ASBESTOS

How to Manage and Control
Asbestos in the Workplace

How to Safely
Remove Asbestos

HOW TO MANAGE AND CONTROL ASBESTOS IN THE WORKPLACE

Code of Practice

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FOREWORD

This Code of Practice on how to manage and control asbestos in the workplace is an approved code of practice under section 274 of the *Work Health and Safety Act 2011* (the WHS Act).

An approved code of practice is a practical guide to achieving the standards of health, safety and welfare required under the WHS Act and the *Work Health and Safety Regulations 2011* (the WHS Regulations).

A code of practice applies to anyone who has a duty of care in the circumstances described in the code. In most cases, following an approved code of practice would achieve compliance with the health and safety duties in the WHS Act, in relation to the subject matter of the code. Like regulations, codes of practice deal with particular issues and do not cover all hazards or risks that may arise. 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 Regulations. Courts may regard a code of practice as evidence of what is known about a hazard, risk or control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code relates.

The WHS Act and Regulations may be complied with by following another method, such as a technical or an industry standard, 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.

This Code of Practice is based on the draft code of practice developed by Safe Work Australia as a model code of practice under the Council of Australian Governments' *Inter-Governmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety* for adoption by the Commonwealth, state and territory governments.

A draft of that model code of Practice was released for public consultation on 7 December 2010 and was endorsed by the Workplace Relations Ministers' Council on 10 August 2011.

SCOPE AND APPLICATION

This Code of Practice provides practical guidance for persons conducting a business or undertaking on how to manage risks associated with asbestos and asbestos containing material (ACM) at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer.

This Code of Practice provides information on how to identify the presence of asbestos at the workplace and how to implement measures to eliminate or minimise the risk of exposure to airborne asbestos fibres.

In some cases, the most appropriate control measure determined may be to remove the asbestos. The ***Code of Practice: How to Safely Remove Asbestos*** provides further guidance for asbestos removalists so asbestos can be removed whilst eliminating, or where this is not possible, minimising the exposure of workers and other persons to airborne asbestos.

Other laws relating to matters such as environmental protection, public health, building and construction and local government regulation may apply in addition to the WHS Act and WHS Regulations.

Some chapters of this Code of Practice will apply to asbestos that is present in domestic premises when the premises become a workplace.

How to use this Code of Practice

In providing guidance, the word 'should' is used in this Code of Practice to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

This Code of Practice also includes various references to sections of the WHS Act and Regulations to provide context with legal requirements. These references are not exhaustive. The words 'must', 'requires' or 'mandatory' indicate that these legal requirements exist and must be complied with.

1. INTRODUCTION

1.1 WHAT ARE THE PROHIBITIONS ON ASBESTOS IN THE WORKPLACE?

Regulation 419 A person conducting a business or undertaking must not carry out or direct or allow a worker to carry out work involving asbestos if that work involves manufacturing, supplying, transporting, storing, removing, using, installing, handling, treating, disposing of or disturbing asbestos or asbestos contaminated material (ACM), except in prescribed circumstances.
NOTE: The prohibition on the supply of asbestos also prohibits the sale of asbestos or ACM.

The final prohibition for asbestos in the workplace came into effect on 31 December 2003. These prohibitions do not apply if the work involving asbestos is any of the following:

- genuine research and analysis
- sampling and identification in accordance with the WHS Regulations
- maintenance of, or service work on, non-friable asbestos or ACM, fixed or installed before 31 December 2003, in accordance with the WHS Regulations
- removal or disposal of asbestos or ACM, including demolition, in accordance with the WHS Regulations
- transport and disposal of asbestos and asbestos waste in accordance with state or territory corresponding WHS legislation.
- demonstrations, education or practical training in relation to asbestos or ACM
- display, or preparation or maintenance for display, of an artefact or thing that is, or includes, asbestos or ACM
- management in accordance with the WHS Regulations of in-situ asbestos that was installed or fixed before 31 December 2003
- work that disturbs asbestos during mining operations that involve the extraction of or exploration for a mineral other than asbestos
- laundering asbestos-contaminated clothing in accordance with the WHS Regulations
- where Comcare approves the method adopted for managing risk associated with asbestos.

Work involving asbestos-contaminated soil is not prohibited as long as a competent person has determined the soil does not contain any visible ACM or friable asbestos. If friable asbestos is visible, it should not contain more than trace levels of asbestos determined in accordance with **AS4964:2004** ***Method for the qualitative identification of asbestos in bulk samples***.

The management of naturally occurring asbestos (NOA) that stays in its natural state is not prohibited if managed in accordance with an asbestos management plan.

Although the ultimate goal of this prohibition is for all workplaces to be free of asbestos, it is only when these materials are being replaced or where they present a health risk that non-asbestos alternatives must be used. Caution needs to be taken when working with buildings constructed prior to 1990 or newer buildings that may have used recycled materials and may have reinstated old plant containing ACM gaskets and/or linings.

If asbestos or ACM is identified in a workplace and demolition or refurbishment work is going to be carried out, the asbestos or ACM must be removed if it is likely to be disturbed before the work starts. If other maintenance or service work is to be carried out at the workplace, removal of asbestos should be considered as a control measure.

Where removal is not reasonably practicable, other control measures must be implemented to minimise exposure, including encapsulation or sealing.

In addition to the prohibition, there is also a restriction on who can remove asbestos. Asbestos removalists and their workers must be competent to carry out asbestos removal work and, except in limited circumstances, must be licensed. Further details on who can remove asbestos can be found in the WHS Regulations and the ***Code of Practice: How to Safely Remove Asbestos*****.**

Prohibitions on the import of plant and other materials that contain asbestos

The importation of asbestos or materials containing asbestos into Australia is generally prohibited under the *Customs (Prohibited Imports) Regulations 1956* (Customs PI Regulations).

To complement the ban on the importation, manufacture and use of all forms of asbestos and asbestos-containing products from 31 December 2003, the import prohibition on asbestos under the Customs PI Regulations was also introduced.

If plant or other materials are imported from countries where asbestos is not yet prohibited, a quality assurance system should

be put in place to ensure they do not contain asbestos prior to supplying or using them in the workplace.

Further information on importing asbestos or any other customs matter is available on the Customs website http://www.customs.gov.au.

1.2 WHO HAS DUTIES TO MANAGE AND CONTROL ASBESTOS OR ACM?

The WHS Act requires all persons who conduct a business or undertaking to ensure, so far as is reasonably practicable, that workers and other persons are not put at risk from work carried out as part of the business or undertaking. The WHS Regulations include specific obligations to manage and control asbestos and ACM at the workplace. These are summarised in the table below.

Duty holder	Responsibilities
Person conducting a business or undertaking (PCBU)	**Control risk of exposure** • must ensure, so far as is reasonably practicable, that exposure of a person at the workplace to airborne asbestos is eliminated, except in an area that is enclosed to prevent the release of respirable asbestos fibres and negative pressure is used. If this is not reasonably practicable, the exposure must be minimised so far as is reasonably practicable • must ensure the exposure standard for asbestos is not exceeded at the workplace. **Health monitoring** • must ensure health monitoring is provided to a worker who is carrying out licensed removal work, other ongoing asbestos removal work or asbestos-related work and there is risk of exposure when carrying out that work • must ensure the health monitoring is carried out under the supervision of a registered medical practitioner and information as specified in the WHS Regulations is provided to that medical practitioner • must pay all expenses for health monitoring, obtain report and keep records of all health monitoring. **Training and use of equipment** • must ensure that information, training and instruction provided to a worker is suitable and adequate and that it is provided in a way that is readily understandable by any person to whom it is provided • must ensure that, if a worker is either carrying out asbestos-related work or may be involved in

Duty holder	Responsibilities
	asbestos removal work, they are trained in the identification and safe handling of asbestos and ACM and the suitable control measures • for workers who carry out work where NOA is likely to be found, training must be provided on hazards and risks associated with NOA. **Controlling the use of equipment** • must not use, or direct or allow a worker to use, certain equipment on asbestos and ACM. **Asbestos-related work** • must, if there is uncertainty as to whether work is asbestos-related work, assume asbestos is present or arrange for an analysis of a sample to be undertaken to determine if asbestos or ACM is present • must give information as specified in regulation 480 of the WHS Regulations to a person who is likely to be engaged to carry out asbestos-related work • must ensure the asbestos-related work area is separated from other work areas at the workplace, signs are used to indicate where the asbestos-related work is being carried out and barricades are used to delineate the asbestos-related work area • must ensure a competent person carries out air monitoring of the work area if there is uncertainty as to whether the exposure standard is likely to be exceeded • must ensure that decontamination facilities (including containers and labels labelled in accordance with the GHS) are available when asbestos-related work is being carried out • must ensure that asbestos waste is contained and labelled in accordance with the GHS before it is removed, and is disposed of as soon as practicable • must ensure, where personal protective equipment (PPE) is used and contaminated with asbestos, such PPE is sealed, decontaminated, labelled and disposed of in accordance with the WHS Regulations. If this is not reasonably practicable, the PPE must be laundered in accordance with the WHS Regulations. PPE that is not clothing and cannot be disposed of must be decontaminated and kept in a sealed container until it is reused for the purposes of asbestos-related work.

PCBU with management or control of a workplace	**Identifying or assuming asbestos or ACM** • must ensure, so far as is reasonably practicable, that all asbestos or ACM at the workplace is identified by a competent person or assume its presence • may identify asbestos or ACM by arranging a sample of the material to be analysed. **Indicating presence and location** • must ensure the presence and location of asbestos or ACM identified (or assumed to be identified) at the workplace is clearly indicated (by a label if reasonably practicable). **Asbestos register** • must ensure an asbestos register is prepared, maintained, reviewed and kept at the workplace. It must be readily available to workers, their health and safety representatives and other persons • must ensure, when management or control of the workplace is relinquished, a copy of the asbestos register is given to the person assuming management or control. **Asbestos management plan** • must, where asbestos has been identified at the workplace, ensure an asbestos management plan is prepared, maintained and reviewed. It must be accessible to workers, their health and safety representatives and other persons. **Naturally Occurring Asbestos (NOA)** • must manage the risks associated with NOA at the workplace and, where identified at the workplace or likely to be present, ensure that a written asbestos management plan is prepared, maintained and reviewed. **Demolition and Refurbishment Work** • prior to demolition or refurbishment work starting, must review the asbestos register and ensure all asbestos that is likely to be disturbed is identified and removed so far as is reasonably practicable • must provide a copy of the asbestos register to the person carrying out the demolition or refurbishment work before the work commences • must, if an emergency occurs and a structure or plant is to be demolished, ensure that before the demolition occurs there is a procedure to reduce the risk of exposure to asbestos to below the exposure standard and notify Comcare about the emergency.

PCBU carrying out demolition or refurbishment work	**Demolition and Refurbishment Work** • must, prior to the demolition or refurbishment work being carried out: o obtain a copy of the asbestos register for the workplace from the person with management or control before the work commences o if an asbestos register is not available, ensure the structure or plant to be demolished or refurbished has been inspected by a competent person to determine if any asbestos or ACM is fixed to or installed (or assume its presence) o where asbestos is determined to be fixed to or installed, tell the occupier, owner (if at a domestic premises) or the person with management or control in any other case o ensure asbestos at domestic premises that is likely to be disturbed by the demolition or refurbishment is identified and, if reasonably practicable, removed before the work starts

In some cases, there may be more than one person with management or control of a workplace. For example:

- a person with management of a workplace is a tenant
- a person with control of a workplace has the power to make decisions and changes to the structure and use of the workplace. This person will usually be the owner of the workplace or a representative of the owner and may:
    - own the workplace and engage workers to carry out work there
    - own the workplace but lease it to another person conducting a business or undertaking at the workplace
    - have management or control over the workplace, for example a property management group or agent.

1.3 THE MEANING OF KEY TERMS

Airborne asbestos means any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.

Asbestos means the asbestiform varieties of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals, including actinolite asbestos, grunerite (or amosite) asbestos (brown), anthophyllite asbestos, chrysotile asbestos (white), crocidolite asbestos (blue) and tremolite asbestos.

Asbestos containing material (ACM) means any material or thing that, as part of its design, contains asbestos.

Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or assumed to be) contaminated with asbestos.

Asbestos-related work means work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulations applies) that is permitted under the exceptions set out in regulation 419(3), (4) and (5).

Asbestos removalist means a person conducting a business or undertaking who carries out asbestos removal work.

Asbestos removal work means:

- work involving the removal of asbestos or ACM
- Class A asbestos removal work or Class B asbestos removal work as outlined in Parts 8.7 and 8.8 of the WHS Regulations.

Competent person means a person who has acquired, through training, qualification or experience, the knowledge and skills to carry out the task.

Exposure standard for asbestos is a respirable fibre level of 0.1 fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours in accordance with:

- the Membrane Filter Method
- a method determined by Comcare.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

GHS means *Globally Harmonised System of Classification and Labelling of Chemicals, Third revised edition, published by the United Nationals as modified under* ***Schedule 6***.

In-situ asbestos means asbestos or ACM fixed or installed in a structure, equipment or plant but does not include naturally occurring asbestos.

NATA-accredited laboratory means a testing laboratory accredited by the National Association of Testing Authorities (NATA), Australia, or recognised by NATA either solely or with someone else.

Naturally occurring asbestos (NOA) means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediment or soil.

Non-friable asbestos means material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.

Respirable asbestos means an asbestos fibre that:

- is less than 3 microns (μm) wide
- is more than 5 microns (μm) long
- has a length to width ratio of more than 3:1.

2. MANAGING RISKS ASSOCIATED WITH ASBESTOS AND ACM

2.1 WHAT IS INVOLVED IN MANAGING RISKS?

Regulation 420: A person conducting a business or undertaking must ensure, so far as is reasonably practicable, exposure of a person at the workplace to airborne asbestos is eliminated. If this is not reasonably practicable, the exposure must be minimised so far as is reasonably practicable.
The exposure standard for asbestos must not be exceeded at the workplace.

Managing the risks associated with asbestos involves:

- identifying asbestos and ACM at the workplace and recording this in the asbestos register
- assessing the risk of exposure to airborne asbestos
- eliminating or minimising the risks by implementing control measures
- reviewing control measures to ensure they are effective.

When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

- eliminating the risk (for example, removing the asbestos)
- substituting the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools)
- using administrative controls (for example, safe work practices)
- using PPE.

A combination of these controls may be required in order to adequately manage and control asbestos or ACM. **Chapter 7 of this Code** provides more information on the different control measures that can be used.

General guidance on the risk management process is available in the ***Code of Practice: How to Manage Work Health and Safety Risks***.

Consulting your workers

Section 47: The WHS Act requires the person conducting a business or undertaking to consult, so far as is reasonably practicable, with workers who carry out work who are (or are likely to be) directly affected by a work health and safety matter.
Section 48: If the workers are represented by a health and safety representative, the consultation must involve that representative.

Consultation with workers and their health and safety representatives is a critical part of managing work health and safety risks.

Consulting with and involving workers in the identification and safe handling of asbestos can assist in ensuring that safety instructions and safe work practices are complied with.

Health and safety representatives must have access to relevant information on matters that can affect the health and safety of workers, for example asbestos exposure data and the asbestos register.

Consulting, cooperating and coordinating activities with other duty holders

Section 46: The WHS Act requires that persons conducting a business or undertaking 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.

Sometimes there may be other businesses that are involved in the same activities or share the same workplace. For example:

> The owner of an arcade is renovating one of the shops for a new tenant to move into. The building owner has engaged a number of contractors to carry out the renovation work including demolishing a wall.
>
> The building owner has management and control over the workplace and is responsible for ensuring the current asbestos register is updated due to the work that is being carried out. The building owner consults other tenants that may be affected by the renovation work on the identification of asbestos and what will need to be done if asbestos is disturbed.
>
> As the work begins, the building owner, contractors and tenants all cooperate with each other and coordinate their activities to protect any persons from potential exposure to asbestos.

Further guidance on consultation is available in the ***Code of Practice: Work Health and Safety Consultation, Cooperation and Coordination***.

2.2 IDENTIFYING IF ASBESTOS OR ACM IS AT THE WORKPLACE

This section does not apply to naturally occurring asbestos (NOA).

Regulation 422: A person with management or control of a workplace must ensure asbestos or ACM at the workplace is identified by a competent person.

Identifying asbestos or ACM is the first step in managing the risk of exposure to asbestos in the workplace. As there may be more than one person in the workplace responsible for this duty, it is important that all duty holders consult, cooperate and coordinate with each other as well as consulting with workers and health and safety representatives, for example the person with control of the workplace may carry out the task of identifying asbestos with the person who has day-to-day management of the workplace to ensure it has been done accurately.

If the person with management or control of the workplace assumes that asbestos or ACM is present, or if they have reasonable grounds to believe that asbestos is not present, a competent person does not need to be engaged to make this decision.

Who can be a competent person?

The WHS Regulations define a competent person to be someone who has acquired knowledge and skills to carry out the task through training, a qualification or experience. This may mean that the competent person who can identify asbestos is:

- trained to handle and take asbestos samples, has the knowledge and experience to identify suspected asbestos and is able to determine risk and controls measures
- familiar with building and construction practices to determine where asbestos is likely to be present
- able to determine that material may be friable or non-friable asbestos and evaluate its condition.

There may be a person within the business who is competent to identify asbestos. If there is not, an external competent person should be engaged. Persons who may be considered to be competent in the identification of asbestos include:

- occupational hygienists who have experience with asbestos
- licensed asbestos assessors
- asbestos removal supervisors
- individuals who have a statement of attainment in the unit competency for asbestos assessors
- a person working for an organisation accredited by NATA under **AS/NZS ISO/IEC 17020: 2000** ***General criteria for the operation of various types of bodies performing inspection for surveying asbestos***.

Factors to consider when identifying asbestos

The person who is carrying out the task of identifying asbestos should have all relevant information so they can correctly identify where asbestos is located in the workplace. For example, obtaining information on the products used in making the building, structure or plant, including building plans, design specifications, and correspondence with builders and plant manufacturers. Workers in the workplace may also be able to assist the person with this task.

There are a number of factors that may be taken into account to identify or assume that asbestos is present in a workplace. These include:

When was the building constructed?	Asbestos was widely used as construction and insulation material in buildings until the late 1980s when bans on its manufacture and use were put in place. However, the use of asbestos was only completely prohibited on 31 December 2003. As the bans were not absolute prior to 2003 and building materials may have been stockpiled, stored, or recycled and used, it is possible that asbestos may be present in buildings that were constructed up to 31 December 2003 and possibly later.
Were there any refurbishments or additions to the building prior to 31 December 2003?	Any refurbishment or extensions to the original building prior to 1990 and potentially up to 31 December 2003 may have involved the use of asbestos. Even if the original parts of the building did not contain asbestos, it should not be assumed that subsequent additions have no asbestos.

What type of material was used to construct the building?	The main construction materials used are made from timber, brick, steel and cement sheet. If cement sheet is present and was installed up until 1990, it is likely to contain asbestos bonded to the cement particles. For example, a roof made from corrugated cement sheeting is likely to contain asbestos. Areas of buildings that are prone to wet conditions may contain asbestos in the walls and floors due to its hardiness and waterproofing qualities compared to other materials. For example, bathrooms, toilets and laundries may have asbestos sheeting or vinyl tiles. Likewise, pipes throughout the building that carry water and sewage may also contain asbestos.
Talk to designers, manufacturers or suppliers of plant, or refer to design plans	Asbestos may be present in specific parts of the plant in a workplace as it was used in gasket and friction brake products. Despite a large reduction in its use, chrysotile asbestos was still being used in some specific applications until recent years, including rotary vane vacuum pumps and in gaskets for certain types of equipment. If there is plant that was designed, built and installed prior to 1 January 2004, the supplier, manufacturer or designer of the plant should be consulted to find out if asbestos is present and, if possible, obtain this advice in writing. If this is not possible, review the design plans and seek advice from an experienced engineer or plant designer. Quality assurance systems or checks should be in place to confirm whether asbestos is present.
Talk to workers who have worked at the workplace for a long time	Speaking with experienced workers will assist in the identification process as they may be aware of the history of the building, including its age, construction, renovation or repairs, and may know where asbestos is located in the workplace.
Visually inspect the workplace to identify asbestos, ACM and inaccessible areas	A thorough inspection of all areas of the workplace must be conducted, including all buildings, structures, ceiling spaces, cellars, shafts, storage areas and wall cavities. Material needs to be considered to contain asbestos unless proven otherwise if: • it cannot be identified • there is uncertainty as to whether it contains asbestos • it is inaccessible. The design plans for a building, structure, ship or plant may assist in identifying inaccessible areas, as would discussion with builders, architects, manufacturers of plant and maintenance workers. Knowledge of materials used in the construction of the building or experience and findings from inspections of similar sections of the building (or similar buildings) may also assist.
Take notes and photographs	Taking notes and photographs while the inspection is being conducted can assist in producing the asbestos register.

