant, substances or structures designers of structures, and
* officers.

Workers and other persons at the workplace also have duties under the WHS Act, such as the duty to take reasonable care for their own health and safety at the workplace.

A person can have more than one duty and more than one person can have the same duty at the same time.

Early consultation and identification of risks can allow for more options to eliminate or minimise risks and reduce the associated costs.

### Persons conducting a business or undertaking

WHS Act section 19

Primary duty of care

A PCBU must eliminate risks arising from the work environment and facilities, or if that is not reasonably practicable, minimise the risks so far as is reasonably practicable.

PCBUs have a duty to consult workers about work health and safety and may also have duties to consult, cooperate and coordinate with other duty holders.

In relation to work environments and facilities this primary duty requires, so far as reasonably practicable, that a PCBU:

* provide adequate and accessible facilities for the welfare of workers
* provide and maintain work environments, plant and structures and systems of work without risks to health and safety
* ensure the safe use, handling and storage of plant, structures and substances
* provide access to facilities for workers such as toilets, drinking water and washing and eating facilities
* provide information, training, instruction or supervision that is needed to protect all persons from health and safety risks that may arise from the work carried out by the business or undertaking, and
* monitor the health of workers and the conditions of the workplace for the purpose of preventing illness or injury.

There are more specific requirements to manage risks under the WHS Regulations, including those associated with fatigue, hazardous chemicals, remote and isolated work, noise, hazardous manual tasks and plant.

### Person with management or control of a workplace

WHS Act section 20

Duty of persons conducting businesses or undertakings involving management or control of workplaces

Persons who have management or control of a workplace must ensure, so far as is reasonably practicable, that the workplace, the means of entering and exiting the workplace and anything arising from the workplace are without risks to the health and safety of any person.

This means that the duty to provide and maintain a safe work environment and adequate facilities may be shared between duty holders. For example, a PCBU renting their workplace will share duties with the landlord or property manager. In these situations the duty holders must, so far as is reasonably practicable, consult, cooperate and coordinate activities with each other.

### Designers of structures

WHS Act section 22

Duties of persons conducting businesses or undertakings that design plant, substances or structures

Persons who design and construct buildings and structures that are intended to be used as workplaces must ensure, so far as is reasonably practicable, that the building or structure is without risks to health and safety.

### Officers

WHS Act section 27

Duty of officers

Officers, for example company directors, have a duty to exercise due diligence to ensure the PCBU complies with the WHS Act and WHS Regulations. This includes taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to eliminate or minimise, so far as is reasonably practicable, risks from the work environment and facilities. Further information on who is an officer and their duties is available in the [Interpretive Guideline: *The health and safety* *duty of an officer under section 27*](https://www.safeworkaustralia.gov.au/doc/interpretive-guideline-model-work-health-and-safety-act-health-and-safety-duty-officer-under).

### Workers

WHS Act section 28

Duties of workers

Workers have a duty to take reasonable care for their own health and safety and to not adversely affect the health and safety of other persons. Workers must comply with reasonable instructions, as far as they are reasonably able, and cooperate with reasonable health and safety policies or procedures that have been notified to workers, for example procedures for first aid and for reporting injuries and illnesses. If personal protective equipment (PPE) is provided by the business or undertaking, the worker must so far as they are reasonably able, use or wear it in accordance with the information, instruction and training provided.

### Other persons at the workplace

WHS Act section 29

Duties of other persons at the workplace

Other persons at the workplace, like visitors, must take reasonable care for their own health and safety and must take reasonable care not to adversely affect other people’s health and safety. They must comply, so far as they are reasonably able, with reasonable instructions given by the PCBU to allow that person to comply with the WHS Act.

### Identifying what facilities are needed

Decisions about the work environment and workplace facilities will depend on the industry the business or undertaking is operating in, the nature of the work carried out, the size and location of the workplace and the number and composition of workers at the workplace.

Construction work is often conducted in dirty, hot or arduous work conditions. The type of facilities provided, how they are provided and who provides them may vary at construction workplaces, depending on the nature of the work being carried out and the PCBUs present at the workplace. The [Code of Practice: *Construction work*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-construction-work) should be consulted for further guidance on how to identify what facilities should be provided, how and by whom in a construction workplace.

The requirements in the *National Construction Code of Australia* will also determine the minimum building requirements for what facilities are required for new buildings.

### Consulting with workers

WHS Act section 47

Duty to consult workers

WHS Act section 48

Nature of consultation

A PCBU must consult, so far as is reasonably practicable, with workers who carry out work for the business or undertaking and who are (or are likely to be) directly affected by a work health and safety matter.

This duty to consult is based on the recognition worker input and participation improves decision-making about health and safety matters and assists in reducing work-related injuries and disease.

The broad definition of a ‘worker’ under the WHS Act means a PCBU must consult, so far as is reasonably practicable, with contractors and subcontractors and their employees, on-hire workers, outworkers, apprentices, trainees, work experience students, volunteers and other people who are working for the PCBU and who are, or are likely to be, directly affected by a health and safety matter.

Workers must be given an opportunity to express their views, raise work health and safety matters and contribute to the decision-making process. A PCBU must take into account the views of workers consulted and advise those workers of the outcome of the consultation. If the workers are represented by a health and safety representative, the consultation must involve that representative.

The duty to consult specifically includes consulting when making decisions about the adequacy of facilities for the welfare of workers, for example the number and location of toilets. The consultation must also include making decisions about monitoring conditions at the workplace, which would cover things such as access, cleaning and maintenance of the facilities.

If the facilities are already provided at the workplace, PCBUs should consult their workers and their health and safety representatives when there are changes that may affect the adequacy of the facilities. This will help PCBUs to determine if facilities need to be changed or expanded.

### Consulting, cooperating and coordinating activities with other duty holders

WHS Act section 46

Duty to consult with other duty holders

The WHS Act requires that you consult, cooperate and coordinate activities with all other persons who have a work health or safety duty in relation to the same matter, so far as is reasonably practicable.

There is often more than one business or undertaking involved in an activity, that may each have responsibility for the same health and safety matters, either because they are involved in the same activities or share the same workplace.

In these situations, each duty holder should exchange information to find out who is doing what and work together in a cooperative and coordinated way so risks are eliminated or minimised so far as is reasonably practicable.

For example, if a PCBU is a tenant in a building, the PCBU will share responsibility for providing a safe physical work environment and facilities with the property manager or building owner and the PCBU should therefore discuss the requirements regarding these matters with them. This would include checking that there are arrangements in place for the proper maintenance of plant such as air-conditioning systems and facilities such as toilets.

Further guidance on consultation is available in the [Code of Practice*: Work health and safety consultation, coordination and cooperation*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-work-health-and-safety-consultation-co-operation-and-co-ordination)*.*

### The nature of the work

To understand the nature of the work activities and the types of hazards involved, questions like the following should be considered:

* Does the work involve exposure to infectious material or contaminants? If so, workers may need access to shower facilities before they leave the workplace.
* Do workers need to change out of their clothes? If so, they may need change rooms and personal storage.
* Is the work mostly conducted standing or seated? If so, floor coverings and seats should be considered.
* What is the level of physical activity? This will affect the ideal comfortable air temperature.
* What are the work arrangements that may impact on cleaning and maintenance schedules? Workers undertaking different work within the same workplace may also have different requirements for facilities depending on the work they do and the equipment they use.

### Size, location and nature of the workplace

The types of facilities needed also depend on the size, location and nature of the workplace. For example, whether the work is carried out in a building or structure, or whether work is performed outdoors or in a workplace belonging to another business should be taken into consideration. Some workers may be mobile, for example sales representatives, tradespeople or visiting health care workers. To understand the effect of the size, location and nature of the workplace on the types of facilities, questions like the following should be considered:

* Does the workplace cover an extensive area, or is work undertaken in a single location?
* Do the workers travel between workplaces, to numerous work sites or to other locations?
* Is the workplace permanent or temporary?
* Is the workplace close to adequate facilities, such as toilets and clean drinking water amenities?
* Will the facilities be available at the times workers need to use them, for example during a night shift?
* Is the means of access to and from the workplace safe?

### Number and composition of the workforce

The number of workers at the workplace will determine the size and types of facilities required. For example, calculating the number of toilets and hand washing facilities should take account of the number of workers who usually use them at the same time.

Facilities should provide privacy and security for any person. The requirements of workers with particular needs, for example pregnant or lactating women or people with a disability, should also be addressed in the design of the workplace.

## Managing risks associated with the work environment and facilities

This Code provides guidance on how to manage the risks associated with the work environment and facilities in the workplace using the following systematic process:

* Identify hazards—find out what could cause harm.
* Assess risks, if necessary—understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening. This step may not be necessary if you are dealing with a known risk with known controls.
* Control risks—implement the most effective control measures that are reasonably practicable in the circumstances in accordance with the hierarchy of control measures, and ensure they remain effective over time.
* Review control measuresto ensure they are working as planned.

## Monitoring and maintaining the work environment and facilities

PCBUs must monitor the conditions of the work environment, including facilities, to ensure the health and safety of workers. The conditions of the workplace should be monitored on a regular basis, particularly when there are changes to the type of work being done or to the workforce composition.

The work environment must be maintained so that it remains in a clean and safe condition. Broken or damaged furniture, fixtures and fittings, including chairs, plumbing, air-conditioning and lighting should be replaced or repaired promptly. Facilities must be clean, safe, accessible and in good working order. Consumable items, including soap and toilet paper, should be replenished regularly.

Workplaces and facilities should be cleaned regularly taking into account the type of work performed, the likelihood of contamination, the number of workers using them, including during shiftwork, and the type of facility, such as eating areas, toilets, handbasins and showers. [Appendix B](#_Appendix_B_–) may be used as a checklist to help review the work environment and facilities provided to workers.

# The work environment

WHS Regulation 40

Duty in relation to general workplace facilities

As a person conducting a business or undertaking (PCBU) you must ensure, so far as is reasonably practicable, that:

* the layout of the workplace allows, and is maintained to allow, persons to enter and exit the workplace and move within it safely, both under normal working conditions and in an emergency
* work areas have space for work to be carried out safely
* floors and other surfaces are designed, installed and maintained to allow work to be carried out safely
* lighting enables each worker to carry out work safely, persons to move around safely and safe evacuation in an emergency
* ventilation enables workers to carry out their work without risk to their health and safety
* workers exposed to extremes of heat or cold are able to carry out work without risk to their health and safety, and
* work in relation to or near essential services (such as gas, electricity, water, sewerage and telecommunications) does not affect the health and safety of persons at the workplace.

## Entry and exit

The means of entry and exit to and from the workplace must be safe. This must include ensuring that workers with special needs or disabilities can safely enter and leave the workplace.

Entries and exits should be slip-resistant under wet and dry conditions.

Aisles and walkways should be at least 600 mm wide and kept free of furniture or other obstructions at all times. Where it is necessary to clearly define entry and exit routes, the boundaries of the route should be marked by a permanent line of white, yellow or other contrasting colour at least 50 mm wide or by glowing markers. Entry and exit routes, stairs and walkways should be adequately lit.

Open sides of staircases should be guarded with an upper rail at 900 mm or higher and a lower rail. A handrail should be provided on at least one side of every staircase. Extra handrails may be needed down the centre of wide staircases. Further information is available in AS 1657–1992: *Fixed platforms, walkways, stairways and ladders—Design, construction and installation*.

Separate entries and exits for mobile equipment, for example forklifts or trucks and pedestrians, should be provided to minimise the risk of persons being hit by moving vehicles. If people and vehicles have to share a traffic route, use kerbs, barriers or clear markings to designate a safe walkway. Doors and gates should be fitted with safety devices if necessary, such as a traffic sensor system in a warehouse environment. Doors on main traffic routes should have a transparent viewing panel, unless they are fire-rated doors.

Power-operated doors and gates should have safety features to prevent people being struck or trapped. Upward-opening doors or gates should be fitted with an effective device, such as counterbalance springs or ratchet devices, to prevent them falling back.

The location of exits should be clearly marked and signs should be posted to show the direction to exit doors to aid emergency evacuation.

## Work areas

The layout of work areas should be designed to provide clear space between furniture, fixtures and fittings so that workers can move about freely without strain or injury and also evacuate quickly in case of an emergency. Space for aisles, passages and access to other areas is needed in addition to the space around workstations.

In determining how much space is needed, the following should be considered:

* 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 workstations, and
* the equipment to be handled and the personal protective equipment (PPE) that may be worn to perform the work.

Environmental factors including heat or noise may mean a larger space is required, as will work activities that involve manual tasks or the use of tools such as knives or long hazardous implements where the risk of injury is increased due to close working conditions.

Further guidance in relation to manual tasks and the layout of work areas is available in the [Code of Practice: *Hazardous manual tasks*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-hazardous-manual-tasks).

## Workstations

It may be necessary to determine whether the work is best carried out in a seated or standing position, or a combination of the two. There should be a mix of seated and standing tasks—workers should avoid sitting or standing for long periods of time. It is a requirement that workers are consulted when carrying out a workstation assessment.

Workstations should be designed so workers can carry out their work in a comfortable, upright position with shoulders relaxed and upper arms close to the body. Different workers require different working heights. You must provide workstations suitable for the person and the task. For example, by providing adjustable workstations.

Many tasks are best done in a seated position, for example screen-based work, fine component assembly or tasks involving the frequent use of foot controls. For tasks undertaken in a seated position, workers should be provided with seating that:

* provides good body support, especially for the lower back
* provides foot support, preferably with both feet flat on the floor, otherwise a footrest should be provided, and
* allows space for leg clearance and freedom of movement.

Chairs should be fully adjustable to accommodate different-sized workers with seat height, back rest height and back rest tilt adjustments and should not tip or slip—a five-point base is the most stable. Castors should be used on carpet and glides or braked castors on hard surfaces.

Some standing tasks may be carried out using a sit/stand chair, for example some process or inspection work. This means that workers can support themselves on the chair while still carrying out the standing task. If the job is primarily carried out while standing, but the nature of the work allows workers to sit from time to time, appropriate seating should be provided. This allows workers to vary their position between sitting and standing.

## Floors and other surfaces

As far as is reasonably practicable, floors and other surfaces must be designed, installed and maintained to allow work to be carried out without risk to health and safety. Different floor coverings will be suitable for different workplaces. The choice of floor surfaces or coverings will depend on the type of work carried out at the workplace, as well as the materials used during the work process, the likelihood of spills and other contaminants, including dust, and the need for cleaning.

Floors must be inspected regularly and maintained to eliminate or minimise slip and trip hazards. Common examples of hazards include trailing cables, uneven edges or broken surfaces, gratings or covers, loose mats or carpet tiles. Floor surfaces should have enough grip to prevent slipping, especially in areas that may become wet or contaminated. Contaminates can reduce the grip on floor surfaces and increase the risk of slipping. Cleaning methods should also take account of the potential for slips, which may be increased by the use of some cleaning agents.

Workers who undertake static standing work should be protected from discomfort and the jarring effects of direct contact with concrete, masonry or steel floors, for example by providing carpet, cushion-backed vinyl, shock-absorbent underlay, anti-fatigue matting, grates or duckboards.

Generally carpet is preferred in office areas to provide a comfortable walking surface and to reduce noise, reflected light from polished floor surfaces and the risk of slips and falls. Selection of wool mix carpets reduces the build-up of static electricity which can give a mild electric shock. Carpets should be properly laid without loose edges or ripples and should be well maintained.

If tasks require the use of wheeled equipment, for example trolleys, the floor covering should be selected to minimise friction and resistance.

Some floor surfaces can become hazardous in certain work situations. For example, machining of metals can produce hot scrap and requires a surface safe from fire risk.

Floors and other surfaces, such as mezzanines or platforms that people may walk on, must be strong enough to support loads placed on them.

Additional guidance on managing risks associated with slips and trips is available in the [*Slips and trips at the workplace fact sheet*](https://www.safeworkaustralia.gov.au/system/files/documents/1702/slips_and_trips_fact_sheet.pdf)andthe [Code of practice: *Managing the risk of falls at workplaces*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-risk-falls-workplaces) provides guidance on managing the risks associated with falls from one level to another.

## Lighting

Lighting must be provided, whether it is from a natural or artificial source, to allow safe movement around the workplace and to allow workers to perform their job without having to adopt awkward postures or strain their eyes to see.

When considering the type and level of lighting needed in the workplace, the following factors should be taken into account:

* the nature of the work activity
* the nature of hazards and risks in the workplace
* the work environment
* the level of natural light including transitions or changes throughout the day
* current level of artificial lighting
* glare
* contrast, and
* reflections.

Different lighting levels may be needed for different times of the day. Too much lighting can result in glare. Measures to prevent low or excessive levels of lighting, glare or reflection include:

* providing extra lighting, such as a lamp on a movable arm
* changing the position of existing lights
* changing the location of the workstation
* increasing or decreasing the number of lights
* changing the type of lighting used for example from white light to blue light
* changing the diffusers or reflectors on existing lights, and
* using screens, visors, shields, hoods, curtains, blinds or external louvres to reduce reflections, shadows and glare.