2.3 ASSUMING ASBESTOS OR ACM IS PRESENT

This section does not apply to NOA.

Regulation 422: A person with management or control of a workplace must:

- assume the material is asbestos or ACM if it cannot be identified but a competent person reasonably believes it is asbestos or ACM
- assume asbestos is present if part of the workplace is inaccessible and it is likely to contain asbestos or ACM.

It is not necessary to engage a competent person to identify asbestos if the person with management or control of the workplace assumes that asbestos is present or if that person has reasonable grounds to believe that asbestos is not present.

If there is uncertainty as to whether asbestos is present in any part of a structure or plant, the person with management or control of the workplace can either assume asbestos is present and treat it with appropriate caution based on the level of risk or have a sample analysed. If it is assumed to be asbestos, it is considered to be asbestos for legal purposes. There is no need to take a sample for analysis and identification in all circumstances.

This means the suspect material can remain undisturbed and the time and cost of sampling and analysis is avoided.

The person with management or control of a workplace can assume asbestos or ACM is not present as long as this assumption is based on reasonable grounds, which may include:

- a workplace is constructed post 1990 and there is no plant or equipment made prior to 2004
- pre-2004 buildings where the building is constructed (including the roof) wholly of metal, brick or concrete, and has no internal walls that are made of fibro, gyprock or similar cladding, for instance a corrugated iron shed or a colourbond type warehouse building constructed of double brick with bare brick internally. Flooring (vinyl tiles), switchboards and under eaves lining should also be considered
- where a register indicates that all the identified and assumed asbestos has been removed.

Once the presence and location of asbestos has been assumed:

- all requirements for managing asbestos must be followed until the material is removed or testing has confirmed that it is not or does not contain asbestos

- the workplace asbestos register must include all the presumptions made about materials in the workplace with a simple, generic statement such as, '*Roof sheeting is presumed to contain asbestos'* or '*All underground conduits are presumed to contain asbestos*.'

Inaccessible areas

If there are inaccessible areas in the workplace that a competent person has identified as likely to have asbestos or ACM, it must be assumed they contain asbestos until they are accessed and it is determined whether asbestos is present or not.

As a general rule, an inaccessible area is an area that cannot be accessed during normal daily activities or routine maintenance. The following areas are not regarded as 'inaccessible areas' and must be inspected or assumed to contain asbestos:

- locked rooms
- crawl spaces
- basement and cellars
- storage areas
- ceiling spaces
- fire doors
- locked security safes.

Accessing fire door and security safe cores to determine whether they contain asbestos may create a risk, for example drilling can result in the release of airborne asbestos. If this is the case, cores should not be accessed and must be assumed to contain asbestos until otherwise proven (for instance, during maintenance when access is obtained) or information is obtained from the supplier. Fire doors may have a compliance tag on the door jamb stating the fire rating and a compliance date. This can provide an indication of whether the door is likely to contain asbestos.

Examples of inaccessible areas that may contain asbestos or ACM are:

- a cavity in a building that is completely (or almost completely) enclosed and suspected of containing asbestos (based on where asbestos is located elsewhere in the building) and access is only possible through destruction of part of the walls of the cavity
- the inner lining of an old boiler pressure vessel (information on this type of vessel suggests it contains asbestos) and the inner lining is not accessible due to the design and operation of the boiler and access can only be via partial destruction of the outer layer

- vinyl tiles that may contain asbestos, which have had a number of layers of non-ACM placed over them and secured, where the layers above it have been well secured and require some form of destruction in order to access the vinyl that may contain asbestos
- enclosed riser shafts in multi-storey buildings containing cables that may be insulated with ACM
- air-conditioning ducts that may contain asbestos gaskets and linings.

2.4 ARRANGING A SAMPLE TO IDENTIFY ASBESTOS

This section does not apply to NOA.

Regulation 423: A person with management or control of a workplace may identify asbestos or ACM by arranging for a sample of material at the workplace to be analysed for the presence of asbestos or ACM.

A sample must only be analysed by:

- a NATA-accredited laboratory accredited for the relevant test method
- a laboratory approved by Comcare in accordance with guidelines published by Safe Work Australia.

It can be difficult to tell whether a material contains asbestos simply by looking at it, unless it is labelled. If a material has been imported from overseas, it may not be labelled as containing asbestos or it may only be labelled if the materials contain more than 10% asbestos. Therefore, a sample should be taken and analysed unless the decision was made to assume it is asbestos.

Only a competent person may take the samples for analysis because of the increased health risk of fibres being released during the process. If the sampling process is conducted incorrectly, it can be more hazardous than leaving the material alone. All asbestos samples must be analysed by a NATA-accredited laboratory or one that is approved by Comcare. Any sample taken should be sealed within a container, or a 200 µm polythene bag, and appropriately labelled.

Once the results of the sampling are known, the person with management or control of the workplace must ensure the asbestos register is updated indicate that the material is asbestos or is assumed to be.

If asbestos is stable, non-friable and will not be disturbed, it should be left alone. Only material that is damaged or will be disturbed should be sampled. If the material may contain

asbestos and it is decided not to take samples, an assumption must be made that the material contains asbestos.

Appendix A provides a procedure that a competent person can follow when undertaking sampling.

2.5 INDICATING THE PRESENCE OF ASBESTOS IN THE WORKPLACE

This section does not apply to NOA.

Regulation 424: A person with management or control of a workplace must ensure the presence and location of asbestos or ACM identified at the workplace is clearly indicated. If reasonably practicable, the asbestos or ACM must be indicated by a label.

All identified or assumed asbestos, including where the asbestos is inaccessible, must be clearly indicated. If it is reasonably practicable, labels must be used to identify the material as containing asbestos. However, signs may be more appropriate to use.

Examples of labels or signs that can be used to indicate the location or presence of asbestos or ACM are shown at **Appendix B**. These examples provide an indication of the words that may be used—these words are not mandatory.

Labels

If labels can be used, a competent person should determine the number and positions of the labels required. The location of labels should be consistent with the location listed in the asbestos register.

If a risk assessment suggests asbestos may be disturbed or people are likely to be exposed and it is not reasonably practicable to label asbestos directly, a prominent warning sign must be posted in its immediate vicinity. For example, if floor tiles have been identified as containing asbestos, an appropriate warning sign may be displayed on an adjacent wall.

Warning signs

All warning signs should comply with **AS 1319 *Safety Signs for the Occupational Environment***.

Any areas of a workplace that contain asbestos, including plant, equipment and components, should be signposted with warning signs to ensure the asbestos is not unknowingly disturbed without the correct precautions being taken. These signs should be weatherproof, constructed of light-weight material and adequately secured. Signs should be placed at all the main entrances to the work areas where asbestos is present.

Where direct marking of asbestos is not possible, identifying the presence and location of asbestos to workers such as plumbers, electricians and carpenters before they commence work may be achieved by implementing a permit-to-work system. The presence and location of the asbestos should be entered on site plans and the asbestos register and be accessible to all workers to ensure they are aware of the presence of asbestos.

2.6 ASSESSING THE RISK OF EXPOSURE

This section does not apply to NOA.

If asbestos or ACM is in good condition and left undisturbed, it is unlikely that airborne asbestos will be released into the air and the risk to health is extremely low. It is usually safer to leave it and review its condition over time. However, if the asbestos or ACM has deteriorated, has been disturbed, or if asbestos-contaminated dust is present, the likelihood that airborne asbestos will be released into the air is increased.

The type of material that binds asbestos fibres will influence the potential for airborne asbestos to be released into the air from different asbestos or ACM. For example, a loosely bound sprayed (or limpet) coating is more likely to release fibres when disturbed than asbestos cement in which fibres are firmly bound.

The following list ranks different types of asbestos according to the likelihood that airborne asbestos can be released into the air if it has deteriorated or been disturbed. The potential risk to health is greater for items higher up the list if people are exposed to airborne asbestos, but any of the materials listed can produce asbestos fibres if they are disturbed.

Higher likelihood of airborne fibres

Asbestos-contaminated dust (including dust left in place after past asbestos removal)
Sprayed (limpet) coatings/loose fill
Lagging and packings (that are not enclosed)
Asbestos insulating board
Rope and gaskets
Millboard and paper
Asbestos cement
Floor tiles, mastic and roof felt
Decorative paints and plasters

Lower likelihood of airborne fibres

When deciding if there is a risk to health from asbestos, consider whether the asbestos or ACM is:

- in poor condition
- likely to be further damaged or to deteriorate
- likely to be disturbed due to work practices carried out in the workplace (for example, routine and maintenance activities and their frequency)
- in an area where workers are exposed to the material.

A visual inspection of the material, its location and an understanding of the work practices at the workplace will assist this decision.

Asbestos-related work activities (including maintenance) plus unusual and infrequent activities (such as emergency activities) need to be considered. Also take into account the proximity of the asbestos or ACM to where employees work, as this can affect the potential for exposure if asbestos fibres become airborne.

The following are examples of activities that could pose a risk to health:

- Forklifts driving adjacent to asbestos cement (AC) sheet walls may damage these sheets from accidental impacts during the course of work.
- Plumbers working on a long pipe that does not have asbestos insulation where the work is being done may cause disturbance to asbestos-containing insulation on the pipe some metres away.
- Electricians wiring in a ceiling space sprayed with material containing friable asbestos may disturb this material.
- Acid fumes from an acid bath located next to an asbestos cement wall and below an asbestos cement roof may cause deterioration of the asbestos material over time.

3. ASBESTOS REGISTER

This chapter does not apply to domestic premises or NOA.

Regulation 425: A person with management or control of a workplace must ensure an asbestos register is prepared and kept at the workplace. The asbestos register must be maintained, to ensure the information in the register is up to date.

Note: An asbestos register is not required to be prepared when:

- *the workplace is a building that was constructed after 31 December 2003*
- *no asbestos has been identified at the workplace*
- *no asbestos is likely to be present at the workplace from time to time.*

3.1 WHAT IS AN ASBESTOS REGISTER?

The asbestos register is a document that lists all identified (or assumed) asbestos in a workplace. The asbestos register must:

- record any asbestos or ACM that has been identified or is likely to be present at the workplace from time to time. This would include:
  - the date on which the asbestos or ACM was identified
  - the location, type and condition of the asbestos; or
- state that no asbestos or ACM is identified at the workplace if the person knows that no asbestos or ACM is identified or is likely to be present from time to time at the workplace.

Appendix C provides a template of an asbestos register, while **Appendix D** provides an example of how it should be completed.

A comprehensive asbestos register may also include:

- details of any asbestos assumed to be in the workplace
- results of any analysis that confirms a material at the workplace is or is not asbestos
- dates when the identification was carried out
- details of inaccessible areas.

It may also be useful to attach photographs or drawings to visually show the location of the asbestos or ACM in the workplace.

What if an asbestos register already exists at the workplace?

If an asbestos register already exists at the workplace there is no need to create another one. The existing register can be reviewed and revised.

Persons conducting a business or undertaking who are carrying out or intend to carry out work at a workplace, should obtain the current asbestos register and identify any asbestos or ACM that they have management or control of (for example, asbestos in items of plant). The person with management or control of the workplace should be advised if any asbestos or ACM is identified and not included in the asbestos register for the workplace.

If workers consider that the work they are about to do will disturb asbestos, they should talk to the person with management and control of the workplace or their health and safety representative.

Where asbestos is only temporarily in the workplace

In some cases it may not be necessary to include asbestos or ACM that is only temporarily present in the workplace. For example, if plant that contains asbestos is being repaired at the workplace but it is only there for a short period while being repaired, it does not need to be recorded in the asbestos register. However, if plant is often at the workplace (for example, where the company specialises in repairing plant that typically contains asbestos), it would be important to include this in the asbestos register. Note that where work involving asbestos is carried out, there are requirements to ensure the safety of the worker.

Where there is no asbestos register at the workplace

An asbestos register is not required if a workplace has been constructed after 31 December 2003 or if no asbestos has been identified.

If there is no asbestos register at the workplace but asbestos is identified during the course of any work being carried out, the person with management or control of the workplace should be advised and must then identify it (or ensure a competent person identifies it) and prepare a register.

As there will be no asbestos register at a domestic premise, the homeowner or landlord must be advised if asbestos is identified and appropriate action taken.

3.2 REVIEWING AND REVISING AN ASBESTOS REGISTER

Regulation 426: A person with management or control of a workplace must ensure an asbestos register is reviewed and where necessary revised by a competent person if:

- the asbestos management plan is reviewed
- further asbestos or ACM is identified at the workplace
- asbestos is removed from or disturbed, sealed or enclosed at the workplace.

The register should be reviewed at least once every five years to ensure it is kept up to date.

When reviewing the asbestos register, the person should carry out a visual inspection of the asbestos and ACM listed to determine its condition and revise the asbestos register as appropriate. Previous asbestos registers and records relating to asbestos removal jobs, for instance clearance certificates, can assist in identifying all asbestos and ACM in the workplace.

Accessing an asbestos register

Regulation 427: The person with management or control of the workplace must ensure the asbestos register is readily accessible to:

- a worker who has carried out, carries out or intends to carry out work at the workplace
- health and safety representatives who represent workers who carry out or intend to carry out work at the workplace
- a person conducting a business or undertaking who has carried out, carries out or intends to carry out work at the workplace
- a person conducting a business or undertaking who has required, requires or intends to require work to be carried out at the workplace.

Where work is being carried out or is about to be carried out at the workplace by a person conducting a business or undertaking and that work involves a risk of exposure to airborne asbestos, the person with management or control of the workplace must provide a copy of the asbestos register to that person.

A copy of the asbestos register should be kept at the workplace to ensure it is accessible.

3.4 TRANSFERRING AN ASBESTOS REGISTER

Regulation 428: If the person with management or control of a workplace plans to relinquish management or control (for instance, selling the workplace or the business or undertaking), they must ensure, so far as is reasonably practicable, that a copy of the asbestos register is given to the person who is assuming management or control of the workplace.

4. ASBESTOS MANAGEMENT PLAN

Regulation 429: A person with management or control of a workplace must ensure a written asbestos management plan is prepared for the workplace if asbestos or ACM has been identified or assumed present, or is likely to be present from time to time at the workplace.
The asbestos management plan must be maintained to ensure the information is up to date.

This requirement does not apply to domestic premises.

4.1 WHAT IS AN ASBESTOS MANAGEMENT PLAN?

An asbestos management plan sets out how asbestos or ACM that is identified at the workplace will be managed, for example what, when and how it is going to be done.

An asbestos management plan must include:

- the identification of asbestos and ACM, for example a reference or link to the asbestos register for the workplace, and the locations of signs and labels
- decisions, and reasons for the decisions, about the management of asbestos at the workplace, for example safe work procedures and control measures
- procedures for detailing accidents, incidents or emergencies of asbestos at the workplace
- workers carrying out work involving asbestos, for example consultation, information and training responsibilities.

Other information that may be included in the asbestos management plan is:

- an outline of how asbestos risks will be controlled, including consideration of appropriate control measures
- a timetable for managing risks of exposure, for example priorities and dates for any reviews, circumstances and activities that could affect the timing of action
- identification of each person with responsibilities under the asbestos management plan and the person's responsibilities
- procedures, including a timetable for reviewing and, if necessary, revising the asbestos management plan and asbestos register

- air monitoring procedures at the workplace, if required.

4.2 REVIEWING AN ASBESTOS MANAGEMENT PLAN

Regulation 430: The person with management or control of the workplace must ensure the asbestos management plan is reviewed and, if necessary, revised at least once every five years or when:

- there is a review of the asbestos register or a control measure
- asbestos is removed from or disturbed, sealed or enclosed at the workplace
- the plan is no longer adequate for managing asbestos or ACM at the workplace
- a health and safety representative requests a review if they reasonably believe that any of the matters listed in the above points affects or may affect the health and safety of a member of their work group and the asbestos management plan was not adequately reviewed.

4.3 ACCESSING AN ASBESTOS MANAGEMENT PLAN

Regulation 429: The person with management or control of the workplace must ensure the asbestos management plan is readily accessible to:

- a worker who has carried out, carries out or intends to carry out work at the workplace
- health and safety representatives who represent workers that carry out or intend to carry out work at the workplace
- a person conducting a business or undertaking who has carried out, carries out or intends to carry out work at the workplace
- a person conducting a business or undertaking who has required, requires or intends to require work to be carried out at the workplace.

The asbestos management plan should be kept at the workplace to ensure it is accessible.

5. MANAGING OTHER ASBESTOS-RELATED RISKS

5.1 NATURALLY OCCURRING ASBESTOS

Regulations 431-434: A person with management or control of a workplace must manage the risks associated with naturally occurring asbestos (NOA) at the workplace.
If NOA is identified at the workplace or is likely to be present from time to time, a written asbestos management plan must be prepared and maintained to ensure the information is up-to-date.

What is NOA?

In the majority of workplaces, the asbestos that is encountered and poses a risk to health and safety will be found in manufactured products. However, some workplaces may have to deal with asbestos in its natural state. NOA may be encountered in road building, site and construction work, and other excavation activities. Asbestos may occur in veins within rock formations.

Requirements to manage NOA

Due to the difficulties in fully describing the location and extent of a NOA deposit in an asbestos register, there is no requirement for NOA be listed in an asbestos register. However, any NOA identified or assumed at a workplace must be included on the asbestos management plan for the workplace or be the subject of a new asbestos management plan. This is to ensure steps are put in place, as with all other asbestos encountered in workplaces, to ensure that risks of exposure from NOA are assessed and managed.

Preparing an asbestos management plan

When preparing an asbestos management plan, the following should be considered:

- isolating the workplace or part of the workplace until controls are in place
- deviating excavation to ensure avoidance of the deposit, where possible
- using sealed excavation or mining equipment (air-conditioned cabins with filtered air)
- maintaining regular surveillance of the rock by a competent person to ensure minimal disturbance of suspected fibrous minerals
- developing procedures for the safe disposal of asbestos waste, if required

- educating the workers in safe work practices.

Information on the contents, review and accessibility of the asbestos management plan can be found in **Chapter 4 of this Code**.

Managing NOA

Ongoing management of NOA may be determined with the aid of an air monitoring program to assess asbestos exposure levels and specific risk control measures.

The person with management or control of a workplace must ensure the release of airborne asbestos is minimised. This can be done by:

- wetting surfaces to reduce the dust levels
- suppressing, containing and extracting dust in processing operations (water sprays or local exhaust at transfer points and vibrating screens)
- using wet drilling or other approved in-hole dust suppression
- preventing the spread of contamination by using wash down facilities
- providing information to and training and supervision of all workers potentially at risk
- using PPE where indicated.

Training of workers

Training on the hazards and risks associated with NOA must be provided to workers who carry out work where NOA is found.

Section 6.3 of this Code provides further information on training workers about asbestos.

5.2 CONTAMINATED SITES

Sites contaminated with asbestos become a workplace when work is carried out there. The WHS Regulations require that, where asbestos is identified as contaminating a workplace, a register and asbestos management plan be created for the site.

The management and remediation of sites contaminated with asbestos from illegal dumping and demolition is a specialised task. In some instances, site remediation may entail removal of asbestos and ACM from the site; in other cases this may not be practicable, and other management strategies should be used. Engaging specialists who may include asbestos removalists is highly recommended for all but the most minor of non-friable contaminations.

The ***Assessment of Site Contamination National Environmental Protection Measure*** **(NEPM)** http://www.ephc.gov.au/contam sets out the general principles for assessment and remediation of sites contaminated with a number of hazardous materials including asbestos. It is recommended that a person conducting a business or undertaking who has a workplace that is, or is suspected of being, contaminated with asbestos should engage specialists in accordance with the competencies found in the NEPM.

5.3 DEMOLITION AND REFURBISHMENT WORK

This section applies to the demolition or refurbishment of a structure or plant constructed or installed before 31 December 2003.