Adequate lighting after dark may be required for outdoor paths around the workplace and car parks. Outdoor lighting should allow workers to move about easily without risk of falling.

Emergency lighting must be provided for the safe evacuation of people in the event of an emergency.

Extra lighting may be needed for some types of work or at places of particular risk (such as crossing points on traffic routes). Table 1 provides guidance on the recommended illumination levels for various types of tasks, activities or interiors.

Table 1 Recommended illumination levels[[1]](#footnote-2)

| Class of task | Recommended illuminance (lux) | Characteristics of the activity/interior | Examples of types of activities/interiors |
| --- | --- | --- | --- |
| Movement and orientation | 40 | For little-used interiors with visual tasks limited to moving around | Corridors; cable tunnels; indoor storage tanks; walkways |
| Rough intermittent | 80 | For interiors used intermittently, with visual tasks limited to movement, orientation and coarse detail | Workers change and locker rooms; live storage of bulky materials; dead storage of materials needing care; loading bays |
| Normal range of tasks and workplaces |  |  |  |
| Simple | 160 | * Continuously occupied interior with visual tasks (coarse detail only) * Occasional reading of clearly printed documents for short periods. | Waiting rooms; entrance halls; canteens; rough checking of stock; rough bench and machine work; general fabrication of structural steel; casting concrete; automated process monitoring; turbine halls |
| Ordinary or moderately easy | 240 | Continuously occupied interiors with moderately easy visual tasks with high contrasts or large detail | School boards and charts; medium woodworking; food preparation; counters for transactions; computer use |
| Moderately difficult | 320 | Areas where visual tasks are moderately difficult with moderate detail or with low contrasts | Routine office tasks (e.g. reading, writing, typing, enquiry desks) |
|  | 400 |  | Inspection of medium work; fine woodwork; enquiry points; car assembly |
| Difficult | 600 | Areas where visual tasks are difficult with small detail or with low contrast | Drawing boards; most inspection tasks; proofreading; fine machine work; fine painting and finishing; colour matching |
| Very difficult | 800 | Areas where visual tasks are very difficult with very small detail or with very low contrast | Fine inspection; plant retouching; fine manufacture; grading of dark materials; colour matching of dyes |

## Housekeeping

An untidy workplace can cause injuries, in particular injuries resulting from slips and trips, therefore good housekeeping practices are essential for all workplaces. For example:

* spills on floors should be cleaned up immediately
* walkways should be kept clear of obstructions
* work materials should be neatly stored, and
* waste should be regularly removed.

It will be much easier to keep the workplace clean and tidy if it is well laid out with space for storage and for the movement of people. Space close to workstations should be allocated to allow for the storage of tools and materials that are used frequently, for example providing racks for hand tools above workbenches.

Tidiness throughout the working day can be difficult to maintain in industries where there is rapid production of finished goods and waste. In these situations, training all workers in housekeeping procedures and their cooperation with these procedures is necessary to keep the workplace tidy.

Containers for waste should be conveniently located and regularly emptied.

While it may be reasonable to expect workers to leave their immediate work area in a clean and tidy condition at the end of the working day, other options for carrying out the general cleaning of the workplace should be considered, for example engaging cleaners.

## Ventilation

Workplaces must be ventilated to allow work to be carried out without risk to health and safety. Fresh, clean air should be drawn from outside the workplace, uncontaminated by discharge from flumes or other outlets, and be circulated through the workplace.

Workplaces inside buildings may have natural ventilation, mechanical ventilation such as fans or extraction units, or air-conditioning.

Natural ventilation should consist of permanent openings, including windows and doors, that:

* in total are the size of at least five per cent of the floor area of the room, and
* are open to the sky, an open covered area or a ventilated adjoining room.

Natural ventilation may be assisted by mechanical ventilation systems and extraction units to ventilate the workplace and remove odours.

An air-conditioning system should:

* provide a comfortable environment in relation to air temperature, humidity and air movement
* prevent the excessive accumulation of odours
* reduce the levels of respiratory by-products, especially carbon dioxide, and other indoor contaminants that may arise from work activities, and
* supply an amount of fresh air to the workplace, exhaust some of the stale air as well as filter and recirculate some of the indoor air.

Enclosed workplaces should be supplied with comfortable rates of air movement usually between 0.1 m and 0.2 m per second.

Air-conditioning and other ventilation systems should be regularly serviced and maintained in accordance with manufacturers’ instructions. Cooling towers that form part of many air-conditioning systems may be a favourable environment for Legionella bacteria if they are not properly designed and maintained. Exposure to these bacteria can cause the potentially fatal Legionnaire’s disease. Cooling towers should be designed, installed and maintained in accordance with AS/NZS 3666 SET:2011: *Air-handling and water systems of buildings[[2]](#footnote-3)*.

Further information regarding air quality is available in AS 1668.2–2002: *The use of ventilation and airconditioning in buildings*: Ventilation design for indoor air contaminant control.

WHS Regulations Division 7

Managing risks from airborne contaminants

You must ensure that no one at the workplace is exposed to a substance or mixture in an airborne concentration that exceeds the exposure standard for the substance or mixture. This may require air monitoring to be carried out.

Work processes that release harmful levels of airborne contaminants, such as lead fumes, acid mist and solvent vapour, will require specific control measures to remove or reduce the potential for exposure, so far as is reasonably practicable.

Information on managing the health and safety risks associated with hazardous chemicals is available in the [*Workplace exposure standards for airborne contaminants*](https://www.safeworkaustralia.gov.au/doc/workplace-exposure-standards-airborne-contaminants) and the [Code of Practice: *Managing risks of hazardous chemicals in the workplace*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-risks-hazardous-chemicals-workplace).

## Heat and cold

Workers carrying out work in extreme heat or cold must be able to carry out work without a risk to their health and safety, so far as is reasonably practicable.

Environmental conditions and the health and safety of workers must be monitored when work involves prolonged or repeated exposure to heat or cold.

It is important to distinguish between a condition that threatens health and safety, and a feeling of discomfort.

The risk to the health of workers increases as conditions move further away from those generally accepted as comfortable. Heat-related illness can arise from working in high air temperatures, exposure to high thermal radiation or high levels of humidity, such as those in foundries, commercial kitchens and laundries. Hypothermia arises when a person gets an abnormally low body temperature as a result of exposure to cold environments. Both these conditions are potentially fatal.

Both personal and environmental factors should be considered when assessing the risk to workers’ health from working in a very hot or cold environment. Personal factors can include the use of some prescription medication, age, health condition, the level of physical activity, pregnancy and breastfeeding, the amount and type of clothing worn, and duration of exposure. Environmental factors include air temperature, the level of humidity, air movement and radiant heat.

In circumstances where the work involves prolonged or repeated exposure to heat or cold, the duty to provide information, training and instruction to workers would include training workers to recognise the early symptoms of heat-related illness or hypothermia in themselves and others, how to follow safe work procedures and to report problems immediately.

### Thermal comfort

Work should be carried out in an environment where a temperature range is comfortable for workers and suits the work they carry out. Air temperatures that are too high or too low can contribute to fatigue and heat or cold-related illnesses. Thermal comfort is affected by many factors, including air temperature, air movement, floor temperature, humidity, clothing, the amount of physical exertion, average temperature of the surroundings and sun penetration.

Optimum comfort for sedentary work is between 20 and 26 degrees Celsius, depending on the time of year and clothing worn. Workers involved in physical exertion usually prefer a lower temperature range. The means of maintaining a comfortable temperature will depend on the working environment and the weather, and could include the following:

* air-conditioning
* fans
* electric heating
* open windows
* building insulation
* the layout of workstations
* direct sunlight control, and
* controlling air flow and the source of drafts.

### Hot environments

If it is not possible to eliminate exposure to extreme heat, the risk of heat-related illness must be minimised so far as is reasonably practicable. For example:

* increase air movement using fans
* install air-conditioners or evaporative coolers to lower air temperature
* isolate workers from indoor heat sources, for example by insulating plant, pipes and walls
* remove heated air or steam from hot processes using local exhaust ventilation
* use mechanical aids to assist in carrying out manual tasks, and
* alter work schedules so that work is done at cooler times.

The following control measures should also be considered but are least effective if used on their own:

* slow down the pace of work if possible
* provide a supply of cool drinking water
* provide a cool, well-ventilated area where workers can take rest breaks
* provide opportunities for workers who are not used to working in hot conditions to acclimatise, for example job rotation and regular rest breaks
* ensure light clothing is worn to allow free movement of air and sweat evaporation, and
* ensure workers have been trained about the hazards of working in hot conditions and how to recognise and act on symptoms of heat-related illness.