Regulations 447-457: Prior to any demolition or refurbishment work being carried out, a person with management and control of a workplace must:

- review the asbestos register
- provide a copy of the asbestos register to the person carrying out the demolition or refurbishment work
- ensure asbestos that is likely to be disturbed is identified and, so far as is reasonably practicable, removed.

The person conducting a business or undertaking who will carry out demolition or refurbishment at a workplace must obtain a copy of the asbestos register before they commence the work.

Examples of demolition may include:

- complete dismantling of a decommissioned industrial plant
- total destruction of a building or part of a building
- total destruction of an old boiler for the purpose of disposal.

Examples of refurbishment may include the partial dismantling of:

- a boiler for the purpose of cleaning and repairing
- large plant in order to access and remove asbestos-containing gaskets for the purpose of replacement with non-asbestos-containing gaskets
- a building by removing sections of an asbestos cement roof
- part of a building for the purpose of renovation.

Demolition and refurbishment work does not include minor routine maintenance work, or other minor work.

- Minor maintenance work includes routine work that is small scale, often short in duration and may be unscheduled. This work may require the partial dismantling of a structure or plant and may include the removal of asbestos or ACM such as gaskets or brake components, for example a piece of plant to remove an asbestos-containing gasket, a passenger lift or press machine to remove an asbestos-containing brake component, or a piece of plant for the purpose of cleaning or repair.
- Minor work includes small tasks that are of short duration, such as cutting a small hole or hand-drilling up to a few holes in an AC sheet. It is not routine or regular such as planned maintenance. It is incidental work that can be done quickly and safely within minimal control measures required to ensure safety. Examples include cutting a small hole into an asbestos-containing eave to install a cable, removal of an asbestos-containing vinyl tile to install a plumbing fixture, or hand-drilling a few holes into an AC sheet to attach a fitting.

Reviewing the asbestos register

When reviewing the asbestos register, the person with management or control of the workplace or plant should consider the following questions:

- Where is the asbestos located in relation to the proposed demolition or refurbishment?
- Are there any inaccessible areas that are likely to contain asbestos and that will be disturbed as a result of the demolition or refurbishment?
- What is the type and condition of the asbestos?
- What is the quantity of asbestos?
- What is the method of demolition or refurbishment and how will it affect the ACM?
- If the asbestos will be disturbed during the demolition or refurbishment, can it be removed safely before work commences and how can this be done?

What to do if the asbestos register indicates that asbestos is present

If the asbestos register identifies that asbestos or ACM is present, the person with management or control of the workplace must ensure all asbestos likely to be disturbed is

identified and removed, so far as is reasonably practicable, before the demolition or refurbishment work starts.

The WHS Regulations allow for the demolition of part of a structure or plant in order to access in-situ asbestos so it can be removed. For example, part of a wall may be demolished to access asbestos located in the wall cavity so it can be removed prior to further demolition.

For demolition work, if an emergency occurs, the person with management or control of the workplace must ensure a procedure is developed before the demolition work starts. The procedure must outline how to minimise the risk of exposure of workers and persons in the vicinity of the demolition site and ensure the exposure standard is not exceeded, so far as is reasonably practicable. The person must also provide Comcare with written notice of the emergency immediately after they become aware of the emergency and before the demolition starts.

NOTE: An emergency can occur if a building, structure or plant is structurally unsound or a collapse of the building, structure or plant is imminent.

If there is no asbestos register at the workplace

If there is no register for the workplace, the person who is carrying out the demolition or refurbishment work must not carry out the work until a competent person determines whether asbestos or ACM is fixed to or installed in the structure or plant.

If a competent person has reasonable grounds to be uncertain as to whether or not asbestos is present, before commencing demolition or refurbishment work the person carrying out the work must assume it is present. If it is determined or assumed to be present, the person carrying out the work must inform the occupier or owner (if it is domestic premises) or the person with management or control in any other case.

- **Demolition** – Once the person with management or control of the workplace or plant has been notified that asbestos is present and demolition work is to occur, they must decide whether the asbestos is likely to be disturbed by the work. If it is likely to be disturbed they must ensure, so far as is reasonably practicable, that the asbestos is removed before the work commences.
- **Refurbishment** – Once the person with management or control of the workplace or plant has been notified that asbestos is present and refurbishment work is to occur, they must decide whether the asbestos is likely to be disturbed by the work. If it is likely to be disturbed they must ensure,

so far as is reasonably practicable, that the asbestos is removed. Where reasonably practicable, asbestos should be removed prior to refurbishment, renovation or maintenance rather than implementing other control measures, such as enclosure or sealing.

Demolition and refurbishment at domestic premises

When a person has been engaged to conduct demolition or refurbishment at a domestic premise, it becomes the workplace of that person. Consequently, that person must identify and, if necessary, remove asbestos before work commences. The WHS Regulations place no duties on the homeowner.

- **Demolition** – A person who is engaged to conduct demolition work at a house (which has become their workplace) must identify asbestos under their management or control that is likely to be disturbed by the demolition work. They must ensure, so far as is reasonably practicable, that the asbestos is removed before the work commences.

  If an emergency occurs, the person carrying out the demolition work at the domestic premise must ensure, so far as is reasonably practicable, that before the demolition work starts a procedure is developed that will explain how to minimise the risk of exposure of workers and persons in the vicinity of the demolition site and ensure the exposure standard is not exceeded, so far as is reasonably practicable. The person must also provide Comcare with written notice of the emergency immediately after they become aware of the emergency and before the demolition starts.
- **Refurbishment** – A person who is engaged to conduct refurbishment work at a house (which has become their workplace) must identify asbestos under their management or control that is likely to be disturbed by the refurbishment work. They must ensure, so far as is reasonably practicable, that the asbestos is removed.

5.4 ASBESTOS-RELATED WORK

Regulations 478-484: While work with asbestos is generally prohibited, the WHS Regulations allow work to occur on asbestos in certain circumstances: this is referred to as asbestos-related work.

Under the WHS Regulations, asbestos-related work includes:

- genuine research and analysis
- sampling and identification in accordance with the WHS Regulations
- maintenance of, or service work on, non-friable asbestos or ACM, fixed or installed before 31 December 2003, in accordance with the WHS Regulations
- the transport and disposal of asbestos and asbestos waste in accordance with jurisdictional legislation
- demonstrations, education or practical training in relation to asbestos or ACM
- display, or preparation or maintenance for display, of an artefact or thing that is, or includes, asbestos or ACM
- management in accordance with the WHS Regulations of in-situ asbestos that was installed or fixed before 31 December 2003
- work that disturbs asbestos during mining operations that involve the extraction of or exploration for a mineral other than asbestos
- laundering asbestos-contaminated clothing in accordance with the WHS Regulations
- where Comcare approves the method adopted for managing risks associated with asbestos
- soil that a competent person has determined:
  - does not contain any visible asbestos
  - does not contain more than trace levels of asbestos determined in accordance with AS 4964:2004 *Method for the qualitative identification of asbestos in bulk samples*
- NOA managed in accordance with an asbestos management plan.

When undertaking asbestos-related work activities, the WHS Regulations require that it only be performed in accordance with the following requirements:

- any worker undertaking asbestos-related work must be informed of the health risks of exposure to

asbestos and that they will need to undergo health monitoring. Further information can be found in ***Guidance: Health Monitoring [under development]***

- a competent person carries out air monitoring of the work area where asbestos-related work is being carried out if there is uncertainty as to whether the exposure standard is likely to be exceeded
- any asbestos that may be encountered by workers undertaking asbestos-related work must be identified, and if it is not possible to identify, it must be assumed asbestos is present
- the area in which asbestos-related work is undertaken is separate from the rest of the workplace, so far as is possible
- the asbestos work area must be signed and barricaded to ensure that other workers do not enter the area
- facilities must be provided to allow for the decontamination of workers, equipment and the items worked upon
- anything removed from the work area must decontaminated before it is removed from the work area
- if material contaminated with asbestos is to be removed from the work area, it must be sealed within a container, which is decontaminated and labelled to indicate the presence of the asbestos and disposed of at a licensed disposal facility as soon as is practicable
- if personal protective equipment used in asbestos-related work is to be removed from the work area for disposal, it also must be sealed within a container, which is decontaminated and labelled to indicate the presence of the asbestos in accordance with the WHS Regulations and disposed of at a licensed waste facility as soon as reasonably practicable.

Appendix E provides an example of asbestos-related work.

Managing risks associated with asbestos-related work

If there is uncertainty as to whether asbestos is present or used in a certain activity at the workplace, the person with management or control of the workplace must assume asbestos is present and treat the activity as asbestos-related work or

arrange for a sample to be analysed to determine if asbestos is present.

If asbestos is identified or assumed to be present, it is essential that the asbestos register be obtained and a decision made as to whether work can be done without disturbing the asbestos, for example:

- instead of drilling a hole through an asbestos-contaminated sheeting wall to install electrical wiring, the wiring might be able to be routed over the wall
- if a ventilation flue or pipe has to be installed in an asbestos-contaminated ceiling or roof, an alternative option may be to run the flue or pipe through a non-asbestos wall.

It is also essential to ensure all people carrying out the work have the appropriate training (refer to Section 6.3 of this Code), correct tools (refer to Section 6.4 of this Code), PPE including clothing, decontamination materials, labels and signs ready at the workplace before any work commences that may disturb the asbestos and to minimise the number of people in the area. For example:

- ***Consultation and training*** – Consultation with a person who may be affected by any maintenance and service work that might disturb asbestos should occur. People performing the work must receive all necessary training and access to the asbestos register, and the work should be documented and supervised
- ***Access to asbestos work area*** – The asbestos work area should be isolated and access restricted to only those people carrying out the asbestos work. Barriers and warning signs should be used
- ***PPE*** – PPE needs to be selected to prevent the contamination of clothing and provide adequate respiratory protection
- ***Replacing asbestos*** – Under the asbestos prohibition, wherever an asbestos component requires replacement the replacement product must be non-asbestos. It is illegal to reinstall or reuse any asbestos. Where an access hatch or panel that contains non-friable asbestos in good condition is moved in order to gain access, it may be replaced into its original position without modification
- ***Disposing of asbestos*** – All asbestos must be disposed of correctly. Single-use PPE used during maintenance and service work must also be disposed

of. The *Code of Practice: How to Safely Remove Asbestos* provides further information on disposing of asbestos.

Before commencing any asbestos-related work, plastic sheeting may need to be placed on the floor and any other surfaces that may become contaminated with asbestos dust. At a minimum, heavy-duty 200 µm (micron) thick plastic sheeting should be used for this purpose.

Control measures for asbestos-related work

Whatever the control method used, it should be effective in making all maintenance workers aware of the presence of asbestos and preventing any work activity that might expose them, or others nearby, to airborne asbestos. Particular attention should be paid to controlling work activities that affect inaccessible areas listed in the asbestos register, such as wall cavities and ceiling spaces.

Control measures include the following:

- Eliminate the risk by not conducting the work.
- Minimise the risk by using either an isolation control, engineering control or a combination of these.
    - An example of isolation by barrier is applying a small amount of substance, such as silicon or paste, to the surface of an asbestos cement sheet where a hole will be drilled. When the drill bit is drilled through the paste into the sheet and is removed, any loose fibres are collected in the paste, preventing them from becoming airborne. After drilling, the paste can be wiped clean with a rag and disposed of as asbestos waste.
    - An example of isolation by distance is used in the automotive industry for the removal of asbestos-containing brake mechanisms from vehicles. A designated area in the workshop is isolated by distance from other work areas. Signs and barriers are used to communicate that access to the area is restricted during the activity. The activity also requires safe work procedures but the isolation control ensures that other workers are not at risk due to their distance from the activity. All workers must be provided with instruction and training so they understand

the reason for the control measure and the relevant procedures.

- An example of engineering control is the use of a mini-enclosure to isolate the source of asbestos fibres combined with the use of extraction to capture and remove airborne fibres from the air in the work environment. This approach could be used for the task of removing and replacing the lock mechanisms from an asbestos-containing fire door. A purpose-built adjustable perspex box is fitted to the door surrounding the lock and handles on both sides of the door. Adjustments can be made to ensure a secure fit to the door and tape used to seal any possible gaps between the enclosure and the door. The box has access points for the operator's arms to enable work to be done on the lock, as well as an entry point for a vacuum hose. The vacuum can create a negative pressure inside the enclosure to prevent fibres from escaping and can also be held directly at the source to capture any fibres that become airborne as the lock is removed from the door. At completion of the task, the vacuum is used to clean and decontaminate the enclosure as well as the operator's arms (before removing them).

- If the risk is still present and attempts have been made to minimise the risk to health, so far as is reasonably practicable, through elimination, isolation and engineering controls, administrative controls can be implemented.

  Administrative controls are systems of work or work procedures designed to eliminate or minimise risk. These controls are lower order controls that cannot be relied upon to be as effective as the higher order controls such as elimination, isolation and engineering. This is because administrative controls are systems or procedures that rely on human behaviour to be effective and can easily fail. Administrative control measures must be understood, implemented and maintained. This requires training, information and supervision for workers but the control measure can still fail if procedures are not followed or understood.

  For some activities, administrative controls are the only practicable controls that can be implemented. An example of an administrative control for asbestos-related work is a

procedure for collecting samples of ACM for the purpose of analysis. Collecting the samples may involve breaking or dislodging ACM, which can lead to the release of airborne asbestos fibres and consequently a risk to health.

A safe work procedure for this task would include actions such as:

- isolating the area where the sample is to be collected
- assessing if the area is safe to enter
- minimising dust
- wearing suitable personal protective equipment
- sealing the samples, and storing and transporting them in a safe, secure manner.

For the administrative control measure to be effective and reduce risk, the person conducting the sampling must understand the risk and implement all of the procedure. If the procedure is not followed, the health of the person conducting the sampling and others in the workplace may be at risk.

Appendix F outlines examples of safe that are likely to disturb asbestos and control measures that eliminate or minimise exposure to airborne asbestos, when carrying out service and maintenance tasks.

- If a risk to health still remains after the higher order control measures have been implemented, PPE must be used to supplement higher order controls.

  Although PPE can be effective in controlling the risk from airborne asbestos fibres, the successful implementation and maintenance of this control measure requires further action and resources, including:

  - the correct selection of appropriate PPE, including respirator, cartridge and coveralls
  - the issuing of PPE to each individual
  - training and supervision – all employees who are required to conduct asbestos-related activities and wear PPE must be given adequate training and supervision to enable them to fit and use the equipment correctly and conduct the task in a safe manner
  - maintenance of PPE – non-disposable respirators must be checked before and after use to ensure the components are in good working order and are not damaged

- employee compliance and support for the system – it is essential that employees use PPE when it is required. An understanding of the risk to health from asbestos, the higher order control measures already in place and the need to use PPE to further reduce the risk to health all contribute to employees' willingness to use PPE.

Disposable coveralls need to be of a suitable standard to prevent penetration of asbestos fibres, so far as is practicable. Disposable coveralls rated type 5, category 3 (prEN ISO 13982-1) or the equivalent would meet this standard. Any clothing worn under coveralls must be disposed of or suitably bagged for laundering as asbestos-contaminated clothing.

5.5 DISPOSING OF ASBESTOS OR ACM

There are additional responsibilities related to the removal and disposal of asbestos, which are detailed in the *Code of Practice: How to Safely Remove Asbestos*, for example competency and licensing requirements.

Individual components and wiping rags must be placed in plastic bags, tying each bag separately prior to placing them in the container. Disposal bags need to be heavy duty (200 µm), made of clear plastic and marked with the label ***'Caution Asbestos – Do not open or damage bag. Do not inhale dust'***. Asbestos waste awaiting disposal must be stored in closed containers (for example, 60 or 200 litre steel drums with removable lids or sealed skip).

Asbestos waste must be transported and disposed of in accordance with the relevant state or territory Environment Protection Authority (EPA) requirements. Asbestos waste can only be disposed of at a site licensed by the EPA and it must never be disposed of in the general waste system.

6. MANAGING EXPOSURE TO ASBESTOS OR ACM

6.1 MEASURING THE EXPOSURE STANDARD

Airborne respirable fibre concentrations can be estimated using available data (for example, monitoring reports, data from scientific literature) or past experience (for example, monitoring reports) of the process in question. In cases of doubt, it may be necessary to confirm the estimates by measurement using the ***Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC: 3003 (2005)]***.

Exposure monitoring measures the levels of respirable fibres in the breathing zone of the worker while work is being undertaken. Exposure monitoring must be carried out by a competent person, who may include a licensed asbestos assessor or a person who has undertaken the endorsed unit of competency for licensed asbestos assessors. An occupational hygienist who has experience in asbestos exposure monitoring may also be used.

Where exposure monitoring is carried out, it is good practice to stop work and investigate the cause if the level of airborne asbestos in the breathing zone reaches half the exposure standard.

Although the need for exposure air monitoring will depend on the particular circumstances, the results may assist in assessing risks associated with asbestos.

Other forms of air monitoring that are relevant to asbestos work are discussed in more detail in the ***Code of Practice: How to Safely Remove Asbestos***. These include:

- control monitoring for ensuring that an enclosure or other controls used during asbestos removal are effective at preventing fibres from being found outside the work area
- clearance monitoring to ensure that the work area is free of asbestos fibres prior to being certified for reoccupation.

6.2 HEALTH MONITORING

Regulations 435-444: A person conducting a business or undertaking must ensure health monitoring is provided to a worker if they are carrying out licensed asbestos removal work, other ongoing asbestos removal work or asbestos-related work and are at risk of exposure to asbestos when carrying out the work.

Health monitoring includes a medical examination to provide an initial baseline medical assessment. Health monitoring must include the following (unless another form of health monitoring is recommended by a registered medical practitioner):

- consideration of the worker's demographic, medical and occupational history
- consideration of records of the worker's personal exposure
- a physical examination of the worker with emphasis on the respiratory system, including standardised respiratory function tests unless another form of health monitoring is recommended by a registered medical practitioner.

Workers must be informed of any health monitoring requirements before the worker carries out work that may expose them to asbestos.

When should health monitoring occur?

Where a worker is at risk of exposure to asbestos due to work other than licensed asbestos removal, health monitoring must also be undertaken. Examples of work where there is a risk of exposure include ongoing unlicensed removal work, undertaking maintenance work on ACM regularly as part of another job (for instance, electricians or building maintenance staff in older buildings) and carrying out asbestos-related work. The need for health monitoring for these workers should be determined on the basis of:

- the potential for exposure
- the frequency of potential exposure
- the duration of the work being undertaken.

If a worker is carrying out licensed asbestos removal work, the health monitoring must be conducted prior to the worker commencing the work. Health monitoring should also be provided to the worker at regular intervals after commencing the asbestos-related work but at least once every two years.

Who can carry out health monitoring?

Health monitoring must be carried out under the supervision of a registered medical practitioner with the relevant competencies. Prior to deciding who the registered medical practitioner will be, the person conducting a business or undertaking must consult the worker.

Who pays for health monitoring?

The person conducting a business or undertaking must pay all expenses relating to health monitoring.

Where there are two or more persons that have a duty to provide health monitoring to a worker, they may choose that one person organises health monitoring (known as the person who commissions the health monitoring), however the costs must be shared equally between each person unless they agree otherwise.

What information must be provided to the register medical practitioner?

The person who commissions health monitoring must provide the following information to the registered medical practitioner:

- their name and address
- the name and date of birth of the worker
- a description of the work the worker is, or will be, carrying out that has triggered the requirement for health monitoring
- whether the worker has started the work or, if the worker has commenced carrying out the work, how long this has been for.

Health monitoring report

A person who commissions health monitoring must take all reasonable steps to obtain a report from the registered medical practitioner as soon as practicable after the monitoring is carried out.

The health monitoring report must include the following information:

- the name and date of birth of the worker
- the name and registration number of the registered medical practitioner
- the name and address of the person conducting the business or undertaking who commissioned the health monitoring
- the date of the health monitoring

- any advice that test results indicate the worker may have contracted a disease, injury or illness as a result of carrying out the work that triggered the need for health monitoring
- any recommended remedial measures, including whether the worker can continue to carry out the work
- whether medical counselling is required for the worker.