First aid is vital when a worker is suffering from a heat-related illness. Immediate medical attention should be sought if a worker experiences one or more of the following symptoms of heat exhaustion or heat stroke:

* dizziness
* fatigue
* headache
* nausea sometimes with vomiting
* breathlessness
* clammy or hot skin
* difficulty remaining alert, or
* absence of sweat.

The Guide for [*Managing the risks of working in heat*](https://www.safeworkaustralia.gov.au/doc/guide-managing-risks-working-heat) provides practical guidance on how to manage the risks associated with exposure to heat while working indoors or outdoors, and what to do if a worker begins to suffer from a heat-related illness.

### Cold environments

If it is not possible to eliminate exposure to extreme cold, the risks must be minimised so far as is reasonably practicable. For example:

* provide localised heating, for example cab heaters for fork-lift trucks used in cold stores, and
* provide protection from wind and rain, such as a hut or the cabin of a vehicle.

The following control measures should also be considered but are least effective if used on their own:

* provide protection through warm and if necessary waterproof clothing
* provide opportunities for workers who are not used to working in cold conditions to acclimatise, for example job rotation and regular rest breaks, and
* ensure workers are trained about the hazards of working in cold conditions and how to recognise and act on symptoms of hypothermia.

Immediate medical assistance should be provided if a worker shows one or more of the following warning signs of hypothermia:

* numbness in hands or fingers
* uncontrolled shivering
* loss of fine motor skills, particularly in hands—workers may have trouble with buttons, laces, zips
* slurred speech and difficulty thinking clearly, and
* irrational behaviour—such as a person discarding clothing.

# Facilities

WHS Regulation 41

Duty to provide and maintain adequate and accessible facilities

As a person conducting a business or undertaking (PCBU) you must ensure, so far as is reasonably practicable, the provision of adequate facilities for workers, including toilets, drinking water, washing and eating facilities. These facilities must be in good working order, clean, safe and accessible.

When considering how to provide and maintain facilities that are adequate and accessible, you must consider all relevant matters, including:

* the nature of the work being carried out at the workplace
* the nature of the hazards at the workplace
* the size, location and nature of the workplace, and
* the number and composition of the workers at the workplace.

It may not always be reasonably practicable to provide the same types of facilities for a temporary, mobile or remote workplace that are normally provided for a fixed workplace.

[Appendix C](#_Appendix_C—Examples_of) provides examples of facilities for two types of workplaces.

## Access to facilities

Workers, including those who have particular needs or disabilities, must have access to the facilities. Facilities may not need to be provided if they are already available close to the workplace, are suitable for workers to use and the workers have opportunities to use them. This would mean that:

* workers are provided with breaks to use facilities
* the facilities are within a reasonable distance from the work area
* workers on different shifts have similar access, and
* the means of access is safe at all times.

Additional specific guidance on the type of facilities such as number of toilets, eating facilities and personal storage you should provide to workers at a construction workplace is set out in the Code of Practice: [*Construction work*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-construction-work). You should consult this Code of Practice prior to commencing construction work.

## Drinking water

Clean drinking water must be provided free of charge for workers at all times. The supply of the drinking water should be:

* positioned where it can be easily accessed by workers
* close to where hot or strenuous work is being undertaken to reduce the likelihood of dehydration or heat stress, and
* separate from toilet or washing facilities to avoid contamination of the drinking water.

The temperature of the drinking water should be at or below 24 degrees Celsius. This may be achieved by:

* refrigerating the water or providing non-contaminated ice, or
* shading water pipes and storage containers from the sun.

Water should be supplied in a hygienic manner, so that workers do not drink directly from a shared container. This may involve:

* a drinking fountain, where the water is delivered in an upward jet, or
* a supply of disposable or washable drinking containers.

Water supplied for certain industrial processes or for fire protection may not be suitable for drinking. These water supply points should be marked with signs warning that the water is unfit for drinking.

### Mobile, temporary or remote workplaces

Sometimes direct connection to a water supply is not possible. In these cases, alternatives—including access to public drinking water facilities, bottled water or containers—should be provided for workers.

## Toilets

Access to clean toilets must be provided for all workers while they are at work. Where reasonably practicable, toilet facilities should be provided for workers, rather than relying on access to external public toilets.

### Number of toilets

For workplaces within buildings, the *National Construction Code of Australia* sets out the ratio of toilets to the number of workers, and the specifications for toilets. Generally, separate toilets should be provided in workplaces where there are both male and female workers. However, one unisex toilet may be provided in workplaces with both male and female workers where:

* the total number of people who normally work at the workplace is 10 or fewer, and
* there are two or fewer workers of one gender.

For example, a workplace with two male and eight female workers or with one female and three male workers could have a unisex toilet because there are 10 or fewer workers in total and two or fewer workers of one gender.

A unisex toilet should include one closet pan, one washbasin and means for disposing of sanitary items.

For all other workplaces, separate toilets should be provided in the following ratios.

| Workers | Closet Pan(s) | Urinals |
| --- | --- | --- |
| Males | 1 per 20 males | 1 per 25 males |
| Females | 1 per 15 females | N/A |

These ratios are the minimum standard that should be provided. However, in some workplaces, the scheduling of workers’ breaks will affect the number of toilets required. There should be enough toilets available for the number of workers who may need to use them at the same time.

### Design of toilets

Toilets should be:

* fitted with a hinged seat and lid
* provided with lighting and ventilation
* clearly signposted
* fitted with a hinged door capable of locking from the inside on each cubicle
* designed to allow emergency access
* positioned to ensure privacy for users, and
* separated from other rooms by an airlock, a sound-proof wall and a separate entrance that is clearly marked.

Toilets should be supplied with:

* toilet paper for each toilet
* hand washing facilities
* rubbish bins, and
* for female workers, hygienic means to dispose of sanitary items.

### Access to toilets

Toilets must be accessible for all workers including workers with a disability. Preferably toilets should be located inside a building or as close as possible to the workplace. In multistorey buildings, toilets should be located on at least every second floor.

### Mobile, temporary or remote workplaces

If work is undertaken away from base locations or at outdoor sites, for example by gardeners, bus drivers, couriers, workers must have access to other toilets, for example public toilets or toilets at clients' premises. In such cases, information should be provided to workers on where the toilets are located.

Where it is not reasonably practicable to provide access to permanent toilets, for example short-term temporary workplaces and workplaces in remote areas, portable toilets should be provided. Portable toilets should be located in a secure place with safe access. They should be installed so they do not fall over or become unstable and should be serviced regularly to keep them clean.

## Hand washing

Hand washing facilities must be provided to enable workers to maintain a good standard of personal hygiene. Workers may need to wash their hands at different times, for example after visiting the toilet, before and after eating meals, after handling chemicals or handling greasy machinery.

### Number of hand washing basins

In most cases, for both males and females, hand washing basins should be provided in at least the ratio of one wash basin for every 30 male workers and one for every 30 female workers, or part thereof.

The number of hand washing basins may need to be increased depending on the nature of the work carried out at the workplace. For example, where the work involves exposure to infectious substances or other contaminants, separate hand washing basins should be provided in addition to those provided with toilets.

### Design of hand washing facilities

Hand washing facilities should:

* be accessible at all times to work areas, eating areas and the toilets
* be separate from troughs or sinks used in connection with the work process
* contain both hot and cold water taps or temperature mixers
* be protected from the weather
* be supplied with non-irritating soap preferably from a soap dispenser, and
* contain hygienic hand drying facilities, for example automatic air dryers or paper towels.

Where a business engages in activities such as food preparation or health care, there are also duties under health legislation in relation to hand washing facilities.

### Mobile, temporary or remote workplaces

If work is carried out in locations where there are no hand washing facilities, workers should have access to alternative hand hygiene facilities, for example a water container with soap and paper towels, hand wipes or alcohol-based hand sanitiser.

## Eating facilities

Workers must be provided with access to hygienic facilities for eating and for preparing and storing food. Depending on the type of workplace, a range of facilities may be appropriate, which could include a shared facility such as a canteen or cafeteria, a dedicated meals area or allowing time for mobile workers to access eating facilities.

A separate eating area should be provided if:

* 10 or more workers usually eat at the workplace at the same time, or
* there is a risk of substances or processes contaminating food.

### Facilities for large static workplaces

A dedicated eating area should be provided that is protected from the weather and is separated from work processes, toilet facilities and hazards, including noise, heat and atmospheric contaminants. It should be supplied with:

* tables and seats to accommodate each worker likely to use the eating area at one time
* a sink with hot and cold water, washing utensils and detergent
* an appliance for boiling water
* crockery and cutlery
* food warming appliances, such as a microwave oven
* clean storage, including a refrigerator for storing perishable food, and
* vermin-proof rubbish bins, which should be emptied at least daily.