That person must also give a copy of the report, as soon as reasonably practicable after obtaining it from the medical practitioner, to:

- the worker
- Comcare, if the report contains:
  - any test results that indicate the worker may have contracted a disease, injury or illness as a result of the work that triggered the need for health monitoring
  - any recommended remedial measures, including whether the worker can continue to carry out the work
- all other persons conducting a business or undertaking who have a duty to provide health monitoring for that worker.

Reports must be kept as a confidential record for at least 40 years after the record is made and identified as a formal record for the particular worker. The report and results must not be disclosed to anyone unless the worker has provided their written consent. However, if the person was releasing the record under a duty of professional confidentiality, the worker's written consent is not required.

6.3 TRAINING WORKERS ABOUT ASBESTOS OR ACM

Regulation 39: A person conducting a business or undertaking must ensure that information, training and instruction provided to a worker is suitable and adequate, having regard to:

- the nature of the work carried out by the worker
- the nature of the risks associated with the work at the time the information, training or instruction is provided
- the control measures implemented.

The person must, so far as is reasonably practicable, ensure the information, training and instruction is provided in a way that is readily understandable by any person to whom it is provided.

Regulation 445: A person conducting a business or undertaking must ensure workers who they reasonably believe may be involved in asbestos removal work in the workplace or the carrying out of asbestos-related work are trained in the identification, safe handling and suitable control measures for asbestos and ACM.

This training may include the following topics:

- purpose of the training
- health risks of asbestos
- types, uses and likely presence of asbestos in the workplace
- persons conducting a business or undertaking and the worker's roles and responsibilities under the asbestos management plan
- where the asbestos register is located, how it can be accessed and how to understand the information contained in it
- processes and safe work procedures to be followed to prevent exposure, including exposure from any accidental release of airborne asbestos
- where applicable, the correct use of PPE including respiratory protective equipment (RPE)
- the implementation of control measures and safe work methods to eliminate or minimise the risks associated with asbestos to limit the exposure to workers and other persons
- exposure standard and control levels for asbestos
- purpose of any exposure monitoring or health monitoring that may occur.

This training is more general than the training that a worker undertaking asbestos removal work would receive. Workers who are undertaking licensed asbestos removal work are required to complete specific units of competency. Further information on these specific training requirements is available in the ***Code of Practice: How to Safely Remove Asbestos*****.**

Records of all training must be kept while the worker is carrying out the work and for five years after the day the worker stops carrying out the work. These records must also be available for inspection by Comcare.

6.4 LIMITED USE OF EQUIPMENT

Regulation 44: A person conducting a business or undertaking must not use, or direct or allow a worker to use, specific equipment on asbestos or ACM unless the use of the equipment is controlled.

High-pressure water spray and compressed air must not be used on asbestos or ACM. However, high-pressure water spray can be used for fire fighting or fire protection. Power tools, brooms and any other equipment or tool that may release airborne asbestos in the workplace may only be used if it is controlled by it being:

- enclosed
- designed to capture or suppress airborne asbestos
- used in a way that is designed to capture or suppress airborne asbestos safely.

A combination of the controls mentioned above may be required to ensure that airborne asbestos is not generated.

Refer to **Section 7.4 of this Code** for further information on tools and equipment.

7. CONTROLLING THE RISKS

As mentioned in **Chapter 3 of this Code**, to eliminate risk of exposure, or if this is not reasonably practicable, minimising them so far as is reasonably practicable, a risk management process should be followed that involves identifying whether asbestos or ACM is at a workplace and including them in the asbestos register, assessing the risk of exposure and then implementing appropriate control measures.

When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

- eliminating the risk (for example, removing the asbestos)
- substituting for the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools)
- using administrative controls (for example, safe work practices)
- using PPE.

A combination of these controls may be required in order to adequately manage and control asbestos or ACM.

7.1 REMOVING ASBESTOS

The ultimate goal is to have a workplace free from asbestos. Removal may be the most appropriate way to achieve this. For example:

- ***Friable asbestos*** – If asbestos is friable and it has been determined that it should be removed, it must be removed by a Class A licensed removalist as soon as reasonably practicable. Instances where removal should be of the highest priority would include friable asbestos that is in poor condition and is located in an area where it poses a significant risk of exposure.
- ***Non-friable asbestos*** – If asbestos is non-friable, is more than 10 m² and has been determined that it should be removed, it must be removed by a licensed asbestos removalist as soon as reasonably practicable. Where it is not reasonably practicable to remove it, control measures must be put in place to eliminate any exposure, so far as is reasonably practicable, or to minimise exposure so far as is reasonably practicable, but always ensuring the exposure standard is not exceeded.

Specific instances where removal may be the best control measure include:

- asbestos lagging on pipes
- asbestos in plant
- asbestos-contaminated dust (ACD)
- loose fibre insulation
- cracked or damaged fibreboard containing asbestos.

The ***Code of Practice: How to Safely Remove Asbestos*** provides detailed guidance on appropriate work methods and additional controls for the removal of asbestos.

If it is not reasonably practicable to remove asbestos, then other control measures must be implemented to ensure people are not exposed to airborne asbestos, including either enclosing or sealing the asbestos.

7.2 ENCLOSING ASBESTOS

Where it is not reasonably practicable to remove asbestos, the preferred alternative control measure is enclosure.

This may be determined during the risk assessment by reviewing a range of issues including productivity, the condition of the asbestos, the risk it poses to health and cost. This is an interim control measure and should be supported through regular inspections by a competent person to identify if the asbestos requires removal due to damage or deterioration.

What is enclosure?

Enclosure is the creation of a structure built around the asbestos so that it is completely covered to prevent exposure of the asbestos to air and other substances. Enclosure creates a separate physical barrier that prevents access to the asbestos and therefore minimises the potential for exposure to airborne fibres. Enclosure should only be used on non-friable asbestos where removal is not reasonably practical and where the asbestos is at risk of damage from work activities. Consideration must be given when designing the enclosure for the need to provide access to the asbestos for regular inspection of its condition.

Example of enclosure of asbestos as a control measure:
A large dockside warehouse used for temporarily storing quantities of grain and stockfeed has walls made from a variety of materials, including AC sheet. Apart from the driver of a large front-end loader that is briefly driven into the warehouse to load or unload the feed, there are no other workers who work in the warehouse. An inspection of the AC sheet identifies that it is in good condition and noted that areas of previous minor damage (broken sheets) have been repaired appropriately and there is minimal risk of fibre release. However, it is decided there is a chance the sheets may be damaged again and if so, a risk to health may occur if fibres are released. A solid false wall is constructed to enclose the AC sheet and bollards are erected in front of the new wall to prevent collisions that may occur when the front-end loader is operating inside the warehouse. These changes are included in the asbestos register. The condition of the AC sheet is also monitored as well as the newly installed control measure.

7.3 ENCAPSULATION AND SEALING ASBESTOS

If the asbestos cannot be removed or enclosed, encapsulation or sealing is the next appropriate control measure. For example, if the asbestos is weathered, damaged or broken, it should be removed.

What is encapsulation?

Asbestos that is encapsulated in a resilient matrix, for example in reinforced plastics, vinyls, resins, mastics, bitumen, flexible plasters and cements have little opportunity to release airborne asbestos unless the matrix is damaged. This type of encapsulation will seal any loose fibres into place and should be used only when the original asbestos bond is still intact. Although encapsulation has limited application and can create a health risk for workers undertaking the activity, it is used when it would create a greater risk to remove the asbestos.

Encapsulation helps protect the asbestos from mechanical damage, increases the length of serviceability of the product and may also be used to prevent the release of airborne asbestos during the removal process.

If encapsulation is recommended, the person carrying out the work should:

- be trained and experienced in working with asbestos
- isolate the area

- use suitable RPE that complies with AS/NZS 1716:2003 *Respiratory Protective Devices*
- wear suitable protective clothing such as disposable overalls
- follow a safe system of work that reduces the risk of creating airborne asbestos
- follow a decontamination procedure upon completion of the task.

What is sealing?

Sealing is the process of covering the surface of the material with a protective coating over the asbestos to prevent exposure to airborne asbestos. Sealing asbestos is the least effective method for controlling the release of airborne asbestos. It should only be considered as an interim control while a more effective control such as removing or enclosing can be implemented. It is commonly used for pipe, furnace and boiler insulation. The process either coats the material, reducing fibre release, or binds the fibres together. Asbestos should be sealed, coated or painted to protect it. Sealing is inappropriate where the sealed material is likely to suffer mechanical damage (for example, drilling or sanding).

It is important to select coating that is appropriate to the material to be sealed and has the required fire resistance, thermal insulation and ultraviolet (UV) properties necessary for it to be an effective control. The coating will deteriorate if it is exposed to chemicals, extreme heat or cold, wet or dry conditions or physical impacts. For example, epoxy-based paints offer better durability and strength than other paints.

Under no circumstances should asbestos be water blasted or dry sanded in preparation for painting, coating or sealing, as there is no system of use that can effectively capture or suppress asbestos fibres in such circumstances. To treat asbestos, a method should be used that does not disturb the asbestos.

An airless sprayer at low pressure is preferred to rollers or brushes on exposed (or unsealed) asbestos, as rollers and brushes may cause abrasion/damage and result in fibres being released from the surface of the material. When using a spray brush, never use a high-pressure spray to apply the paint. You should apply it with a dry airless spray using a low pressure to avoid generating high levels of asbestos dust. Several coatings may be needed for full protection.

The surface on which the sealant is to be applied should be cleaned with an asbestos vacuum cleaner fitted with a high efficiency particulate air (HEPA) filter. This will help capture any

loose dust or debris from the surface and ensure good adhesion of the sealant. The surface during application should not be disturbed as this releases asbestos dust.

The use of sealants of a different colour to the asbestos being sprayed is helpful in identifying its condition over time and when conducting reviews of the asbestos register. A date-stamped photograph of the sealed surface is also a good way of assisting in the recording of condition.

Example of sealing asbestos as a control measure:
The extensive water pipe system in a large industrial workplace consists of AC piping and conduits. Some of the pipes are located underground, some within inaccessible areas such as walls, and others run aboveground throughout the workplace and are exposed. Connected to some of these pipes in the workplace are control valves that need to be accessed occasionally. Over time, as some of the AC pipes have deteriorated or been damaged, and where practicable to do so, sections of pipe have been removed to reduce the risk. Where a risk still remained, the pipes are enclosed so far as is reasonably practicable to reduce the risk further. Where control valves were connected and the AC pipe was in good condition, it was determined that it was not practicable to remove the asbestos due to lack of available replacement parts, nor was it practicable to enclose the asbestos because access was occasionally required. In this case, sealing the surface of the AC pipes near control valves with an epoxy-based paint to protect the material from deterioration and reduce the risk of airborne asbestos fibres was an appropriate option.

7.4 TOOLS AND EQUIPMENT

As mentioned in **Section 6.4 of this Code**, certain equipment must not be used on asbestos. It is therefore important to select the correct equipment to minimise the generation of airborne asbestos.

Manually operated (non-powered) hand tools should be used wherever possible. If they will not provide sufficient physical force to perform the required operation, low-speed, battery-powered tools that are able to be used in conjunction with wet methods for dust control are preferred.

Battery-powered tools should be fitted with a Local Exhaust Ventilation (LEV) dust control hood wherever possible. If an LEV dust control hood cannot be attached and other dust control methods—including pastes and gels—are unsuitable, then shadow vacuuming techniques should be used.

Where power tools with dust suppression/extraction are used, exposure monitoring should be carried out to ensure the controls

used are effective in reducing the generation of fibres. It is good practice to ensure that the levels of airborne fibres do not exceed one half of the exposure standard (0.1 fibres/ml). If more than half the exposure standard is exceeded, work should be stopped and improvements made to the controls being used.

The use of high-pressure water and compressed air is prohibited under the WHS Regulations as they can cause asbestos to become friable.

Asbestos vacuum cleaners

Asbestos vacuum cleaners should comply with the requirements in **AS/NZS 60335.2.69:2003** ***Household and similar electrical: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use*** **(IEC 60335-2-69 Ed 3.2 MOD)**.

Household vacuum cleaners must never be used where asbestos is or may be present, even if they have a HEPA filter.

More comprehensive information about asbestos vacuum cleaners is provided in the ***Code of Practice: How to Safely Remove Asbestos***.

7.5 SAFE WORK PRACTICES

It is important that safe work practices are in place when carrying out asbestos work or asbestos-related work. Wherever possible, dry asbestos should not be worked on. Techniques that prevent or minimise the generation of airborne asbestos fibres include:

- the wetting of asbestos using surfactants or wetting agents, such as detergent water
- the use of thickened substances, pastes and gels, including hair gel and shaving cream, to cover the surfaces of asbestos being worked on (these substances should be compatible with the conditions of use, including the temperature, and should not pose a risk to health)
- the use of shadow vacuuming
- performing the task in a controlled environment (for instance, a ventilated enclosure).

When selecting the best technique, the work should first be assessed for any electrical hazards that might result from the use of water or other liquids. If an electrical hazard exists, primary consideration should be given to removing the asbestos, rather than relying on dry work methods.

If asbestos-related work or maintenance or service tasks are assessed by a competent person as involving similar levels of risk, they too may be performed only after the risks for that task have been assessed and appropriate control measures implemented.

The use of high-speed abrasive power and pneumatic tools, including angle grinders, sanders and saws, and high-speed drills, is prohibited under the WHS Regulations, except where used with dust suppression/extraction controls. These controls include local exhaust ventilation (LEV) dust control hoods that attach to the tool and isolate the area being worked on (drilled, sanded etc.) from the environment, ensuring that the dust is captured.

Appendix F outlines examples of safe work practices of service and maintenance tasks that are likely to disturb asbestos and control measures that have been implemented to eliminate or minimise exposure to airborne asbestos.

7.6 PERSONAL PROTECTIVE EQUIPMENT

PPE will need to be used, in combination with other effective control measures, when working with asbestos. The selection and use of PPE should be based on a risk assessment.

If work with asbestos requires the use of other chemicals that are themselves hazardous chemicals, a further risk assessment must be performed. Safety data sheets (SDS) must be referred to for information on appropriate PPE to use and any other precautions to take when using the chemicals (the manufacturer or importer of a hazardous chemical must supply an SDS on request).

The ease of decontamination should be one of the factors considered when choosing PPE.

For PPE that is not clothing and cannot be disposed of, it must be decontaminated and kept in a sealed container until it is reused for the purposes of asbestos-related work.

Further information on decontamination and asbestos waste disposal is available in the ***Code of Practice: How to Safely Remove Asbestos***.

Coveralls

- Protective clothing should be made from material capable of providing adequate protection against fibre penetration.
- When selecting protective clothing, other hazards—including heat stress, fire and electrical hazards—should also be considered.

- Disposable coveralls with fitted hoods and cuffs should be worn. Coveralls with open pockets and/or velcro fastenings should not be used, because these features can be contaminated and are difficult to decontaminate. Fitted hoods should always be worn over the straps of respirators and loose cuffs should be sealed with tape. Disposable coveralls rated type 5, category 3 (prEN ISO 13982–1) or equivalent would meet this standard.
- Asbestos fibres must be prevented from being transported outside the workplace by thoroughly vacuuming asbestos fibres from work clothes using an asbestos vacuum cleaner or, depending on the level of contamination and risk, the use of a water spray bottle or damp cloths may be appropriate.
- Disposable coveralls need to be of a suitable standard to prevent penetration of asbestos fibres so far as is practicable. Disposable coveralls rated type 5, category 3 (prEN ISO 13982-1) or the equivalent would meet this standard.
- Non-disposable coveralls are not recommended and would require specialist laundering if used.
- Any clothing worn under coveralls must be disposed of or suitably bagged for laundering as asbestos-contaminated clothing.

Footwear and gloves

- Laced boots should be avoided as they can be difficult to clean and asbestos dust can gather in the laces and eyelets. Laceless boots such as gumboots are preferred where practicable. If boot covers are worn, they should be of a type that has anti-slip soles to reduce the risk of slipping.
- Safety footwear must be decontaminated before being removed from the asbestos work area or sealed in double bags, the exterior of which is decontaminated, for use only on the next asbestos maintenance task. Alternatively, work boots that cannot be effectively decontaminated should be disposed of as asbestos waste at the end of the work.
- The use of protective gloves should be determined by a risk assessment. If significant amounts of asbestos fibres may be present, disposable gloves should be worn. Protective gloves can be unsuitable if dexterity is required. Personal decontamination including hand and fingernail washing should be carried out each

time workers leave the asbestos work area and at the completion of asbestos maintenance and service work. Any gloves used must be disposed of as asbestos waste.

Respiratory protective equipment (RPE)

- In general, the selection of suitable RPE depends on the nature of the asbestos work, the probable maximum concentrations of asbestos fibres that would be encountered in this work and any personal characteristics of the wearer that may affect the facial fit of the respirator (for example, facial hair and glasses).
- A competent person should determine the most efficient respirator for the task.
- RPE should comply with AS/NZS 1716-2003 *Respiratory Protective Devices* and be selected, used and maintained in accordance with AS/NZS 1715-1994 *Selection, Use and Maintenance of Respiratory Protective Devices*. They must always be worn under fitted hoods. Face pieces should be cleaned and disinfected.
- RPE should be used until all contaminated disposable coveralls and clothing has been vacuum cleaned and/or removed and bagged for disposal and personal washing has been completed. RPE should be properly stored when not in use.
- More comprehensive advice on RPE is provided in the ***Code of Practice: How to Safely Remove Asbestos***.

7.7 LAUNDERING CLOTHING

Disposable coveralls should be used as protective clothing unless it is not reasonably practicable to do so. When non-disposable protective clothing is used, the contaminated clothing must be laundered in a suitable laundering facility that is equipped to launder asbestos-contaminated clothing. Contaminated protective clothing must not be laundered in homes. Any clothing worn under coveralls must be disposed of or suitably bagged for laundering as asbestos-contaminated clothing.

The laundering facility that is equipped to launder asbestos-contaminated clothing:

- should be informed of the asbestos contamination
- should have a management plan in place to control the release of respirable fibres

- should be constructed of smooth surfaces that are able to be lined with polythene sheeting or easily wiped clean
- may use conventional washing machines provided they are not used for other clothing
- may need to have a laundry room that is under negative pressure to eliminate or minimise the release of airborne asbestos fibres during the laundering process. This can be determined during the risk assessment
- should have procedures established for cleaning up spills and for the prevention of flooding of neighbouring areas.

The contaminated clothing should:

- be removed damp and thoroughly wet, then placed in impermeable containers or bags the outside of which are decontaminated and labelled to indicate the presence of asbestos before being sent to the commercial laundering facility
- not be allowed to dry out before washing.

At the laundry facility:

- the containers and bags holding the asbestos contaminated clothing should be opened in the washing machine while being further saturated. As a minimum, P1 respiratory protection must be worn while unloading clothes into the washing machine
- the empty containers or bags should be disposed of as asbestos waste. Waste water must be filtered and the filtering medium disposed of as asbestos waste.

7.8 CLEANING UP

Following any asbestos work carried out, there are requirements to ensure the work area, tools and workers are decontaminated and asbestos waste is disposed of properly. In addition to this, for licensed removal work a clearance certificate will be required before the work area can be reoccupied for ordinary use.

The ***Code of Practice: How to Safely Remove Asbestos*** provides details on decontamination and waste disposal.

APPENDIX A – SAMPLING PROCESS

A competent person should take the following steps to carry out sampling:

Step 1 – Preparation

- Make sure no one else is in the vicinity when sampling is done.
- Shut down any heating or cooling systems to minimize the spread of any released fibres.
- Turn off any fans if you're inside. If outside, then sample on a non windy day.
- Do not disturb the material any more than is needed to take a small sample.
- Collect the equipment you will need for sampling, including:
    - pliers, resealable plastic bags, disposable coveralls, waterproof sealant, plastic drop sheet, water spray bottle
    - P2 respirator, rubber gloves.