Eating areas should have 1 m2 of clear space for each person likely to use the area at any one time. The clear space is calculated free of furniture, fittings or obstructions such as pillars. This means that the size of an eating area for 10 workers should be 10 m2 plus extra space for meal furniture, appliances and fittings such as sinks.

### Facilities for small static workplaces

For some small workplaces, an area within the workplace for making tea and coffee and preparing and storing food might be all that is needed. The facility should be protected from the weather, be free of tools and work materials and be separated from toilet facilities and hazards including noise, heat and atmospheric contaminants. It should be supplied with:

* seating
* a sink with hot and cold water, washing utensils and detergent
* an appliance for boiling water
* clean storage, including a refrigerator for storing perishable food, and
* vermin-proof rubbish bins, which should be emptied at least daily.

### Mobile, temporary or remote workplaces

Where the work involves travelling between different workplaces, or is remote or seasonal, workers need reasonable access to eating facilities. This may involve organising rosters for mobile workers to ensure that they are back at their base location for meal breaks or allowing workers to take their meal breaks at a public cafeteria.

It may be appropriate for some temporary workplaces to provide portable eating facilities such as mobile caravans or transportable lunchrooms.

Access to eating facilities for workers in remote areas, such as loggers or mining exploration workers, may be limited. At times the only enclosed facility available to them may be their vehicle. In this instance portable food storage facilities may be required, such as a car fridge or insulated lunch box.

## Personal storage

Accessible and secure storage should be provided at the workplace for personal items belonging to workers, for example handbags, jewellery, medication or hygiene supplies. This storage should be separate from that provided for personal protective clothing and equipment in cases where contamination is possible.

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

### Mobile, temporary or remote workplaces

Where the workplace is temporary or mobile, lockable containers that can be held in a safe place should be provided. Where lockers are provided, they may also serve as secure storage for other personal items.

## Change rooms

If workers have to change in and out of clothing due to the nature of their work, access to private changing areas with secure storage for personal belongings should be provided. This includes workers who need to:

* wear personal protective clothing or uniforms while they are working, and
* leave their work clothing at the workplace.

If male and female workers need to change at the same time, separate male and female changing rooms should be provided. The changing room should allow a clear space of no less than 0.5 m2 for each worker changing at any time.

The temperature in the changing room should be maintained so that it is comfortable for workers when changing. Additional heating or cooling may be needed.

Change rooms should be conveniently located and equipped with:

* seating to enable the numbers of workers changing at one time to sit when dressing or undressing
* mirrors, either within the changing room or directly outside it, and
* an adequate number of hooks or shelves.

Where change rooms are provided, it may be reasonably practicable to provide lockers for storing clothing and personal belongings. Lockers should be:

* well ventilated, accessible and secure, and
* a sufficient size to accommodate clothing and personal belongings.

There should also be a clear space of at least 1800 mm between rows of lockers facing each other and at least 900 mm between lockers and a seat or wall.

### Mobile, temporary or remote workplaces

Where the workplace is located away from buildings or other fixed accommodation, portable private facilities containing secure storage and seating should be provided.

## Shower facilities

Certain jobs may involve dirty, hot or hazardous work and may require the provision of showering and drying facilities. For example, work involving mining, firefighting, health care, work in abattoirs, foundry work, welding, and police search and rescue.

At least one shower cubicle for every 10 workers who may need to shower should be provided. Usually separate facilities should be provided for male and female workers. However, in small or temporary workplaces where privacy can be assured, it may be acceptable to provide one unisex shower.

Showers should have:

* a floor area of not less than 1.8 m2
* a slip-resistant surface that is capable of being sanitised
* partitions between each shower that are at least 1650 mm high and no more than 300 mm above the floor
* an adjacent dressing area for each shower containing a seat and hooks, and
* a lockable door enclosing the shower and dressing cubicle.

Each shower should be supplied with clean hot and cold water and individual non-irritating soap or another cleaning product. If grime or other by-products of the work process cannot be removed just by washing, individual nail or scrubbing brushes should be provided. Also provide drying facilities such as towels if the work the workers carry out means they need to shower before leaving the workplace, for example workers who need to decontaminate after asbestos or lead risk work.

### Mobile, temporary or remote workplaces

Workers in remote or temporary locations who are involved in dirty, hot or hazardous working conditions may also need access to showering and drying facilities. This may involve providing portable shower units of the same standard as specified above.

# Guidance for specific types of work

## Outdoor work

Outdoor workers should have access to shelter for eating meals and taking breaks, and to protect them in adverse weather conditions.

As a person conducting a business or undertaking (PCBU), you should provide access to shelter, for example using sheds, caravans, tents, windbreaks or portable shade canopies. In some situations, vehicles or public facilities may provide short-term shelter.

Where it is not reasonably practicable to eliminate a risk, you have a duty to take other steps to minimise the risk to health and safety, such as providing suitable personal protective equipment (PPE). Protection against solar ultraviolet radiation (UVR) exposure should also be provided for outdoor workers, for example by:

* reorganising outdoor work if possible so that workers carry out alternative tasks, or work in shade, when the sun is most intense, that is 10 am–2 pm and 11 am–3 pm during daylight saving time, and
* providing personal protective clothing like a wide brim hat, long-sleeved collared shirt, long pants, sunglasses and sunscreen.

Further information about managing risks associated with exposure to UVR is located in the Guide on [*Exposure to solar ultraviolet radiation (UVR)*](https://www.safeworkaustralia.gov.au/doc/guide-exposure-solar-ultraviolet-radiation-uvr).

## Remote or isolated work

WHS Regulation 48

Remote or isolated work

As a PCBU you must manage the risks associated with remote or isolated work, including ensuring effective communication with the worker carrying out remote or isolated work.

Remote or isolated work is work that is isolated from the assistance of other people because of the location, time or nature of the work being done. Assistance from other people includes rescue, medical assistance and emergency services.

A worker may be isolated even if other people may be close by, for example a cleaner working by themselves at night in a city office building. In other cases, a worker may be far away from populated areas, for example on a farm.

Remote and isolated work includes:

* all-night convenience store and service station attendants
* sales representatives, including real estate agents
* long-distance freight transport drivers
* scientists, park rangers and others carrying out fieldwork alone or in remote locations, and
* health and community workers working in isolation with members of the public.

In some situations, a worker may be alone for a short time. In other situations, the worker may be on their own for days or weeks in remote locations, for example on sheep and cattle stations.

### Assessing the risks

Working alone or remotely increases the risk of any job. Exposure to violence and poor access to emergency assistance are the main hazards that increase the risk of remote or isolated work. Factors that should be considered when assessing the risks include the following.

#### The length of time the person may be working alone

* How long will the person need to be alone to finish the job?

#### The time of day when a person may be working alone

* Is there increased risk at certain times of day? For example, a service station attendant working alone late at night may be at greater risk of exposure to violence.

#### Communication

* What forms of communication does the worker have access to?
* Are there procedures for regular contact with the worker?
* Will the emergency communication system work properly in all situations?
* If communication systems are vehicle-based, what arrangements are there to cover the worker when he or she is away from the vehicle?

#### The location of the work

* Is the work in a remote location that makes immediate rescue or attendance of emergency services difficult?
* What is likely to happen if there is a vehicle breakdown?

#### The nature of the work

What machinery, tools and equipment may be used?

* Are high risk activities involved? For example work at heights, work with electricity, hazardous substances or hazardous plant.
* Is fatigue likely to increase risk? For example with long hours driving a vehicle or operating machinery.
* Is there an increased risk of violence or aggression when workers have to deal with clients or customers by themselves?
* Can environmental factors affect the safety of the worker? For example exposure to extreme hot or cold environments.
* Is there risk of attack by an animal, including reptiles, insects and sea creatures?

#### The skills and capabilities of the worker

* What is the worker’s level of work experience and training? Is the worker able to make sound judgements about his or her own safety?
* Are you aware of a pre-existing medical condition that may increase risk?

### Controlling the risks

* Buddy system—some jobs present such a high level of risk that workers should not work alone, for example jobs where there is a risk of violence or where high-powered tools or equipment may be used.
* Workplace layout and design—workplaces and their surrounds can be designed to reduce the likelihood of violence, for example by installing physical barriers, monitored CCTV and enhancing visibility.
* Communication systems—the type of system chosen will depend on the distance from the base and the environment in which the worker will be located or through which he or she will be travelling. Expert advice and local knowledge may be needed to assist with the selection of an effective communication system.
* Movement records—knowing where workers are expected to be can assist in controlling the risks, for example call-in systems with supervisors or colleagues. Satellite tracking systems or devices may also have the capability of sending messages as part of a scheduled call-in system, and have distress or alert functions.
* Training, information and instruction—as a PCBU you have a duty to provide information, training and instruction suitable for the nature and risks of the work and the controls being put in place to manage the risks. Workers need training to prepare them for working alone and, where relevant, in remote locations. For example training in dealing with potentially aggressive clients, using communications systems, administering first aid, obtaining emergency assistance, driving off-road vehicles or bush survival.
* First aid— as a PCBU you have specific obligations under the WHS Regulations in relation to first aid requirements in the workplace. Further guidance regarding first aid and supplying first aid kits is located in the [Code of Practice: *First aid in the workplace*](https://www.safeworkaustralia.gov.au/doc/model-code-practice-first-aid-workplace).

If a worker is working alone in a workplace that has a telephone, communication via the telephone is adequate, provided the worker is able to reach the telephone in an emergency. In situations where a telephone is not available or may not be accessible during an emergency, a method of communication that will allow a worker to call for help in the event of an emergency at any time should be provided, for example:

* Personal security systems or personal duress systems—being wireless and portable, these systems are suitable for people who move between different work locations such as health care workers visiting clients or security guards checking otherwise deserted workplaces. Personal security systems need to be able to activate an appropriate safety response. Some personal security systems include a non-movement sensor that will automatically activate an alarm transmission if the transmitter or transceiver has not moved within a certain time.
* Radio communication systems—enable communication between two mobile users in different vehicles or from a mobile vehicle and a fixed station. These systems are dependent upon a number of factors such as frequency, power and distance from or between broadcasters.
* Satellite communication systems—enable communication with workers in geographically remote locations. Satellite phones allow voice transmission during transit, but their operation can be affected by damage to aerials, failure of vehicle power supplies or vehicle damage.
* Distress beacons can provide pinpoint location and to indicate by activation that an emergency exists. Distress beacons include Emergency Position Indicating Radio Beacons (EPIRB) used in ships and boats, Emergency Locator Transmitters (ELT) used in aircraft and Personal Locator Beacons (PLB) for personal use.
* Mobile phones—cannot be relied upon as an effective means of communication in many locations. Coverage in the area where the worker will work should be confirmed before work starts. Geographical features may impede the use of mobile phones, especially at the edge of the coverage area, and different models have different capabilities in terms of effective range from the base station. Consult the provider if there is doubt about the capability of a particular phone to sustain a signal for the entire period the worker is alone. If gaps in coverage are likely, other methods of communication should be considered. It is important that batteries are kept charged and a spare is available.

## Accommodation

If a business has workers working in regional and remote areas, accommodation may need to be provided while the work is being carried out. An example of such arrangements would be where accommodation is provided to fruit-pickers during the harvesting season, shearers on a sheep station or workers engaged in construction work at a remote location.

WHS Act section 19(4)

Primary duty of care

If you provide accommodation for workers and own or manage the accommodation you must, so far as is reasonably practicable, maintain the premises so that the worker occupying it is not exposed to health and safety risks.

Accommodation should be separated from hazards at the workplace likely to adversely affect the health and safety of a worker using the accommodation. The accommodation facilities should also:

* be lockable, with safe entry and exit
* meet all relevant structural and stability requirements
* meet electrical and fire safety standards
* have a supply of drinking water
* have toilets, washing and laundry facilities
* be regularly cleaned and have rubbish collected
* be provided with sleeping quarters shielded from noise and vibration
* have crockery, utensils and eating facilities
* have lighting, heating, cooling and ventilation
* have storage cupboards and other furniture
* be provided with a refrigerator or cool room, and
* have all fittings, appliances and equipment in good condition.

# Emergency plans

WHS Regulation 43

Duty to prepare, maintain and implement emergency plan

As a person conducting a business or undertaking (PCBU), you must ensure that an emergency plan is prepared and maintained for the workplace that provides for:

1. emergency procedures, including:
2. an effective response to an emergency
3. evacuation procedures
4. notification of emergency services at the earliest opportunity
5. medical treatment and assistance, and
6. effective communication between the person you have authorised to coordinate the emergency response and all persons at the workplace.
7. testing of the emergency procedures, including how often they should be tested, and
8. information, training and instruction to relevant workers in relation to implementing the emergency procedures.

There are different types of emergency situations, including fire or explosion, dangerous chemical release, medical emergency, natural disaster, bomb threats, violence or robbery.

In preparing and maintaining an emergency plan, the following must be taken into account:

* the particular work being carried out at the workplace
* the specific hazards at a workplace
* the size and location of a workplace, and
* the number and composition of the workers and other people at a workplace.

The plan must be based on an assessment of the hazards at the workplace, including the possible consequences of an incident occurring as a result of those hazards. For example a cleaner working by themselves in a city office building will be subject to different hazards to a worker in a chemical plant. The varying nature of the hazards requires the risks of the particular job to be assessed, and an emergency plan put in place.

The impact of external hazards that may affect the health and safety of workers should also be taken into account, for example a chemical storage facility across the road from the workplace.

The preparation of an emergency plan for a workplace shared by a number of businesses, for example a shopping centre, construction site or multi-tenanted office building, should be coordinated by the person with management or control of the workplace, who may be the property manager, principal contractor or landlord, in consultation with all tenants or businesses at the workplace.

If a new business is to be conducted at a workplace shared by a number of businesses, the existing emergency plan should be reviewed to take into account any new types of emergency situations that may arise from the new business.Workers and their health and safety representatives must be consulted by the person responsible for preparing the emergency plan when reviewing and if necessary revising it.

If the consequences of an emergency at a workplace are significant, for example due to the size and location of the workplace or the nature of the hazards involved, then the local emergency services should be consulted when developing the plan.

## Preparing emergency procedures

The emergency procedures in the emergency plan must clearly explain how to respond in various types of emergency, including how to evacuate people from the workplace in a controlled manner.

The procedures should be written clearly and be simple to understand. Where relevant, the emergency procedures should address:

* allocation of roles and responsibilities for specific actions in an emergency to persons with appropriate skills, for example appointment of area wardens
* clear lines of communication between the person authorised to coordinate the emergency response and all persons at the workplace
* the activation of alarms and how to alert staff and other people at the workplace
* the safety of all the people who may be at the workplace in an emergency, including visitors, shiftworkers and tradespeople
* workers or other persons who will require special assistance to evacuate
* specific procedures for critical functions such as a power shut-off
* identification of safe places
* risks from neighbouring businesses
* potential traffic restrictions
* distribution and display of a site plan that illustrates the location of fire protection equipment, emergency exits and assembly points
* the distribution of emergency phone numbers, including out-of-hours contact numbers
* access for emergency services and their ability to get close to the work area
* regular evacuation practice drills at least every 12 months
* the use and maintenance of equipment required to deal with specific types of emergencies, for example spill kits, fire extinguishers, early warning systems such as fixed gas monitors or smoke detectors and automatic response systems such as sprinklers, and
* regular review of procedures and training.

Emergency procedures must be tested in accordance with the emergency plan in which they are contained.

Evacuation procedures should be displayed in a prominent place, for example on a noticeboard. Workers must be instructed and trained in the procedures.

A more comprehensive plan may be needed to address high risk situations such as:

* people sleeping on site, for example hotels
* large numbers of people at the site at the same time, for example stadiums
* high risk chemical processes and major hazard facilities, and
* significant cash handling, particularly outside normal business hours.

Further guidance on emergency plans and procedures is available in AS 3745–2010: *Planning for emergencies in facilities* and the [*Emergency plans fact sheet*](https://www.safeworkaustralia.gov.au/doc/emergency-plans-fact-sheet).