Step 2 – Taking the sample

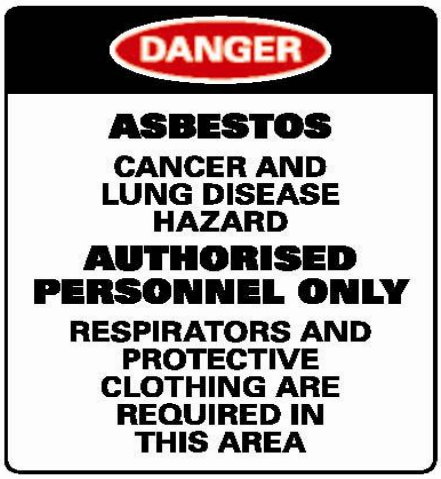
- Wear disposable gloves.
- Put on respiratory protective equipment (RPE).
- Wear a pair of disposable coveralls.
- Lay down a plastic drop sheet to catch any loose material that may fall off while sampling.
- Wet the material using a fine mist of water containing a few drops of detergent before taking the sample. The water/detergent mist will reduce the release of asbestos fibres.
- Carefully cut a thumb nail piece from the entire depth of the material using the pliers.
- For fibre cement sheeting, take the sample from a corner edge or along an existing hole or crack.
- Place the small piece into the resealable plastic bag.
- Double bag the sample, include the date and location and an asbestos caution warning.
- Tightly seal the container after the sample is in it.
- Carefully dispose of the plastic sheet.
- Use a damp paper towel or rag to clean up any material on the outside of the container or around the area sampled.
- Dispose of asbestos materials according to state or territory and local procedures.
- Patch the sampled area with the smallest possible piece of duct tape to prevent fibre release.

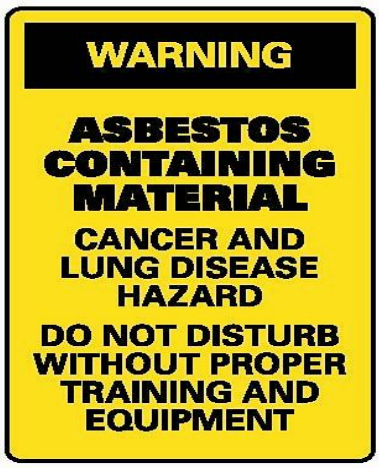
- Send the sample to a NATA-accredited laboratory or one that is either approved or operated by the relevant regulator.

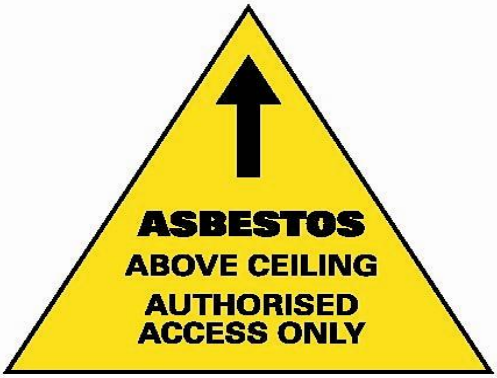
Step 3 – Cleaning up

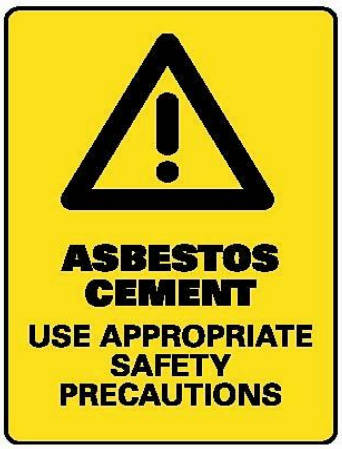
- Seal the edges with waterproof sealant where the sample was taken.
- Carefully wrap up the plastic drop sheet with tape and then put this into another plastic rubbish bag.
- Wipe down the tools and equipment with a dampened rag.
- Place disposable gloves and coveralls into a rubbish bag, along with the damp rag and drop sheet.
- Seal plastic bag.
- Wash hands.
- Keep RPE on until clean-up is completed.
- Follow a decontamination procedure (personal washing) upon completion of the task.

APPENDIX B – EXAMPLES OF WARNING SIGNS AND LABELS










DANGER
ASBESTOS
WASTE
DO NOT
INHALE DUST
MAY CAUSE
LUNG CANCER

APPENDIX C – TEMPLATE OF AN ASBESTOS REGISTER

ASBESTOS REGISTER					
Workplace address:			**Name of Competent Person:**		
Date of Identification	**Type of Asbestos**	**Is it Friable or Non-Friable?**	**Condition of Asbestos**	**Specific Location of Asbestos**	**Is this an inaccessible area?**

APPENDIX D – EXAMPLE OF AN ASBESTOS REGISTER

ASBESTOS REGISTER					
Workplace address: XYZ Manufacturing Unit 3A, Trading Estate West, Anytown 9001			**Name of Competent Person:** Jim Smith, Site OHS manager (01) 3293 4012		
Date of Identification	**Type of Asbestos**	**Is it Friable or Non-Friable?**	**Condition of Asbestos**	**Specific Location of Asbestos**	**Is this an inaccessible area?**
1/2/2011	AC Roof Sheeting	Non-friable	Good, minor deterioration on Western End	Whole Roof to main building	Not routinely accessed
1/2/2011	Fibro Wall Cladding	Non-friable	Sound condition structurally, paint lifting in some places	Exterior of main Building	Accessible. Unlikely to be damaged.
1/2/2011	Pipe Insulation	Friable	Cracked at bends in pipe	Plant Room: Behind boiler for water system	Only accessed by maintenance staff
1/2/2011	Cement Flue	Non-friable	Good condition, coated	Plant Room: On top of boiler	Only accessed by maintenance staff
1/2/2011	Floor Tiles	Non-friable	Good condition, tiles under filing cabinet starting to lift	Main office, Asbestos backed vinyl floor tiles	Inaccessible

APPENDIX E – EXAMPLE OF ASBESTOS-RELATED WORK

WORKING WITH ASBESTOS FRICTION MATERIALS

The risk of exposure to significant amounts of dust that contains asbestos fibres may exist while removing and repairing brakes, clutches and high-temperature gaskets on motor vehicles.

If the following simple controls are applied carefully, it generally should not be necessary to carry out air monitoring in the workshop while servicing vehicle brakes, clutches and cylinder head/exhaust gaskets.

A HEPA-filter industrial vacuum cleaner should be certified by the manufacturer as fit for removal work and can be used to clean all asbestos dust from components and other parts in the immediate vicinity. It may be necessary to purchase or fabricate special hose nozzles to reach difficult areas to ensure components are effectively cleaned of asbestos. Any remaining dust needs to be removed with a wet rag.

A fine spray of water on the dust will dampen it and prevent it being dispersed. The component and parts in the immediate vicinity can then be wiped down with a wet rag. The rag can only be used once. It then needs to be placed in a plastic bag and into an asbestos waste disposal bin. Any spillage onto the workshop floor needs to be wiped up and disposed of in the same way. It is important that only a gentle misting spray is used as a coarse spray will disperse the asbestos fibres into the air.

A respirator certified by the manufacturer as suitable for asbestos dust (for example, a P1 or P2 disposable respirator) needs to be worn during the above cleaning processes.

Compressed air, water hoses and aerosol cans must not be used to clean asbestos dust off components in the open workshop as they will disperse large numbers of fibres into the air.

Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

DEDICATED ASBESTOS-HANDLING AREA

To minimise risks to other people, the area where asbestos components are cleaned and removed needs to be segregated and in a location where wind or cooling fans etc. will not disturb any dust. All workers must be provided with information and training on asbestos hazards, its presence and the safety procedures that must be followed.

For all removal:

- segregate the vehicle from surrounding removal work areas. Try to have at least three metres separation and avoid windy locations and cooling fans etc.
- use portable signs to indicate that asbestos removal is going on
- wear a P1 or P2 disposable respirator
- personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

BRAKE ASSEMBLY REPAIRS – VACUUM METHOD

- Use a HEPA-filter vacuum cleaner to clean the wheel prior to undoing the wheel nuts.
- Remove the wheel and vacuum any remaining dust on the wheel.
- Vacuum all dust off the brake assembly.
- Use a wet rag to wipe down all parts and remove final traces of dust.
- Vacuum any additional dust that is exposed during disassembly.
- Place the component and rags etc. into a plastic bag, seal or tie it and then place it into a marked plastic-lined disposal bin or skip.
- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

BRAKE ASSEMBLY REMOVAL – WET METHOD

- Place a tray or tape plastic sheeting on the floor under the removal area to catch spillage and assist in the clean-up.
- Use a saturated rag to wet down the wheel and wipe off dust prior to removing the wheel nuts.
- Remove the wheel and clean off any remaining dust with the wet rag.
- Use a saturated rag and gentle water mist to thoroughly damp down any dust on the brake assembly.
- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

BRAKE DISC PADS

- Use a saturated rag to wipe off exposed dust and dust exposed during disassembly. Wipe up any spillage on the floor.
- Place the component and rags etc. into a plastic bag, seal or tie it and then place it into a marked plastic-lined disposal bin or skip.

- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

CLUTCH REMOVAL AND REPAIRS

- After separating the gearbox from the engine, vacuum/wet-wipe inside the bell housing and around the pressure plate.
- On removal of the pressure plate and clutch plate, vacuum/wet-wipe the flywheel, housing and components; place used rags and removed components in a plastic bag and seal.
- Place this plastic bag into a marked plastic-lined disposal bin or skip.
- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

CYLINDER HEAD AND EXHAUST GASKETS

- If the gasket is damaged during separation of the components, wet it with water to control asbestos fibres.
- Keep the gasket wet and carefully remove it without using power tools.
- Wipe down the joint faces and the immediate area with a wet rag.
- Place the gasket and rag into a plastic bag and seal or tie it.
- Place this plastic bag into a marked plastic-lined disposal bin or skip.
- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

BRAKE SHOE

The process of removing asbestos-containing linings from brake shoes and clutch parts has the potential to release large quantities of asbestos fibres. All work involving power tools should be carried out within an enclosure that is fitted with an effective dust extraction and filtration system that will eliminate or minimise the release of airborne asbestos fibres. If components are to be hand-worked, carry out the following procedure:

- Undertake the work in a separate area away from other workers, preferably in a purpose-built enclosure.
- Thoroughly wet down the component to control dust/fibres.
- Wear PPE and RPE.
- Use local extraction to minimise the spread of dust/fibres.

- Control air monitoring must be carried out to determine respirable asbestos fibre exposure levels and the suitability of PPE.
- Clean up after removal with a vacuum cleaner and wet rag.
- Place waste asbestos into a plastic bag and seal or tie it.
- Place this plastic bag into a marked disposal bag, tie or seal it and place the bag into the marked plastic-lined disposal bin or skip (see disposal section below).
- Used respirators and overalls should not be worn away from the removal work area and need to be disposed of in the same way as asbestos waste.
- Personal decontamination should be carried out in accordance with the WHS Regulations and this Code.

APPENDIX F – RECOMMENDED SAFE WORKING PRACTICES

As a first priority, planning for the maintenance of asbestos at the workplace must include consideration of the removal of the asbestos as the most preferred control option. Where removed, products containing asbestos must be replaced with products that do not contain asbestos. Removal of asbestos products must be done in accordance with the ***Code of Practice: How to Safely Remove Asbestos***.

Below are some recommended safe working methods that demonstrate how control measures can be used when asbestos is present at the workplace:

- **Safe work practice 1** – Drilling for asbestos-containing material
- **Safe work practice 2** – Sealing, painting, coating and cleaning of asbestos-cement products
- **Safe work practice 3** – Cleaning leaf litter from gutters of asbestos cement roofs
- **Safe work practice 4** – Replace cabling in asbestos cement conduits or boxes
- **Safe work practice 5** – Working on electrical mounting boards (switchboards) containing asbestos
- **Safe work practice 6** – Inspection of asbestos friction materials.

SAFE WORK PRACTICE 1 – DRILLING OF ACM	
The drilling of asbestos cement sheeting can release asbestos fibres into the atmosphere, so precautions must be taken to protect the drill operator and other persons from exposure to these fibres. A hand drill is preferred to a battery-powered drill, because the quantity of fibres is drastically reduced if a hand drill is used.	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	• A non-powered hand drill or a low-speed battery-powered drill or drilling equipment. Battery-powered drills should be fitted with a local exhaust ventilation (LEV) dust control hood wherever possible. If an LEV dust control hood cannot be attached and other dust control methods such as pastes and gels are unsuitable then shadow vacuuming techniques should be used • Disposable cleaning rags • A bucket of water, or more as appropriate, and/or a misting spray bottle • Duct tape • Sealant • Spare PPE • A thickened substance such as wallpaper paste, shaving cream or hair gel • 200 µm plastic sheeting • A suitable asbestos waste container (e.g. 200 µm plastic bags or a drum, bin or skip lined with 200 µm plastic sheeting) • Warning signs and/or barrier tape • An asbestos vacuum cleaner • A sturdy paper, foam or thin metal cup, or similar (for work on overhead surfaces only).
PPE	• Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	• If the work is to be carried out at a height, appropriate precautions must be taken to prevent falls. • Ensure appropriately marked asbestos waste disposal bags are available. • Carry out the work with as few people present as possible. • Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. close door and/or use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. • If drilling a roof from outside, segregate the area below. • If access is available to the rear of the asbestos cement, segregate this area as well as above. • If possible, use plastic sheeting, secured with duct tape, to cover any surface within the asbestos work area that could become contaminated. • Ensure there is adequate lighting. • Avoid working in windy environments where asbestos fibres can be redistributed. • If using a bucket of water, do not resoak used rags in the bucket, as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.

Drilling vertical surfaces	• Tape both the point to be drilled and the exit point, if accessible, with a strong adhesive tape such as duct tape to prevent the edges crumbling. • Cover the drill entry and exit points (if accessible) on the asbestos with a generous amount of thickened substance. • Drill through the paste. • Use damp rags to clean off the paste and debris from the wall and drill bit. • Dispose of the rags as asbestos waste as they will contain asbestos dust and fibres. • Seal the cut edges with sealant. • If a cable is to be passed through, insert a sleeve to protect the inner edge of the hole.
Drilling overhead horizontal surfaces	• Mark the point to be drilled. • Drill a hole through the bottom of the cup. • Fill or line the inside of the cup with shaving cream, gel or a similar thickened substance. • Put the drill bit through the hole in the cup so that the cup encloses the drill bit, and make sure the drill bit extends beyond the lip of the cup. • Align the drill bit with the marked point. • Ensure the cup is firmly held against the surface to be drilled. • Drill through the surface. • Remove the drill bit from the cup, ensuring that the cup remains firmly against the surface. • Remove the cup from the surface. • Use damp rags to clean off the paste and debris from the drill bit. • Dispose of the rags as asbestos waste, as they will contain asbestos dust and fibres. • Seal the cut edges with sealant. • If a cable is to be passed through, insert a sleeve to protect the inner edge of the hole.
Decontaminating the asbestos work area and equipment	• Use damp rags to clean the equipment. • Carefully roll or fold any plastic sheeting used to cover any surface within the asbestos work area, so as not to spill any dust or debris that has been collected. • If necessary, use damp rags and/or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. • Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. • Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container.

	Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.

SAFE WORK PRACTICE 2 – SEALING, PAINTING, COATING AND CLEANING OF ASBESTOS-CEMENT PRODUCTS	
These tasks should only to be carried out on asbestos that are in good condition. For this reason, the ACM should be thoroughly inspected before starting the work. There is a risk to health if the surface of asbestos cement sheeting is disturbed (e.g. from hail storms and cyclones) or if it has deteriorated as a result of aggressive environmental factors such as pollution. If it is so weathered that its surface is cracked or broken, the asbestos cement matrix may be eroded, increasing the likelihood that asbestos fibres will be released. If treatment is considered essential, a method that does not disturb the matrix should be used. Under no circumstances should asbestos cement products be water blasted or dry sanded in preparation for painting, coating or sealing.	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	• Disposable cleaning rags • A bucket of water, or more as appropriate, and/or a misting spray bottle • Sealant • Spare PPE • A suitable asbestos waste container • Warning signs and/or barrier tape.
PPE	• Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed. Where paint is to be applied, appropriate respiratory protection to control the paint vapours/mist must also be considered.
Preparing the asbestos work area	• If work is being carried out at heights, precautions must be taken to prevent falls. • Before starting, assess the asbestos cement for damage. • Ensure appropriately marked asbestos waste disposal bags are available. • Carry out the work with as few people present as possible. • Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. close door and/or use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. • If working at a height, segregate the area below. • If possible, use plastic sheeting secured with duct tape to cover any floor surface within the asbestos work area which could become contaminated. This will help to contain any runoff from wet sanding methods. • Ensure there is adequate lighting. • If using a bucket of water, do not resoak used rags in the bucket, as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag. • Never use high-pressure water cleaning methods. • Never prepare surfaces using dry sanding methods. Where sanding is required, you should consider removing the asbestos and replacing it with a non-asbestos product. • Wet sanding methods may be used to prepare the

	asbestos, provided precautions are taken to ensure all the runoff is captured and filtered, where possible. • Wipe dusty surfaces with a damp cloth.
Painting and sealing	• When using a spray brush, *never* use a high-pressure spray to apply the paint. • When using a roller, use it lightly to avoid abrasion or other damage.
Decontaminating the asbestos work area and equipment	• Use damp rags to clean the equipment. • If required, use damp rags and/or an asbestos vacuum cleaner to clean the asbestos work area. • Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. • Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.

SAFE WORK PRACTICE 3 – CLEANING LEAF LITTER FROM GUTTERS OF ASBESTOS CEMENT ROOFS	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	• A bucket of water, or more as appropriate, and detergent • A watering can or garden spray • A hand trowel or scoop • Disposable cleaning rags • A suitable asbestos waste container • Warning signs and/or barrier tape • An asbestos vacuum cleaner.
PPE	• Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	• Since the work is to be carried out at a height, appropriate precautions must be taken to prevent the risk of falls. • Ensure appropriately marked asbestos waste disposal containers are available. • Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. • Segregate the area below. • Avoid working in windy environments where asbestos fibres can be redistributed. • If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Gutter cleaning	• Disconnect or re-route the downpipes to prevent any entry of contaminated water into the waste water system and ensure there is a suitable container to collect contaminated runoff. Contaminated water must be disposed of as asbestos waste. • Mix the water and detergent. • Using the watering can or garden spray, pour the water and detergent mixture into the gutter but avoid over-wetting as this will create a slurry. • Remove the debris using a scoop or trowel. Do not allow debris or slurry to enter the water system. • Wet the debris again if dry material is uncovered. • Place the removed debris straight into the asbestos waste container.
Decontaminating the asbestos work area and equipment	• Use damp rags to wipe down all equipment used. • Use damp rags to wipe down the guttering. • Where practicable, and if necessary, use an asbestos vacuum cleaner to vacuum the area below. • Place debris, used rags and other waste in the asbestos waste container. • Wet wipe the external surfaces of the asbestos waste container to remove any adhering dust before it is removed from the asbestos work area.

Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.

SAFE WORK PRACTICE 4 – REPLACE CABLING IN ASBESTOS CEMENT CONDUITS OR BOXES	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	• Disposable cleaning rags • A bucket of water, or more as appropriate, and/or a misting spray bottle • 200 µm thick plastic sheeting • Cable slipping compound • Appropriately marked asbestos waste disposal bags • Spare PPE • Duct tape • Warning signs and/or barrier tape • An asbestos vacuum cleaner.
PPE	• Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	• If the work will be carried out in a confined space, appropriate precautions must be taken to prevent the risk of asphyxiation. • Ensure appropriately marked asbestos waste disposal bags are available. • Carry out the work with as few people present as possible. • Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. • Use plastic sheeting secured with duct tape to cover any surface within the asbestos work area which could become contaminated. • Place plastic sheeting below any conduits before pulling any cables through. • Ensure there is adequate lighting. • Avoid working in windy environments where asbestos fibres can be redistributed. • If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Replacement or installation of cables	• Wet down the equipment and apply adequate cable slipping compound to the conduits/ducts throughout the process. • Clean all ropes, rods or snakes used to pull cables after use. Cleaning should be undertaken close to the point(s) where the cables exit from the conduits/ducts. • Ropes used for cable pulling should have a smooth surface that can easily be cleaned. • Do not use metal stockings when pulling cables through asbestos cement conduits. • Do not use compressed air darts to pull cables through asbestos cement conduits/ducts.
Decontaminating the asbestos work area and equipment	• Use damp rags to clean the equipment. • Wet wipe around the end of the conduit, sections of exposed cable and the pulling eye at the completion of the cable pulling operation. • If the rope or cable passes through any rollers, these must also be wet wiped after use. • Wet wipe the external surface of excess cable pulled through the conduit/duct, as close as possible to the exit

	point from the conduit, before it is removed from the work site. • Carefully roll or fold any plastic sheeting used to cover any surface within the asbestos work area, so as not to spill any dust or debris that has been collected. • If required, use damp rags or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. • Place all debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. • Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.