# Appendix A—Glossary

| Term | Description |
| --- | --- |
| Duty holder | Any person who owes a work health and safety duty under the WHS Act including a person conducting a business or undertaking, a designer, manufacturer, importer, supplier, installer of products or plant used at work (upstream duty holder), officer or a worker. |
| Hazard | A situation or thing that has the potential to harm a person. Hazards at work may include: noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace. |
| Health and safety committee | A consultative body established under the WHS Act. The committee's functions include facilitating cooperation between workers and the person conducting a business or undertaking to ensure workers’ health and safety at work, and assisting to develop work health and safety standards, rules and procedures for the workplace. |
| Health and safety representative | A worker who has been elected by their work group under the WHS Act to represent them on health and safety matters. |
| May | ‘May’ indicates an optional course of action. |
| Must | ‘Must’ indicates a legal requirement exists that must be complied with. |
| Officer | An officer under the WHS Act includes:   * an officer under section 9 of the *Corporations Act 2001* (Cth) * an officer of the Crown within the meaning of section 247 of the WHS Act, and * an officer of a public authority within the meaning of section 252 of the WHS Act.   A partner in a partnership or an elected member of a local authority is not an officer while acting in that capacity. |
| Person conducting a business or undertaking (PCBU) | A PCBU is an umbrella concept which intends to capture all types of working arrangements or relationships.  A PCBU includes a:   * company * unincorporated body or association * sole trader or self-employed person.   Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU.  A volunteer association (defined under the WHS Act, see below) or elected members of a local authority will not be a PCBU. |
| Remote | Remote or isolated work is work that is isolated from the assistance of other people because of the location, time or nature of the work being done. Assistance from other people includes rescue, medical assistance and emergency services. |
| Risk | The possibility harm (death, injury or illness) might occur when exposed to a hazard. |
| Should | ‘Should’ indicates a recommended course of action. |
| Volunteer association | A group of volunteers working together for one or more community purposes where none of the volunteers, whether alone or jointly with any other volunteers, employs any person to carry out work for the volunteer association. |
| Work group | A group of workers established to facilitate the representation of workers by one or more health and safety representatives. A work group may be all workers at a workplace but it may also be appropriate to split a workplace into multiple work groups where workers share similar work conditions, for example all workers on night shift. |
| Worker | Any person who carries out work for a person conducting a business or undertaking, including work as an employee, contractor or subcontractor (or their employee), self-employed person, outworker, apprentice or trainee, work experience student, employee of a labour hire company placed with a 'host employer' or a volunteer. |
| Workplace | Any place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. This may include offices, factories, shops, construction sites, vehicles, ships, aircraft or other mobile structures on land or water. |

# Appendix B—Work environment and facilities checklist

| Subject | Yes | No | Action to be taken |
| --- | --- | --- | --- |
| Consultation |  |  |  |
| Have workers and their health and safety representatives been consulted on decisions about the adequacy of the facilities? | ☐ | ☐ |  |
| Nature of the work and workplace |  |  |  |
| Have the type of work being done and how the work impacts the work environment and facilities been considered? | ☐ | ☐ |  |
| Have the composition of the workforce and how it impacts the work environment and facilities been considered? | ☐ | ☐ |  |
| Is the work being undertaken near appropriate facilities? | ☐ | ☐ |  |
| Do all workers on all shifts have access to the facilities? | ☐ | ☐ |  |
| Managing facilities |  |  |  |
| Are consumable items, such as soap and toilet paper, replaced regularly? | ☐ | ☐ |  |
| Is broken or damaged infrastructure, such as plumbing, air-conditioning or lighting, repaired promptly? | ☐ | ☐ |  |
| Are equipment and furniture, like fridges, lockers and seating, maintained in good condition? | ☐ | ☐ |  |
| Are facilities cleaned regularly? | ☐ | ☐ |  |
| Work area |  |  |  |
| Is there safe access to and from the workplace or work area? | ☐ | ☐ |  |
| Is there enough space for the work to be carried out safely, taking into account the physical actions needed to perform the task, and any plant and personal protective equipment that is needed? | ☐ | ☐ |  |
| Does the layout of the work area provide enough space to move about in walkways and around cupboards, storage or doors? | ☐ | ☐ |  |
| Seating |  |  |  |
| Can the work be done from a seated position? | ☐ | ☐ |  |
| Can the workstation be adjusted for individual needs and is it appropriate for the type of work being carried out? | ☐ | ☐ |  |
| Can workers vary their posture or work position at regular intervals? For example, can workers who stand while working sit from time to time? | ☐ | ☐ |  |
| Floors |  |  |  |
| Is suitable floor covering provided for workers who need to stand for long periods? | ☐ | ☐ |  |
| Are the floors maintained to be free of slip and trip hazards? | ☐ | ☐ |  |
| Are factors such as the work materials used, the likelihood of spills and the need for washing considered when choosing floor coverings? | ☐ | ☐ |  |
| Lighting |  |  |  |
| Does the lighting allow workers to move about easily and to carry out their work effectively without adopting awkward postures or straining their eyes to see? | ☐ | ☐ |  |
| Does the working environment minimise the amount of glare, contrast or reflection? | ☐ | ☐ |  |
| Ventilation |  |  |  |
| Is the temperature between 20°C and 26°C or less if the work is physically active? | ☐ | ☐ |  |
| Are ventilation and air-conditioning systems serviced regularly and maintained in a safe condition? | ☐ | ☐ |  |
| Are rates of air movement in enclosed workplaces between 0.1 m and 0.2 m per second? | ☐ | ☐ |  |
| Is local exhaust ventilation used to control airborne contaminants released during a work process? | ☐ | ☐ |  |
| Exposure to heat or cold |  |  |  |
| Have all reasonably practicable control measures been implemented to minimise the risks of working in extreme hot or cold conditions? | ☐ | ☐ |  |
| Have workers been provided with information, instruction and training to recognise unsafe conditions arising from exposure to hot or cold conditions, to follow safe work procedures and to report problems immediately? | ☐ | ☐ |  |
| Drinking water |  |  |  |
| Do all workers have access to drinking water? | ☐ | ☐ |  |
| Is the supply of drinking water outlets separate from toilet and washing facilities? | ☐ | ☐ |  |
| Is the water clean, cool and hygienically provided? | ☐ | ☐ |  |
| Toilets |  |  |  |
| If the workplace has 10 or fewer workers (with 2 or fewer of 1 gender), has at least 1 unisex toilet been provided? | ☐ | ☐ |  |
| If the workplace has more than 10 workers (or more than 2 workers of each gender), is there at least 1 male toilet for every 20 men and 1 female toilet for every 15 women? | ☐ | ☐ |  |
| Are there adequate toilet facilities accessible to workers with disabilities? | ☐ | ☐ |  |
| Are toilets clearly marked, and do they have lockable doors, lighting and ventilation? | ☐ | ☐ |  |
| Are toilets cleaned regularly and maintained in good working order? | ☐ | ☐ |  |
| Are toilet paper, hand washing facilities and soap, rubbish bins and sanitary disposal bins provided? | ☐ | ☐ |  |
| Hand washing |  |  |  |
| Are there enough hand washing basins for all workers, including workers with a physical disability? | ☐ | ☐ |  |
| Does the nature of the work require additional hand washing facilities or access to hand sanitisers? Have you taken into account exposure to:   * dirty conditions * infectious agents * contaminants, and * health regulations? | ☐ | ☐ |  |
| Are the hand washing facilities:   * separate from work-related troughs or sinks * protected from weather, and * accessible from work areas, eating facilities and toilets? | ☐ | ☐ |  |
| Are hot and cold water, soap or other cleaning products provided? | ☐ | ☐ |  |
| Is hygienic hand drying provided that does not involve workers sharing towels? | ☐ | ☐ |  |
| Eating facilities |  |  |  |
| Does the nature of the work cause a health and safety risk to workers from preparing food or eating in the workplace? | ☐ | ☐ |  |
| Taking into account the number of workers and the nature of the work, should a separate eating area be provided? | ☐ | ☐ |  |
| For workplaces needing an eating area, is there 1 m2 of clear floor space for each person likely to use the eating area at a time? | ☐ | ☐ |  |
| Is there protection from the elements, the work area, contaminants and hazards? | ☐ | ☐ |  |
| If a shared eating facility is used, can it accommodate all workers likely to be eating at a time? | ☐ | ☐ |  |
| Personal storage |  |  |  |
| Is there accessible, secure storage at the workplace for workers’ personal property, including any tools provided by a worker? | ☐ | ☐ |  |
| Is it separate from any storage facilities provided for dirty or contaminated personal protective clothing and equipment? | ☐ | ☐ |  |
| Change rooms |  |  |  |
| Are change rooms provided for workers who are required to change in and out of clothing? | ☐ | ☐ |  |
| Are there arrangements in place for the privacy of all workers? | ☐ | ☐ |  |
| Do change rooms allow a clear space of at least no less than 0.5 m2 for each worker? | ☐ | ☐ |  |
| Is the change room temperature comfortable for changing clothing? | ☐ | ☐ |  |
| Are there enough seats, accessible mirrors, hooks for the numbers of workers changing at a time? | ☐ | ☐ |  |
| Are there well-ventilated, accessible and secure lockers for each worker for storing clothing and personal belongings? | ☐ | ☐ |  |
| Is there clear space of at least 1800 mm between rows of lockers facing each other and at least 900 mm between lockers and a seat or a wall? | ☐ | ☐ |  |
| Showers |  |  |  |
| Do workers need to shower before they leave the workplace? For example, where work is carried out in hot, hazardous or dirty environments. | ☐ | ☐ |  |
| Is there one shower cubicle for every 10 workers who may need to shower? | ☐ | ☐ |  |
| Are there separate facilities for all workers, or other forms of security to ensure privacy? | ☐ | ☐ |  |
| Does each shower have a slip-resistant floor area of not less than 1.8 m2, which is capable of being sanitised? | ☐ | ☐ |  |
| Are partitions between each shower at least 1650 mm high and no more than 300 mm above the floor? | ☐ | ☐ |  |
| Is there an adjacent dressing area for each shower, containing a seat and hooks, with a curtain or lockable door enclosing the shower and dressing cubicle? | ☐ | ☐ |  |
| Are clean hot and cold water and soap or other cleaning products provided? | ☐ | ☐ |  |
| Outdoor work |  |  |  |
| Is the means of access to and from the outdoor work area safe? | ☐ | ☐ |  |
| Are there appropriate procedures to ensure outdoor workers have access to:   * clean drinking water * toilets * eating facilities * hygienic storage of food and water, and * emergency and first aid assistance? | ☐ | ☐ |  |
| Is there access to shelter for:   * eating meals and taking breaks, and * for protection when weather conditions become unsafe? | ☐ | ☐ |  |
| Mobile or remote work |  |  |  |
| Do mobile or remote workers have access to:   * clean drinking water * toilets * eating facilities * hygienic storage of food and water, and * emergency and first aid assistance? | ☐ | ☐ |  |
| Can mobile or remote workers access emergency communications that are reliable in their location, such as a satellite or mobile phone? | ☐ | ☐ |  |
| Accommodation |  |  |  |
| Is the accommodation separate from hazards at the workplace that are likely to present a risk to the health or safety of a worker using the accommodation? | ☐ | ☐ |  |
| Is the accommodation well equipped? Consider the following:   * safe access and exit * security of personal possessions * fire safety arrangements * electrical safety standards * drinking water * toilets, washing, bathing and laundry facilities * procedures to ensure cleanliness * suitable, quiet sleeping accommodation * crockery, utensils and eating facilities * rubbish collection, and * heating, cooling and ventilation. | ☐ | ☐ |  |
| Does the accommodation meet all relevant structural and stability requirements? | ☐ | ☐ |  |
| Are the fittings, appliances and other equipment maintained in good working condition? | ☐ | ☐ |  |
| Emergency plans |  |  |  |
| Is there a written emergency plan covering emergency situations relevant to the workplace, with clear emergency procedures? | ☐ | ☐ |  |
| Is the plan accessible to all workers? | ☐ | ☐ |  |
| Are workers, managers and supervisors instructed and trained in the procedures? | ☐ | ☐ |  |
| Has someone with appropriate skills been made responsible for specific actions in an emergency? For example, the appointment of an area warden. | ☐ | ☐ |  |
| Is someone responsible for ensuring workers and others in the workplace are accounted for in the event of an evacuation? | ☐ | ☐ |  |
| Are emergency contact details relevant to the types of possible threats? For example are fire, police, poison information centre contact details displayed at the workplace in an easily accessible location? | ☐ | ☐ |  |
| Are contact details updated regularly? | ☐ | ☐ |  |
| Is there a mechanism, such as a siren or bell alarm, for alerting everyone in the workplace of an emergency? | ☐ | ☐ |  |
| Is there a documented site plan that illustrates:   * the location of fire protection equipment * emergency exits, and * assembly points? | ☐ | ☐ |  |
| Is there is a site plan and is it displayed in key locations throughout the workplace? | ☐ | ☐ |  |
| Are procedures in place for assisting mobility-impaired people? | ☐ | ☐ |  |
| Does the workplace have first aid facilities and emergency equipment to deal with the types of emergencies that may arise? | ☐ | ☐ |  |
| Is the fire protection equipment suitable for the types of risks at the workplace? For example, foam or dry powder type extinguishers for fires that involve flammable liquids. | ☐ | ☐ |  |
| Is equipment easily accessible in an emergency? | ☐ | ☐ |  |
| Are workers trained to use emergency equipment? For example, fire extinguishers, chemical spill kits, breathing apparatus and lifelines. | ☐ | ☐ |  |
| Have you considered neighbouring businesses and how you will let them know about an emergency situation should one arise? | ☐ | ☐ |  |
| Have you considered the risks from neighbouring businesses? For example, fire from restaurant/takeaway food outlets, Q fever from cattle yards. | ☐ | ☐ |  |
| Are emergency practice runs such as evacuation drills regularly undertaken to assess the effectiveness of the emergency plan? | ☐ | ☐ |  |
| Is someone responsible for reviewing the emergency plan and informing workers of revisions? | ☐ | ☐ |  |