SAFE WORK PRACTICE 5 – WORKING ON ELECTRICAL MOUNTING BOARDS CONTAINING ASBESTOS	
If the asbestos-containing electrical mounting panel has to be removed for work behind the board, the procedures outlined in the *Code of Practice: How to Safely Remove Asbestos* must be followed. If drilling is required, the control process should be consistent with the measures in ***Safe Work Practice 1***.	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	• A non-powered hand drill or a low-speed battery-powered drill or drilling equipment. Battery-powered drills should be fitted with a LEV dust control hood wherever possible. If a LEV dust control hood cannot be attached and other dust control methods, such as pastes and gels, are unsuitable then shadow vacuuming techniques should be used • Duct tape • Warning signs and/or barrier tape • Disposable cleaning rags • A plastic bucket of water and/or a misting spray bottle • Spare PPE • A suitable asbestos waste container • 200 mm plastic sheeting • An asbestos vacuum cleaner.
PPE	• Protective clothing and RPE (see AS1715, AS 1716. It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	• As the work area will involve electrical hazards, precautions must be taken to prevent electrocution. • Ensure appropriately marked asbestos waste disposal bags are available. • Carry out the work with as few people present as possible. • Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. • Use plastic sheeting secured with duct tape to cover any surface within the asbestos work area which could become contaminated. • Ensure there is adequate lighting. • Avoid working in windy environments where asbestos fibres can be redistributed. • If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Work on electrical mounting panels	• Providing the panel is not friable, maintenance and service work may include: o replacing asbestos containing equipment on the electrical panel with non-asbestos equipment o operate main switches and individual circuit devices o pull/insert service and circuit fuses o bridge supplies at meter bases o use testing equipment o access the neutral link o install new components/equipment.
Decontaminating the	• Use damp rags to clean the equipment. • Carefully roll or fold any plastic sheeting used to cover any

asbestos work area and equipment	surface within the asbestos work area so as not to spill any dust or debris that has been collected. • If there is an electrical hazard, use an asbestos vacuum cleaner to remove any dust from the mounting panel and other visibly contaminated sections of the asbestos work area. • If there is no electrical hazard, wet wipe with a damp rag to remove minor amounts of dust. • Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. • Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.

SAFE WORK PRACTICE 6 – INSPECTION OF ASBESTOS FRICTION MATERIALS	
This guide may be used when friction ACM (e.g. brake assemblies or clutch housings) need to be inspected or housings need to be cleaned. Compressed air must not be used to clean dust from a brake assembly.	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	• A misting spray bottle • Duct tape • Warning signs and/or barrier tape • Disposable cleaning rags • A bucket of water and detergent • Spare PPE • A suitable asbestos waste container • A catch tray or similar container • An asbestos vacuum cleaner.
PPE	• Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	• Ensure appropriately marked asbestos waste disposal bags are available. • Carry out the work with as few people present as possible. • Determine whether to segregate the asbestos work area • Ensure unauthorised personnel are restricted from entry by using barrier tape and/or warning signs. • Use a suitable collection device below where the work will be carried out to collect any debris/ runoff. • Ensure there is adequate lighting. • Avoid working in windy environments where asbestos fibres can be redistributed. • If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Inspection of asbestos friction materials	• A misting spray bottle should be used to wet down any dust. If spray equipment disturbs asbestos, use alternative wetting agents e.g. a water-miscible degreaser or a water/detergent mixture. • Use the wet method, but if this is not possible the dry method may then be used. <u>Wet method:</u> • Use the misting spray bottle to wet down any visible dust. • Use a damp rag to wipe down the wheel or automobile part before removal. Ensure the dust is kept wet to prevent atmospheric contamination. • Use hand tools rather than power tools to reduce the generation of airborne fibres. • Partially open the housing and softly spray the inside with water using the misting spray bottle. Any spillage of dust, debris or water must be controlled (e.g. capturing any runoff in a container) and either filtered or disposed of as asbestos waste. • Open the housing and clean all asbestos parts using a damp rag, ensuring all runoff water is caught in an asbestos waste container.

	Dry method: • Place a tray under the components to catch dust or debris spilling from the housing or components during the inspection and dispose of any material as asbestos waste. • Use an asbestos vacuum cleaner to remove asbestos from the brakes and rims or other materials before carrying out the inspection.
Decontaminating the asbestos work area and equipment	• Use damp rags to clean the equipment, including the dust collection tray. • If necessary, use damp rags or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. • Place debris, used rags and other waste in the asbestos waste bags/container. • Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before removing them from the asbestos work area.
Personal decontamination should be carried out in a designated area	• If disposable coveralls are worn, clean the coveralls and RPE while still wearing them using an asbestos vacuum cleaner, damp rag or fine-water spray. RPE can be cleaned with a wet rag/cloth. • While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. • Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the ***Code of Practice: How to Safely Remove Asbestos*** for more information.
Clearance procedure	• Visually inspect the asbestos work area to make sure it has been properly cleaned. • Clearance air monitoring is not normally required for this task. • Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

HOW TO SAFELY REMOVE ASBESTOS

Code of Practice

TABLE OF CONTENTS

FOREWORD

This Code of Practice on how to safely remove asbestos is an approved code of practice under section 274 of the *Work Health and Safety Act 2011* (the WHS Act).

An approved code of practice is a practical guide to achieving the standards of health, safety and welfare required under the WHS Act and the *Work Health and Safety Regulations 2011* (the WHS Regulations).

A code of practice applies to anyone who has a duty of care in the circumstances described in the code. In most cases, following an approved code of practice would achieve compliance with the health and safety duties in the WHS Act, in relation to the subject matter of the code. Like regulations, codes of practice deal with particular issues and do not cover all hazards or risks that may arise. 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 Regulations. Courts may regard a code of practice as evidence of what is known about a hazard, risk or control and may rely on the code in determining what is reasonably practicable in the circumstances to which the code relates.

The WHS Act and Regulations may be complied with by following another method, such as a technical or an industry standard, 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.

This Code of Practice is based on the draft code of practice developed by Safe Work Australia as a model code of practice under the Council of Australian Governments' *Inter-Governmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety* for adoption by the Commonwealth, state and territory governments.

A draft of that model code of practice was released for public consultation on 7 December 2010 and was endorsed by the Workplace Relations Ministers' Council on 10 August 2011.

SCOPE AND APPLICATION

This Code of Practice provides practical guidance for persons conducting a business or undertaking who have duties under the WHS Act and WHS Regulations to safely remove asbestos from all workplaces including structures, plant and equipment.

A person conducting a business or undertaking may be an asbestos removalist who may carry out asbestos removal work that does not require a licence, Class A asbestos removal work or Class B asbestos removal work. This could include both asbestos removal companies and those persons who may carry out small asbestos removal jobs and may not have an asbestos licence, for example tradespersons.

It is recommended that other persons with responsibility—for example, a person conducting a business or undertaking who commissions removal work at a workplace (person who commissions removal work)—should read this Code to ensure they are aware of mandatory requirements.

This Code of Practice may also be used by workers and their health and safety representatives and other persons affected by asbestos removal work, for example neighbours.

It is important to read the ***Code of Practice: How to Manage and Control Asbestos in the Workplace,*** as it provides specific guidance on identifying asbestos or asbestos containing material (ACM) in the workplace, determining whether removal is the best control option and implementing other control measures if removing asbestos is not the most appropriate action to take.

Some chapters of this Code will apply to asbestos that is present in domestic premises where the premises becomes a workplace.

How to use this Code of Practice

In providing guidance, the word 'should' is used in this Code of Practice to indicate a recommended course of action, while 'may' is used to indicate an optional course of action.

This Code of Practice also includes various references to provisions of the WHS Act and Regulations to provide context with legal requirements. These references are not exhaustive. The words 'must', 'requires' or 'mandatory' indicate that these legal requirements exist and must be complied with.

1. INTRODUCTION

1.1 WHO HAS HEALTH AND SAFETY DUTIES WHEN REMOVING ASBESTOS?

The WHS Act requires all persons who conduct a business or undertaking to ensure, so far as is reasonably practicable, that workers and other persons are not put at risk from work carried out as part of the business or undertaking.

The person conducting a business or undertaking must also ensure so far as is reasonably practicable that exposure of a person at the workplace to airborne asbestos is eliminated. If this is not reasonably practicable, the exposure must be minimised so far as is reasonably practicable. The exposure standard for asbestos must not be exceeded.

The WHS Regulations include specific obligations for a number of duty holders in relation to safely removing asbestos. These duties are summarised in **Chapters 2 and 3 of this Code**.

Officers, such as company directors, have a duty to exercise due diligence to ensure that the business or undertaking complies with the WHS Act and WHS Regulations. This includes taking reasonable steps to ensure that the business or undertaking has and uses appropriate resources and processes to eliminate or minimise risks associated with asbestos.

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. They must comply with any reasonable instruction and cooperate with any reasonable policy or procedure relating to health and safety at the workplace. If personal protective equipment (PPE) is provided by the person conducting the business or undertaking, the worker must use it in accordance with information, instruction and training provided on their use.

Consultation

There are a number of specific duties in both the WHS Act and WHS Regulations that require consultation with others throughout the asbestos removal process. Communicating and consulting with a range of people helps to increase the awareness of the potential health and safety risks of asbestos.

An asbestos removalist must consult with persons who may be affected by the asbestos removal work, as well as other responsible persons at the workplace, to eliminate or minimise the exposure to the risks associated with asbestos, for example site management or the project manager, workers, health and safety representatives, contractors, building occupants and others. This also includes speaking with neighbours and other

businesses where the asbestos removal work is occurring at domestic premises.

Further guidance on consultation is available in the ***Code of Practice: Work Health and Safety Consultation, Cooperation and Coordination***.

1.2 THE MEANING OF KEY TERMS

Airborne asbestos means any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.

Asbestos means the asbestiform varieties of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals, including actinolite asbestos, grunerite (or amosite) asbestos (brown), anthophyllite asbestos, chrysotile asbestos (white), crocidolite asbestos (blue) and tremolite asbestos.

Asbestos containing material (ACM) means any material or thing that, as part of its design, contains asbestos.

Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or assumed to be) contaminated with asbestos.

Asbestos-related work means work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulations applies) that is permitted under the exceptions set out in regulation 419(3), (4) and (5).

Asbestos removalist means a person conducting a business or undertaking who carries out asbestos removal work.

Asbestos removal work means:

- work involving the removal of asbestos or ACM
- Class A asbestos removal work or Class B asbestos removal work as outlined in Part 8.10 of the WHS Regulations.

Competent person in relation to carrying out clearance inspections under regulation 473 means a person who has acquired through training or experience the knowledge and skills of relevant asbestos removal industry practice and holds a certification in relation to the specified VET course for asbestos assessor work or a tertiary qualification in occupational health and safety, occupational hygiene, science, building, construction or environmental health. For all other purposes, competent person means a person who has acquired through training, qualification or experience, the knowledge and skills to carry out the task.

Exposure standard for asbestos is a respirable fibre level of 0.1 fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours in accordance with:

- the Membrane Filter Method
- a method determined by Comcare.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

GHS means *Globally Harmonised System of Classification and Labelling of Chemicals, Third revised edition, published by the United Nations as modified under Schedule 6 of the WHS Regulations*.

Licensed asbestos assessor means a person who holds an asbestos assessor licence.

Licensed asbestos removalist means a person conducting a business or undertaking who is licensed under the WHS Regulations to carry out asbestos removal work.

Naturally occurring asbestos (NOA) means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediment or soil.

Non-friable asbestos means material containing asbestos that is not friable, including material containing asbestos fibres reinforced with a bonding compound.

Respirable asbestos means an asbestos fibre that:

- is less than 3 microns (µm) wide
- more than 5 microns (µm) long
- has a length to width ratio of more than 3:1.

1.3 LICENCE REQUIREMENTS FOR ASBESTOS REMOVAL WORK

Regulation 458: The WHS Regulations require a person conducting a business or undertaking who commissions the removal of asbestos at the workplace to ensure asbestos removal work is carried out only by a licensed asbestos removalist who is appropriately licensed to carry out the work, unless specified in the WHS Regulations that a licence is not required.

There are two types of licences: Class A and Class B. The type of licence required will depend on the type and quantity of asbestos or ACM that is being removed at a workplace.

Type of licence	What asbestos can be removed?
Class A	Can remove any amount or quantity of asbestos or ACM, including: • any amount of friable asbestos or ACM • any amount of ACD • any amount of non-friable asbestos or ACM.
Class B	Can remove: • any amount of non-friable asbestos or ACM (Note: A Class B licence is required for removal of more than 10 m^2 of non-friable asbestos or ACM but the licence holder can also remove up to 10 m^2 of non-friable asbestos or ACM). • ACD associated with the removal of non-friable asbestos or ACM. (Note: A Class B licence is required for removal of ACD associated with the removal of more than 10 m² of non-friable asbestos or ACM but the licence holder can also remove ACD associated with removal of up to 10m² of non-friable asbestos or ACM.

No licence required	Can remove:
	• up to 10 m^2 of non-friable asbestos or ACM
	• ACD that is:
	  ○ associated with the removal of less than 10 m^2 of non-friable asbestos or ACM
	  ○ not associated with the removal of friable or non-friable asbestos and is only a minor contamination.

Examples where a licence is not required to perform asbestos removal work

- A single asbestos cement sheet must be removed to install an air conditioner. The sheet is two square metres in total. This job may be performed by a company that is not a licensed asbestos removalist, observing the requirements outlined in Chapter 2.
- A self-employed person is required to remove an asbestos cement eave to enable access for pipes. The asbestos cement eave is 1.6 square metres in total. This job may be performed by the self-employed person who is not a licensed asbestos removalist, observing the requirements outlined in Chapter 2.

Examples of Class A or B licensed asbestos removal work

- A person is engaged to remove asbestos cement sheets from a factory toilet block. The area to be removed is 12 m² in total. The person must be a licensed asbestos removalist and the material to be removed is non-friable so the work can be done by a Class A or Class B licensed asbestos removalist.

- A company is required to remove 0.5 m³ of asbestos lagging from a pipe in order to carry out maintenance work. This involves the removal of friable asbestos. A Class A licensed asbestos removalist is required to do this work.

Licensed asbestos assessor

The WHS Regulations require that a person must hold an asbestos assessor licence to conduct the following:

- air monitoring for Class A asbestos removal work
- clearance inspections for Class A asbestos removal work
- issuing clearance certificates in relation to Class A asbestos removal work.

A licensed assessor can also carry out a number of other tasks including identifying asbestos, carrying out a risk assessment or reviewing an asbestos register.

1.4 HEALTH MONITORING DUTIES

Regulations 435-444: The WHS Regulations require a person conducting a business or undertaking to ensure health monitoring is provided to a worker if they are carrying out licensed asbestos removal work, other ongoing asbestos removal work or asbestos-related work and is at risk of exposure to asbestos when carrying out the work.

Health monitoring includes a medical examination to provide an initial baseline medical assessment. The medical examination should be performed in accordance with the ***Guidance: Health Monitoring [under development***].

Health monitoring must include the following (unless another form of health monitoring is recommended by a registered medical practitioner):

- consideration of the worker's demographic, medical and occupational history
- consideration of records of the worker's personal exposure
- a physical examination of the worker with emphasis on the respiratory system, including standardised respiratory function tests, unless another form of health monitoring is recommended by a registered medical practitioner.

Workers must be informed of any health monitoring requirements before the worker carries out work that may expose them to asbestos.

When should health monitoring occur?

Where a worker is at risk of exposure to asbestos due to work other than licensed asbestos removal, health monitoring must also be undertaken. Examples of work where there is a risk of exposure include ongoing unlicensed removal work, undertaking maintenance work on ACM regularly as part of another job (for instance, electricians or building maintenance staff in older buildings) and carrying out asbestos-related work. The need for health monitoring for these workers should be determined on the basis of:

- the potential for exposure
- the frequency of potential exposure
- the duration of the work being undertaken.

If a worker is carrying out licensed asbestos removal work, the health monitoring must be conducted prior to the worker commencing the work. Health monitoring should also be provided to the worker at regular intervals after commencing the asbestos-related work but at least once every two years.

Who can carry out health monitoring?

Health monitoring must be carried out under the supervision of a registered medical practitioner with the relevant competencies. Prior to deciding who the registered medical practitioner will be, the person conducting a business or undertaking must consult the worker.

Who pays for health monitoring?

The person conducting a business or undertaking must pay all expenses relating to health monitoring.

Where there are two or more persons that have a duty to provide health monitoring to a worker, they may choose that one person organises health monitoring (known as the person who commissions the health monitoring), however the costs must be shared equally between each person unless they agree otherwise.

What information must be provided to the registered medical practitioner?

The person who commissions health monitoring must provide the following information to the registered medical practitioner:

- their name and address
- the name and date of birth of the worker

- a description of the work the worker is, or will be, carrying out that has triggered the requirement for health monitoring
- whether the worker has started the work or, if the worker has commenced carrying out the work, how long this has been for.

Health monitoring report

A person who commissions health monitoring must take all reasonable steps to obtain a report from the registered medical practitioner as soon as practicable after the monitoring is carried out.

The health monitoring report must include the following information:

- the name and date of birth of the worker
- the name and registration number of the registered medical practitioner
- the name and address of the person conducting the business or undertaking who commissioned the health monitoring
- the date of the health monitoring
- any advice that test results indicate the worker may have contracted a disease, injury or illness as a result of carrying out the work that triggered the need for health monitoring
- any recommended remedial measures, including whether the worker can continue to carry out the work
- whether medical counselling is required for the worker.

That person must also give a copy of the report, as soon as reasonably possible after obtaining it from the medical practitioner, to:

- the worker
- Comcare, if the report contains:
  - any test results that indicate the worker may have contracted a disease, injury or illness as a result of the work that triggered the need for health monitoring
  - any recommended remedial measures, including whether the worker can continue to carry out the work

- all other persons conducting a business or undertaking who have a duty to provide health monitoring for that worker.

Reports must be kept as a confidential record for at least 40 years after the record is made and identified as a formal record for the particular worker. The report and results must not be disclosed to anyone unless the worker has provided their written consent. However, if the person was releasing the record under a duty of professional confidentiality, the worker's written consent is not required.

2. DUTIES FOR REMOVAL WORK THAT DOES NOT REQUIRE A LICENCE

Removal of asbestos by a person who does not hold a Class A or Class B asbestos removal licence is permitted if the asbestos being removed is:

- 10 m² or less of non-friable asbestos (approximately the size of a small bathroom)
- ACD that is not more than a minor contamination and is associated with the removal of 10 m² or less of non-friable asbestos.

Friable asbestos materials must not be removed by a person who does not have a Class A asbestos licence.

A worker carrying out asbestos removal work, including a self-employed person conducting a business or undertaking, must be trained in the identification and safe handling of asbestos prior to carrying out asbestos removal work without a licence. An asbestos awareness course or the non-friable removal unit of competency would be considered appropriate training.

This allows a person (for example, a plumber) to remove small amounts of non-friable asbestos and replace it with non-asbestos alternatives if they come across it during renovations, refurbishments, or service and maintenance work. However, this person must still use safe working methods to ensure the work is not creating a risk to the health and safety of persons at the workplace.

The WHS Regulations require a person who is carrying out asbestos removal work without a licence to comply with the duties outlined in **Chapter 4 of this Code** and also with some of the duties in **Chapter 3 of this Code**. These duties are summarised below:

- obtain a copy of the asbestos register for a workplace unless the work is being carried out at a domestic premises (refer to Section 3.4)
- identity hazards at the workplace (refer to Section 4.1)
- ensure signs and barricades are erected to indicate and delineate the asbestos work area (refer to Sections 3.7 and 4.2)
- Use the wet method to removal asbestos where reasonably practicable (refer to Section 4.3)
- Ensure the correct tools , equipment and PPE is used (refer to Sections 4.4 and 4.5)
- ensure decontamination facilities are available (refer to Sections 3.8 and 4.6)

- contain and label asbestos waste and dispose of it as soon as reasonably practicable (refer to Sections 3.9 and 4.8)
- ensure that PPE and clothing used in asbestos removal work and contaminated with asbestos is handled in accordance with the WHS Regulations (refer to Sections 3.9, 4.5 and 4.6)

Although it is not mandatory for the person to prepare an asbestos removal control plan for this type of asbestos removal work, it may be beneficial to do so to ensure the work is being carried out safely. Refer to Section 3.5 for further information on an asbestos removal control plan.

It is also not mandatory to conduct air monitoring; however, an independent licensed asbestos assessor or competent person can carry out it out in these situations. Refer to Section 3.11 for further information on air monitoring.

2.1 TRAINING WORKERS ABOUT ASBESTOS OR ACM

Regulation 39: The WHS Regulations require that a person conducting a business or undertaking must ensure that information, training and instruction provided to a worker is suitable and adequate, having regard to:

- the nature of the work carried out by the worker
- the nature of the risks associated with the work at the time the information, training or instruction is provided
- the control measures implemented.

The person must, so far as is reasonably practicable, ensure that the information, training and instruction is provided in a way that is readily understandable by any person to whom it is provided.

Regulation 445: The WHS Regulations require a person conducting a business or undertaking to ensure workers who they reasonably believe may be involved in asbestos removal work in the workplace or the carrying out of asbestos-related work are trained in the identification, safe handling and suitable control measures for asbestos and ACM.

This training may include the following topics:

- purpose of the training
- health risks of asbestos
- types, uses and likely presence of asbestos in the workplace
- persons conducting a business or undertaking and the worker's roles and responsibilities under the asbestos management plan

- where the asbestos register is located, how it can be accessed and how to understand the information contained in it
- processes and safe work procedures to be followed to prevent exposure, including exposure from any accidental release of airborne asbestos
- where applicable, the correct use of PPE including respiratory protective equipment (RPE)
- the implementation of control measures and safe work methods to eliminate or minimise the risks associated with asbestos to limit the exposure to workers and other persons
- exposure standard and control levels for asbestos
- purpose of any exposure monitoring or health monitoring that may occur.

This training is more general than the training that a worker undertaking licensed asbestos removal work would receive. Workers who are undertaking licensed asbestos removal work are required to complete specific units of competency. Refer to Section 3.2 for further information.

Records of all training must be kept while the worker is carrying out the work and for five years after the day the worker stops carrying out the work. These records must also be available for inspection by Comcare.

3. DUTIES FOR LICENSED ASBESTOS REMOVAL WORK

Licensed asbestos removal work can differ greatly depending on the type, quantity and condition of the asbestos or ACM being removed. There are a number of duties in the WHS Regulations to ensure licensed asbestos work is carried out safely and without releasing airborne asbestos and exposing workers and other persons.

A summary of the specific duties in the WHS Regulations are:

- ensuring an asbestos removalist supervisor is readily available or present when the work is being carried out **(R.459)**
- providing appropriate training and ensuring the asbestos removal worker has undertaken the relevant units of competencies associated with the asbestos removal **(R.460-461)**
- telling various parties about the asbestos removal and providing them with appropriate information **(R.462 and R.467-468)**
- obtaining the workplace's asbestos register **(R.463)**
- preparing an asbestos removal control plan **(R.464-465)**
- notifying Comcare about the work before it starts **(R.466)**
- displaying signs and labels in the asbestos work area **(R.469)**
- limiting access to the asbestos work area **(R.470)**
- ensuring appropriate decontamination facilities are in place **(R.471)**
- ensuring waste containment and disposal procedures are in place **(R.472)**
- ensuring clearance inspections are conducted and issuing clearance certificates **(R.473-474)**
- ensuring air monitoring is conducted, where appropriate **(R.475-477)**.

These requirements apply to a number of duty holders including the licensed asbestos removalist, the person who commissioned the asbestos removal work, and the person with management and control of the workplace. The duties are explained further below.

3.1 ASBESTOS REMOVALIST SUPERVISOR TO BE PRESENT OR READILY AVAILABLE

When licensed asbestos removal work is being carried out at a workplace, an asbestos removal supervisor must oversee the work. The licensed asbestos supervisor must have a certification appropriate to the type of licensed asbestos work.

If the asbestos removal work requires a Class A licence, for example removing friable asbestos, the asbestos removal supervisor must be present at the asbestos removal area whenever the work is being carried out.

However, if the asbestos removal work requires a Class B licence, for example non-friable asbestos that is more than 10 m², then the asbestos removal supervisor must be readily available to a worker who is carrying out the work whenever it is being carried out. For example, if the supervisor is contactable by phone and able to arrive at the workplace within 20 minutes, this would be regarded as accessible.

Where the asbestos removal work requires a Class B licence and it is being carried out by a self-employed person working alone, for example a plumber removing more than 10 m² of AC sheeting, the person must hold the competency of a worker for non-friable asbestos removal and the competency of a supervisor for non-friable asbestos removal.

3.2 CERTIFICATION AND TRAINING

Certification

A licensed asbestos removalist must not direct or allow a worker to carry out licensed asbestos removal work unless they are satisfied the worker holds a certification that is relevant to the class of licensed asbestos removal work they will be carrying out.

Workers (including the asbestos removal supervisors) who are carrying out licensed asbestos removal work are required to acquire a certification by completing units of competencies to show they have the relevant training to be able to remove asbestos. The units of competency completed by the person will determine what type of asbestos work they can carry out. Asbestos removal supervisors will have additional units of competency to complete.

Registered training organisations conduct training and education for the specific unit of competency for both Class A and Class B asbestos removal work as well as the asbestos removal supervisor certification. The Class B removal unit of competency must be completed before the Class A unit of competency.

Training

A licensed asbestos removalist must provide appropriate training to a worker carrying out licensed asbestos removal work at the workplace to ensure the work is carried out in accordance with the asbestos removal control plan for the workplace.

This is additional training to the general training that is provided on the identification and safe handling of asbestos and the appropriate controls referred to in the ***Code of Practice: How to Manage and Control Asbestos in the Workplace***.

A worker who is carrying out licensed asbestos removal work must receive training that is designed specifically for the workplace where the work is being or is to be carried out. This should occur before the commencement of each asbestos removal job. The training should include:

- the nature of the hazards and risks
- how asbestos can affect a person's health
- the risk from exposure to airborne asbestos
- the control measures in place and maintenance of the asbestos removal control plan for that job
- the methods and equipment that will be used to do the job properly
- choosing, using and caring for PPE and RPE
- decontamination procedures
- waste disposal procedures
- emergency procedures
- any other legal requirements (for example, contaminated sites).

If the worker is required to hold other licences for the particular task, for example a demolition licence, additional training may be provided to cover this type of work.

The licensed asbestos removalist must keep a record of all training undertaken by a worker who is carrying out licensed asbestos removal work:

- while the worker is carrying out licensed asbestos removal work
- for five years after the day the worker stopped carrying out licensed asbestos removal work for the removalist.

The training record must be readily accessible at the asbestos removal area and available for inspection under the WHS Act.

3.3 INFORMING PARTIES OF THE LICENSED ASBESTOS REMOVAL

Prior to any licensed asbestos removal work being carried out at a workplace, the licensed asbestos removalist must inform the person with management or control of the workplace about the work and the date it is to commence.

The person with management or control of the workplace must then ensure the following persons are told that the asbestos removal work is to be carried out and when the work is to commence:

- the person's workers and any other persons at the workplace
- the person who commissioned the asbestos removal work
- anyone conducting a business or undertaking at or in the vicinity of the workplace
- anyone occupying premises in the immediate vicinity of the workplace.

If the workplace is a domestic premises, the licensed asbestos removalist must, so far as is reasonably practicable, before commencing the licensed asbestos removal work tell the following people about the asbestos removal work and when it will commence:

- the person who commissioned the asbestos removal work
- a person conducting a business or undertaking at the workplace
- the occupier of the domestic premises
- the owner of the domestic premises
- anyone occupying premises in the immediate vicinity of the workplace.

Providing information to persons that may carry out licensed asbestos work

A licensed asbestos removalist must provide the following information to a person who is likely to be engaged to carry out the work:

- the health risks and health effects associated with exposure to asbestos
- the need for and details of health monitoring of a worker carrying out licensed asbestos removal work. Section 1.4 of this Code provides more specific details on health monitoring.

3.4 OBTAINING THE ASBESTOS REGISTER

Before commencing the licensed asbestos removal work, the licensed asbestos removalist must obtain a copy of the asbestos register for a workplace from the person with management or control of the workplace.

This provision does not apply if the work is being carried out at a domestic premise.

3.5 PREPARING AN ASBESTOS REMOVAL CONTROL PLAN

A licensed asbestos removalist must prepare an asbestos removal control plan for any licensed asbestos removal work they are commissioned to undertake.

What is the purpose of an asbestos removal control plan?

An asbestos removal control plan is a document that identifies the specific control measures a licence holder will use to ensure workers and other persons are not at risk when asbestos removal work is being conducted. It is similar to a job safety analysis (JSA) but is focused on the specific control measures necessary to minimise any risk from exposure to asbestos.

An asbestos removal control plan helps ensure the asbestos removal is well planned and carried out in a safe manner. An asbestos removal control plan is only required to be prepared for licensed asbestos removal work. However, one can be prepared to assist when planning asbestos removal work that does not require a licence.

The licensed asbestos removalist must also take into account any asbestos register relevant to the asbestos to be removed and the area to be worked on. The structure of the asbestos removal control plan may be generic but each plan must address the specific situation/requirements for each job.

When is an asbestos control removal plan required to be prepared?

The asbestos removal control plan must be prepared before the licensed asbestos removal work commences.

What is contained in an asbestos removal control plan?

The asbestos removal control plan must include details of:

- how the asbestos removal will be carried out, including the method, tools, equipment and PPE to be used
- the asbestos to be removed, including the location, type and condition of the asbestos.

Specifications or drawings that are relevant to the asbestos removal can also be attached to the asbestos removal control plan to provide additional information about the asbestos.

Appendix A provides further detail of what can be in a comprehensive asbestos removal control plan.

Preparing the asbestos removal control plan

When preparing the asbestos removal control plan, the licensed asbestos removalist should consult with the person who commissioned the work, the person with management or control of the workplace (if not the same person), workers and their health and safety representatives.

For the same reasons, if licensed asbestos removal work is being carried out at domestic premises, the licensed asbestos removalist should consult with the person who commissioned the removal work, the owner or the occupier (if not the same person).

Access to the asbestos removal control plan

Once the asbestos removal control plan is prepared, a copy must be:

- given to the person who commissioned the licensed asbestos removal work
- readily accessible on-site for the duration of the licensed asbestos removal work to:
  - a person conducting a business or undertaking at the workplace
  - workers and their health and safety representatives
  - the occupants of the premises (if domestic premises).

The asbestos removal control plan must also be made available for inspection under the WHS Act.

3.6 NOTIFYING COMCARE OF THE LICENSED ASBESTOS REMOVAL WORK

A licensed asbestos removalist must notify Comcare in writing at least five days before the licensed asbestos removal work commences.

The following information must be included in the notification:

- name, registered business name, Australian Business Number, licence number and business contact details of the licensed asbestos removalist
- name and business contact details of the supervisor who will oversee the removal work
- name of the licensed assessor or competent person engaged to undertake air monitoring and to issue the clearance certificate
- client name and contact details
- name, including registered business or corporate name, of the person with management or control of the workplace
- address of the workplace, including the specific location if it is a large workplace
- kind of workplace where the removal work will be performed (for example, whether it is an office building or construction site and the type of work that is carried out there, if any)
- date of notification
- the start date of the removal work and an estimation of how long it will take
- whether the asbestos to be removed is friable or non-friable
- the type of the asbestos (for example, asbestos-contaminated sheeting, vinyl tiles, lagging, gaskets)
- if the asbestos is friable, the way the removal area will be enclosed
- estimated quantity of asbestos to be removed
- number of workers who will perform the removal work and details of their competency to carry out removal work.

It may not be possible to provide five days notice, and removal work may commence immediately in the following limited circumstances:

- a sudden expected event that may lead to a situation where there is a risk of exposure, for example a burst pipe that was lagged with asbestos or a forklift crashing into an asbestos cement sheet wall
- an unexpected breakdown of an essential service that requires immediate rectification, for example gas, water, sewerage or telecommunications services.

If this is the case, the licensed asbestos removalist must notify Comcare immediately by telephone and in writing within 24 hours after the notice provided over the telephone.

3.7 LIMITING ACCESS, DISPLAYING SIGNS AND INSTALLING BARRICADES

A person who is carrying out licensed asbestos removal work must ensure that signs indicate where the asbestos removal work is being carried out and barricades are erected to delineate the asbestos area. This will assist in limiting access to the asbestos removal work area.

If the person who commissions the licensed asbestos removal work and the person with management or control of the workplace (if not the same person) is aware that licensed asbestos removal work is being carried out, they must ensure that access to the removal area is limited to the following people:

- workers who are engaged to carry out the removal work
- other people who are associated with the removal work
- people who are allowed under the WHS Regulations or another law to be in the asbestos removal area (for example, inspector, emergency service workers).

A combination of using signs and barricades may be necessary to limit access to the asbestos removal area, for example installing a fence and signs may be used as a method to inform people that it is the asbestos removal area. Using locking access doors may be appropriate as long it does not create an evacuation hazard.

All people who have access to the removal area should comply with any direction given by the licensed asbestos removalist.

Section 4.2 of this Code provides further detail on the type of signs and barricades that should be used at a workplace.

3.8 DECONTAMINATION

When carrying out licensed asbestos removal work, the licensed asbestos removalist must ensure decontamination facilities are available for the asbestos removal work area, any plant used in that area and workers carrying out the asbestos removal work.

Section 4.6 of this Code outlines decontamination procedures that can be put in place at the workplace.

3.9 WASTE CONTAINMENT AND DISPOSAL

When carrying out licensed asbestos removal work, the licensed asbestos removalist must ensure that asbestos waste is contained and labelled in accordance with the GHS before the waste is removed from the asbestos removal area. It must be disposed of as soon as is practicable at a site authorised to accept asbestos waste.

PPE

Disposable PPE that has been used in the asbestos work area and is contaminated with asbestos must be sealed and labelled in a container and disposed of upon completion of the asbestos removal work.

In some cases, it may not be reasonably practicable to dispose of PPE that is clothing. In this case, the clothing must be laundered at a laundry that is equipped to launder asbestos-contaminated clothing. If this cannot be done, the clothing must be sealed in a container until is reused for asbestos removal purposes.

It may also not be reasonably practicable to dispose of PPE that is not clothing. If this is the case, the PPE must be decontaminated prior to it being removed from the asbestos removal area. If this cannot be done, the PPE must be sealed in a container until it is reused for asbestos removal purposes.

Where a sealed container has been used, it must be decontaminated and labelled in accordance with the GHS prior to it being removed from the asbestos removal area to indicate that it contains asbestos.

Section 4.5 of this Code provides guidance on the type of PPE that can be used. **Section 4.8 of this Code** outlines waste containment and disposal procedures that can be implemented at the workplace.

3.10 CLEARANCE INSPECTION

A person commissioning licensed asbestos removal work must ensure that, once the licensed asbestos removal work has been completed, a clearance inspection is carried out and a clearance certificate is issued before the workplace can be re-occupied by:

- an independent licensed asbestos assessor, for work that must be carried out by a Class A licensed asbestos removalist (for example, if the removal work involved friable asbestos)
- an independent competent person, for asbestos work that is not required to be carried out by a Class A licensed asbestos removalist (for example, if removal work involved more than 10 m² of non-friable asbestos).

This also includes where the work is being carried out at domestic premises.

To be independent, the licensed asbestos assessor or competent person must not be involved in the removal of asbestos for that specific job and is not involved in a business or undertaking involved in the removal of the asbestos for that specific job.

In some cases, it may not be reasonably practicable for the licensed asbestos assessor or competent person to be independent from the person who carried out the asbestos removal work. If this is the case, the person commissioning the work can apply to Comcare for an exemption from this requirement under Part 11.2 of the WHS Regulations.

The independent licensed assessor or competent person must not issue a clearance certificate unless they are satisfied that the asbestos removal area and the area immediately surrounding it are free from visible asbestos contamination. To do this, they can conduct a visual inspection for evidence of dust and debris. If air monitoring was also conducted, the results of that test must show that asbestos is below 0.01 fibres/ml.

If a clearance certificate has not been obtained, the asbestos removal area must not be re-occupied for normal use or other work activities. A clearance certificate must be issued before the area can be re-occupied for demolition or other work.

Unauthorised persons cannot enter the asbestos removal work area prior to a clearance certificate being issued and any protective barricades should remain in place until completion of all licensed asbestos removal work and the final clearance certificate is issued.

Appendix C provides an example of a clearance certificate.

3.11 AIR MONITORING

Air monitoring involves sampling airborne asbestos fibres to assist in assessing exposure to asbestos and the effectiveness of implemented control measures. It must be conducted in accordance with the ***Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust*, 2nd Edition [NOHSC: 3003 (2005)]**.

When is air monitoring required?

Air monitoring requirements will vary depending on the type of asbestos being removed, the location and position of the asbestos, if an enclosure is used and whether the asbestos removal work is within a building or outside.

- ***Friable asbestos removal*** – Air monitoring is mandatory for all friable asbestos removal. This includes prior to dismantling an enclosure and for the purposes of the clearance inspection.
- ***More than 10 m² of non-friable asbestos removal*** – Air monitoring is not required but may be considered to be carried out by an independent licensed assessor or competent person to ensure compliance with the duty to eliminate or minimise exposure to airborne asbestos and to ensure the exposure standard is not exceeded.
- ***Public Location*** – Air monitoring should be considered where the asbestos removal work is being undertaken in or next to a public location.
- ***Exposure air monitoring*** – Air monitoring should be carried out at other times to determine a worker's exposure to airborne asbestos if, based on reasonable grounds, there is uncertainty as to whether the exposure standard may be exceeded and a risk assessment by a competent person indicates it is necessary. Since most uses of asbestos are prohibited, exposure monitoring should not be required frequently.

Air monitoring may be required when:

- it is not clear whether new or existing control measures are effective
- there is evidence (for example, dust deposits are outside the enclosure) the control measures have deteriorated as a result of poor maintenance
- modifications or changes in safe work methods have occurred that may adversely affect worker exposure

- there has been an uncontrolled disturbance of asbestos at the workplace.

When must the air monitoring be carried out?

The air monitoring must be conducted before and during Class A asbestos removal work. However, it is not required before friable asbestos removal work commences when the glove bag removal technique is used. Air monitoring must be carried out as part of the clearance inspection, for instance at the conclusion of the asbestos removal work.

Who must conduct air monitoring?

A person who commissions asbestos removal work that requires a Class A licence must ensure that an independent licensed asbestos assessor undertakes air monitoring of the asbestos removal area at the workplace.

In relation to removal work requiring a licence:

- ***Friable asbestos removal*** – A licensed assessor must be engaged to carry out air monitoring when it is required.
- ***Non-friable asbestos removal (more than 10 m²)*** – A licensed assessor or competent person must be engaged to carry out air monitoring when it is required.

Where air monitoring is otherwise required, for instance to determine whether the exposure standard has been exceeded following an uncontrolled disturbance or release of asbestos at the workplace, an independent licensed asbestos assessor or competent person may carry it out. However, if the release involves friable asbestos, only an independent licensed asbestos assessor can carry out the air monitoring.

Results of the air monitoring

Once the results of the air monitoring are received, the licensed asbestos removalist must take action depending on the respirable asbestos fibre level. Where the results show that respirable asbestos fibre levels exceed the action levels outlined in Table 1, action must be taken immediately.

Action level	Control	Action
Less than 0.01 fibres/ml	No new control measures are necessary	Continue with control measures
At 0.01 fibres/ml or more than 0.01 fibres/ml but less than or equal to 0.02 fibres/ml	1. Review	Review control measures
	2. Investigate	Investigate the cause
	3. Implement	Implement controls to eliminate or minimise exposure and prevent further release
More than 0.02 fibres/ml	1. Stop removal work	Stop removal work
	2. Notify Comcare	Notify Comcare by phone followed by fax or written statement that work has ceased and the results of the air monitoring
	3. Investigate the cause	Conduct a thorough visual inspection of the enclosure (if used) and associated equipment in consultation with all workers involved with the removal work
	4. Implement controls to eliminate or minimise exposure and prevent further release	Extend the isolated/barricaded area around the removal area/enclosure as far as reasonably practicable (until fibre levels are at or below 0.01 fibres/ml, wet wipe and vacuum the surrounding area, seal any identified leaks (e.g. with expandable foam or tape) and smoke test the enclosure until it is satisfactorily sealed.
	5. Do not recommence removal work until further air monitoring is conducted	Do not recommence until fibre levels are at or below 0.01 fibres/ml

Table 1: *Air monitoring action levels.*

Any information that is gathered from these actions can be referred to during future asbestos removal jobs (where applicable).