# Appendix C—Examples of facilities for different workplaces

## Temporary workplace—Gardening

| Assessment of facilities needed | Facilities plan |
| --- | --- |
| Nature of work being carried out   * Garden maintenance—Workers gather tools from depot at the start of the shift, and work outdoors in pairs most of the day, returning to the depot at the end of the day.   Size and location of the place of work   * Depot located in township—gardens within 8 km of depot.   Composition of the workforce   * 10 men and three women   Type of workplace   * Depot is a permanent building; garden maintenance done at temporary sites.   Need for maintenance   * Cleaning * Replenishing consumable items | Communication   * Each vehicle is equipped with mobile phone for communication with the depot and in case of emergencies.   Toilets   * Separate male and female toilets available at the depot. Workers can use public toilets in gardens.   Shelter sheds   * Some of the gardens have public shelter accessible for workers. Can also seek temporary shelter in vehicle or return to depot.   Personal protective equipment   * Workers are provided with safety gloves, face shields, steel-toed boots and shin guards. * Personal protective clothing is provided for all workers including a wide brim hat, long-sleeved collared shirt and long pants.   Seating   * Sit/stand chair provided in potting room, and comfortable seating in lunchroom. Most other tasks done when standing or kneeling. Folding stools provided for sitting breaks when working away from depot.   Eating facilities   * Workers have the option of returning to the depot for lunch where a lunchroom is provided, or taking lunch on site. Vehicles equipped with folding stools if latter is chosen.   Change room   * Separate male and female change rooms provided at the depot.   Drinking water   * Cool drinking water provided at depot, plus refrigerator for other types of drinks. * Workers take insulated individual flasks when on site.   Lockers   * Lockable locker provided for each worker, located in change room at depot.   Washing facilities   * Handbasins located adjacent to male and female toilets; workers can use garden taps and paper towels if on site * Two showers (one male and one female) located adjacent to change rooms at depot, with room to change clothes and lockable door. |

## Permanent workplace—Office

| Assessment of facilities needed | Facilities plan |
| --- | --- |
| Nature of work being carried out   * Workers undertaking general office work.   Size and location of the place of work   * Three-storey building located in the central business district. All floors in use.   Composition of the workforce   * 50 females and 20 males * Some staff have disabilities.   Type of workplace   * Permanent building.   Need for maintenance  Cleaning  Replenishing consumable items | Toilets   * Toilet block located on the 2nd floor * Lift provides access for disabled * Male: one toilet and urinal provided * Female: four toilets provided with access to an appropriate system to dispose of sanitary items * Facilities for workers with disabilities—one unisex toilet provided.   Shelter sheds   * Not applicable, as all work is indoors.   Seating   * All workers provided with fully adjustable office chair. * Kitchen area provided with comfortable, non-adjustable chairs.   Eating facilities   * Eating area on ground floor has tables and seating to accommodate up to 20 persons at any one time—it also has a kitchen. * 2nd and 3rd floors have kitchenettes for boiling water and washing utensils.   Change room   * Change rooms not required.   Drinking water   * Drinking water and refrigerators provided in kitchen and kitchenettes. * Cool water dispenser in ground floor kitchen.   Lockers   * Each worker has a lockable drawer for personal belongings at their workstation, or a locker or cabinet to store valuables on the same level as their workstation.   Washing facilities   * Handbasins located adjacent to male and female toilets * Facilities for workers with disabilities—one handbasin provided. |

# Amendments

The model Code of Practice: *Managing the work environment and facilities* has been amended since its publication in December 2011, including a number of amendments agreed to in 2017 as part of a technical and usability review of the model Code. The current version, dated May 2018, incorporates all of those amendments.

1. Source: AS/NZS 1680.1:2006—Interior and workplace lighting: General principles and recommendations [↑](#footnote-ref-2)
2. AS/NZS 3666.1:2011 Air-handling and water systems of buildings—Microbial control—Design, installation and commissioning

   AS/NZS 3666.2:2011 Air-handling and water systems of buildings—Microbial control—Operation and maintenance

   AS/NZS 3666.3:2011 Air-handling and water systems of buildings—Microbial control—Performance-based maintenance of cooling water systems

   AS/NZS 3666.4:2011 Air-handling and water systems of buildings—Microbial control—Performance-based maintenance of air-handling systems (ducts and components) [↑](#footnote-ref-3)