Communicating the results of the air monitoring

The person who commissions the licensed asbestos removal work must ensure the results of the air monitoring are given to the following persons:

- workers at the workplace
- health and safety representatives for the workplace

- persons conducting businesses or undertakings at the workplace
- other persons at the workplace.

If the workplace is domestic premises, the licensed asbestos removalist must ensure the results are given to the following persons:

- the person who commissioned the work
- workers at the workplace
- health and safety representatives for the workplace
- persons conducting businesses or undertakings at the workplace
- the occupier of the domestic premises
- the owner of the domestic premises
- other persons at the workplace.

3.12 REMOVING FRIABLE ASBESTOS

When a licensed asbestos removalist is removing friable asbestos (requiring a Class A licence), the following must occur, so far as is reasonably practicable:

- the asbestos removal area is enclosed to prevent the release of respirable asbestos fibres
- negative pressure is used, provided the enclosure being used has been tested for leaks
- the wet method of asbestos removal is used
- the asbestos removal work area does not commence until the air monitoring is started by a licensed asbestos assessor, provided the enclosure has been tested for leaks
- air monitoring is undertaken during the asbestos removal work at times decided by the independent licensed assessor undertaking the monitoring
- any glove bag used to enclose the asbestos removal area is dismantled and disposed of safely.

However, if glove bags are used, negative pressure and conducting air monitoring prior to the work commencing are not required.

The enclosure must not be dismantled until the results are received from:

- if the friable asbestos is removed from a domestic premises – the licensed asbestos assessor who undertook the air monitoring
- in any other case – the person who commissioned the Class A asbestos removal work.

The results must show that the respirable asbestos fibre level is below 0.01 fibres/ml.

The enclosure must be decontaminated prior to dismantling it to minimise, so far as is reasonably practicable, the release of respirable asbestos fibres. The person who commissions the removal of the friable asbestos must obtain a clearance certificate from the licensed asbestos assessor after the enclosure has been dismantled.

Chapter 6 provides further detail on enclosures. Section 4.3 provides further detail on the wet method. Section 7.2 provides further detail on glove bags.

4. CONTROLS APPLICABLE TO ALL TYPES OF ASBESTOS REMOVAL

This chapter applies to all asbestos removal work i.e. Class A and Class B licensed asbestos removal work and asbestos removal work that does not require a licence.

4.1 IDENTIFYING HAZARDS

An asbestos removalist should consider not only the direct hazards that are associated with the asbestos removal work but also those hazards related to the work activity and the work environment (for example, demolition or construction).

Confined spaces

Removing asbestos in a confined space should only be undertaken where it is not possible to avoid doing work in that space. A safe system of work should be developed for inclusion in the management plan or removal control plan.

Friable asbestos removal requires the use of enclosures that are designed to eliminate or minimise the release of airborne asbestos spreading from the asbestos removal work area.

Depending on the conditions inside the enclosure, an asbestos enclosure may also become a confined space.

Further information is available in the ***Code of Practice: Confined Spaces***.

Falls

Work at heights should not be undertaken if the task can be performed on the ground. If asbestos removal work must be undertaken at height, then the relevant WHS Regulations apply.

Further information is available in the ***Code of Practice: How to Prevent Falls at Workplaces***.

Heat stress

Heat-related hazards can be created from working in enclosures or confined spaces or using PPE. The factors that can lead to heat stress should be considered, including temperature, humidity, air movement, exposure to a heat source, work activities and demands, how long the PPE must be worn and individual physical factors.

Control measures include:

- selection of appropriate PPE fitted to reduce the build-up of heat
- adequate number of extraction units in enclosures
- cool cotton underclothing

- scheduling appropriate work breaks
- job rotation
- cool drinks readily available
- providing a cool, shaded rest area
- educating workers about heat stress risks and controls.

Further information is available in the ***Code of Practice: Managing the Work Environment and Facilities***.

Electrical equipment

When undertaking asbestos removal work, the risk associated with electrical equipment should be controlled by following the procedures set out below.

- De-energisation and removal from the removal work area. If the electrical equipment cannot be disconnected and removed they must be de-energised. The de-energised equipment must be secured so it cannot be inadvertently re-energised.
- Any electrical cabling or equipment remaining in the asbestos removal area must be labelled and protected from mechanical damage or the ingress of water in accordance with ***AS/NZ3000:2000 Wiring rules*****.**
- A licensed electrician must safely remove and reinstall electrical cables and equipment.
- For electrical equipment such as fire detectors, smoke detectors and thermal detectors, only a person able to remove and isolate the circuits and heads as required prior to asbestos removal should be engaged to do that.
- Upon completion of the removal work, a person should replace, reactivate and test the system, prepare a certificate stating that the heads are operational and forward to the asbestos removalist.

All portable electrical tools and equipment, including flexible leads and any electrical installations utilised by workers during asbestos removal, should comply with ***AS/NZS 3012:2003 Electrical installations – construction and demolition sites***.

Further information is available in the ***Code of Practice: Managing Risks with Electrical Work***.

4.2 INDICATING THE ASBESTOS REMOVAL AREAS

The asbestos removalist must use signs and barricades to clearly indicate the area where the asbestos removal work is being performed. Signs must be placed in positions so that people are aware of where the asbestos removal work area is and should remain in place until removal is completed and clearance to reoccupy has been granted. Responsibilities for the security and safety of the asbestos removal site and removal work area should be specified in the asbestos removal control plan (where required). This includes inaccessible areas that are likely to contain asbestos.

Warning signs

Warning signs must be placed so they inform all people nearby that asbestos removal work is taking place in the area. Signs should be placed at all of the main entry points to the asbestos removal work area where asbestos is present.

These signs should be weatherproof, constructed of light-weight material and adequately secured so they remain in prominent locations. The signs should be in accordance with ***AS 1319-1994 Safety signs for the occupational environment*** for size, illumination, location and maintenance.

Barricades

The use of barricades assists with traffic control and prevents access to the removal site and removal work area.

The purpose of barricades is to delineate and isolate the asbestos removal area with appropriately placed barricades. Barricades can take various forms, from tape to solid hoarding. The type of barricading should reflect the level of risk. For friable asbestos removal work, solid barricades should be used. Tape may be appropriate for non-friable asbestos removal work of short duration.

The location of barricades will depend on the physical environment and the level of risk. An assessment of the asbestos removal work site should determine the appropriate placement of barricades.

For example, a non-friable asbestos cement removal job where the asbestos cement is in good condition may use a wall located three metres from the asbestos removal area as the barrier. A friable sprayed asbestos removal job being performed dry due to electrical restrictions may require a barricade 15 metres from the asbestos removal area.

In determining the distance between barriers and the asbestos removal area, the following should be considered:

- whether the asbestos is friable or non-friable
- activity around the asbestos removal area (for example, other workers, visitors, neighbours, the public) to determine the risk of exposure to other people
- the method of asbestos removal
- any existing barriers (walls, doors)
- the quantity of asbestos to be removed
- the type of barrier used (for example, hoarding or tape).

4.3 WET AND DRY METHODS

An asbestos removalist must use techniques to eliminate or minimise the generation of asbestos fibres so far as is reasonably practicable. They must choose the method of asbestos removal that is most effective at minimising fibre release at the source. The removal methods are listed in preferred order:

- Wet spray method - asbestos fibres are significantly suppressed; however, they are not entirely eliminated so the use of RPE is as essential.
- Saturation and water injection method – used during friable removal.
- Dry method - can only be used if the wet spray method is not suitable, for example if there are live electrical conductors or if equipment could be permanently damaged or made dangerous by contact with water.

Wet spray method

The wet spray method is the preferred asbestos removal method and should be used for the removal of asbestos from structures and plant. The wet spray method requires the use of a constant low-pressure water supply for wetting down asbestos and related items to suppress asbestos fibres. This can be achieved with a mains-supplied garden hose fitted with a pistol grip. If no water supply is readily available, a portable pressurised vessel (for example, a pump-up garden sprayer) may be used.

The design of the spraying equipment will depend on the availability of a water supply and access to the area to be sprayed.

The wet spray method involves applying a fine water spray to the asbestos in a manner that ensures the entire surface of the asbestos is saturated and the run-off is minimised. The asbestos should be maintained in a wet condition throughout the removal.

A wetting agent (surfactant), for example detergent, may be added to the water to facilitate more rapid wetting of the asbestos. A manually controlled, consistent low-pressure, fine spray (for example, from an adjustable pistol-grip garden hose) is recommended.

For very small areas, a small spray water bottle may be sufficient. In all cases, the use of water should be in the form of a mist to minimise the potential to generate respirable dust.

The asbestos should be wetted through to its full depth and the water spray should be directed at the site of the cut. The wetted material should be removed as the cut is progressed.

Immediately after the asbestos is removed from its fixed or installed position, spray should be directed on sides previously not exposed.

The wet friable asbestos removed in sections should immediately be placed in suitably labelled asbestos waste containers and properly sealed along with any small sections dislodged as the asbestos is cut.

Wherever reasonably practicable, a HEPA-fitted vacuum cleaner should be used in conjunction with the wet spray method. The HEPA vacuum cleaner should be used prior to spraying asbestos with water and for the collection of any dust spread over a large area.

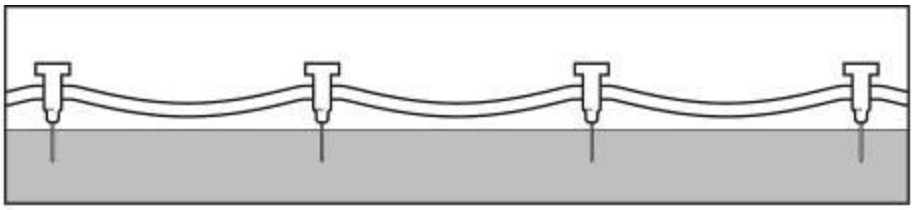
Airborne asbestos fibres are significantly suppressed when the wet spray method is used; however, they are not entirely eliminated so effective PPE including RPE is also essential. Refer to **Section 4.5 of this Code** for information on RPE.

Consideration should be given to applying a PVA emulsion as it may be more effective than water (with a wetting agent) in minimising fibre release. For example, PVA can be applied and allowed to dry on asbestos cement roofing prior to its removal as an alternative method to prevent slip hazards.

Saturation and water injection method

The soaking method with total saturation should be used if the asbestos is so thick that the spray method will not suppress the asbestos significantly. This method involves injecting water or a

water-based solution directly into friable asbestos. It is a process that requires specific training in relation to the use of the equipment and the process.



The asbestos is soaked by the introduction of water or other wetting agents through an appropriate applicator that consists of an injection head with numerous side holes or outlets through which the water or wetting agent is fed to the asbestos.

To facilitate more rapid wetting of the asbestos, holes or cuts should be made in the outer covering to enable the water or wetting agent to be injected in such a manner as to ensure that the asbestos is saturated but not just washed out through a liquid passage.

The soaking should be done before removal. The quantity of water or wetting agent and the time to soak will depend on the thickness of the asbestos, access to the asbestos and location of the holes.

The saturated asbestos should then be removed in sections, placed in a properly labelled container, sealed and disposed of as with the spray method.

Dry method

The dry method is not preferred as there is a much greater potential for airborne asbestos fibres to be generated. The dry removal method can only be used if the wet spray or soaking methods are not suitable, for example if there are live electrical conductors or if major electrical equipment could be permanently damaged or made dangerous by contact with water.

If the dry removal method is used, the following controls should be implemented:

- Non-friable removal – Enclose the asbestos removal work area as far as is reasonably practicable.
- Friable removal – Fully enclose the asbestos removal thick) and maintain at a negative pressure (at least 12 work area with plastic sheeting (a minimum 200 μm Pa water gauge). Ensure all workers involved in the removal operation wear full-face positive-pressure supplied air-line respirators.
- Friable and non-friable removal – The asbestos should be removed in small, pre-cut sections with minimal disturbance to minimise the generation of airborne

asbestos fibres as much as possible. Wherever reasonably practicable, a HEPA-fitted vacuum cleaner should be used.

- All waste material should be immediately placed in appropriate wet containers which are wetting to suppress creation of dust and airborne fibres.

4.4 TOOLS AND EQUIPMENT

Tools and equipment that can be used during asbestos removal work include asbestos vacuum cleaners, manually operated hand tools and equipment—other than compressed air or high pressure water spray—that have been designed to capture or suppress respirable dust or are used in a way that is designed to capture or suppress respirable dust.

In addition to any equipment required to complete a particular task, the following equipment may be required on-site before the work begins:

- disposable cleaning rags
- bucket of water and/or a misting spray bottle
- sealant
- suitable asbestos waste container
- warning signs and/or barrier tape.

Prohibited tools and equipment

Tools and equipment that generate dust must not be used on asbestos. These include:

- high-speed abrasive power and pneumatic tools, for example angle grinders, sanders, saws and high-speed drills
- brooms and brushes (unless brushes are used for sealing)
- high-pressure water spray, jets, power or similar tools and instruments on asbestos in the workplace
- compressed air.

The use of tools and equipment that cause the release of asbestos, including power tools and brooms, may be used on asbestos if the equipment is enclosed and/or designed to capture or suppress asbestos fibres and/or the equipment is used in a way that is designed to capture or suppress asbestos fibres safely, for example:

- enclosing the tool or instrument
- engineering controls such as extraction ventilation

- using the tools and instruments within an enclosed removal area (for example, full enclosure or small enclosure).

Controls are assumed to be effective if exposure monitoring results are less than 0.05 f/ml or control monitoring results are less than 0.01 f/ml. Should either of these values be exceeded during monitoring, work must cease and the control measures that are in place reviewed or improved to ensure the levels of airborne asbestos do not exceed these levels.

Inspection and maintenance of equipment

After the asbestos removal work is completed, tools must be decontaminated (refer to Section **4.6**).

All equipment used for the removal of asbestos should be inspected before the commencement of the asbestos removal work, after any repairs and at least once every seven days when it is continually being used. A register with the details of these inspections, the state of the equipment and any repair details should be maintained.

Asbestos vacuum cleaners

Asbestos vacuum cleaners should comply with the Class H requirements in Australian Standard ***AS/NZS 60335.2.69 Industrial vacuum cleaners*** or its equivalent. Asbestos vacuum cleaners should not be used on wet materials or surfaces. Attachments with brushes should not be used as they are difficult to decontaminate.

Filters for these vacuum cleaners should conform to the requirements of **AS 4260-1997** ***High efficiency particulate air (HEPA) filters – Classification, construction and performance*** or its equivalent.

Household vacuum cleaners must never be used where asbestos is or may be present, even if they have a HEPA filter.

Asbestos vacuum cleaners can only be used for collecting small pieces of asbestos dust and debris. Larger pieces should be picked up and placed in suitable waste containers and should never be broken into smaller sizes for vacuuming.

The asbestos removalist should ensure that procedures are established for the general maintenance, including emptying, of asbestos vacuum cleaners in a controlled environment.

They should be cleaned externally with a wet cloth after each task, the hose and attachments should be stored in a labelled impervious bag, and a cap should be placed over the opening to the asbestos vacuum cleaner when the attachments are removed.

PPE should be worn whenever an asbestos vacuum cleaner is opened to change the bag or filter or to perform other maintenance.

The emptying of asbestos vacuum cleaners can be hazardous if the correct procedures are not followed. Asbestos vacuum cleaners should only be emptied by a competent person with the correct PPE, in a controlled environment and in compliance with the manufacturer's instructions.

Whenever possible, asbestos vacuum cleaners should not be hired, as they can be difficult to fully decontaminate.

Hiring may be more viable in some instances if they are completely decontaminated, such as when a one-off maintenance task is required for asbestos. Asbestos vacuum cleaners should be hired only from organisations that provide vacuum cleaners specifically for work involving asbestos and the asbestos vacuum cleaner has been previously decontaminated. If hired, the asbestos vacuum cleaner should be decontaminated before it is returned.

Alternatively, the hire organisation may undertake the decontamination and maintenance of the filters and bags of the asbestos vacuum cleaner itself. In these cases, the asbestos vacuum cleaner should be hired out in a sealed storage container, with instructions that it may be removed from the container only when it is inside the asbestos removal work area and users are wearing appropriate PPE. When the minor maintenance work is completed the asbestos vacuum cleaner should be resealed in the storage container provided, and the sealed storage container should then be decontaminated by wet wiping before it is removed from the removal work area and returned to the hire organisation for decontamination and maintenance.

Organisations that hire out asbestos vacuum cleaners should ensure all their asbestos vacuum cleaners are decontaminated, maintained in good working order and the hirers are competent in their safe use. It is suggested that asbestos vacuum cleaners are only hired out to asbestos removal supervisors or licence holders.

At the completion of the asbestos removal work, the tools and equipment must be decontaminated, placed in sealed, labelled containers and if necessary, disposed of as asbestos waste. The asbestos vacuum cleaner and attachments must also be decontaminated. The bag and filter must be removed in accordance with the manufacturer's instructions and disposed of as asbestos waste.

Spray equipment

Spray equipment includes wet sprays with water mist or wetting solution. A constant low-pressure water supply is required for wetting down asbestos and related items to suppress airborne asbestos fibres.

Wet spray can be achieved with a mains-supplied garden hose fitted with a pistol grip. If no water supply is readily available, a portable pressurised vessel (such as a pump-up garden sprayer) may be used. For very small areas, a small spray water bottle may be sufficient. In all cases, the use of water should be in the form of a mist to minimise the potential to generate airborne dust.

4.5 PERSONAL PROTECTIVE EQUIPMENT

An asbestos removalist must provide all workers with PPE that is suitable for asbestos removal work. Workers must also use the PPE given to them by the asbestos removalists. PPE must be worn at all times during the work in the removal area. PPE includes clothing, for example coveralls, gloves and safety footwear, as well as RPE. The appropriate PPE can be determined by conducting a risk assessment.

Personal protective clothing should be made from materials that provide protection against fibre penetration and not from wool or other materials that attract fibrous dusts.

All equipment used for the removal of asbestos should be inspected before the commencement of the asbestos removal work, after any repairs and at least once every seven days when it is continually being used. A register with the details of these inspections, the state of the equipment and any repair details should be maintained.

At the end of the asbestos removal work and upon leaving the asbestos removal work area, all PPE must be disposed of as asbestos waste or decontaminated and stored in sealed double bags before being removed from the asbestos removal site to be laundered by a laundry with facilities for laundering asbestos-contaminated materials. PPE should be thoroughly wet before being placed in bags.

Coveralls

Disposable coveralls should be provided wherever reasonably practicable and should be:

- of a suitable standard to prevent tearing or penetration of asbestos fibres so far as is practicable. Disposable coveralls rated type 5,

category 3 (prEN ISO 13982–1) or equivalent would meet this standard

- one size too big, as this will help prevent ripping at the seams
- fitted with hood and cuffs, ensuring that:
  - if cuffs are loose, they are sealed with tape
  - coverall legs are worn over footwear as tucking them in lets the dust in
  - the fitted hood is worn over the respirator straps.

Coveralls should:

- not be made of material that is easily torn or have external pockets or velcro fastenings because these are easily contaminated and difficult to decontaminate
- never be taken home
- never be reused
- be disposed of as asbestos waste after a single use.

If it is not reasonably practicable to provide coveralls that can be disposed of after a single use, the coveralls may be laundered at a commercial laundry equipped to launder asbestos-contaminated clothing by prior arrangement. The coveralls must be sealed in a decontaminated container before they are removed from the asbestos removal work area. However, laundering of asbestos-contaminated protective clothing is not recommended because decontamination cannot be guaranteed. It is recommended that such re-usable coveralls should only be used in limited instances, for example in emergency services where the coveralls must be inflammable to protect against fire hazards and continual disposal and replacement is not practicable. Refer to Section 4.8 for more information on laundering of contaminated clothing.

In some cases (particularly dusty jobs) double coveralls should be used, with the outer coverall being removed a predetermined distance from the final decontamination area. Disposable coveralls should be wrapped in a double layer of plastic before disposal as asbestos-contaminated waste after the removal task is completed.

Gloves

If significant quantities of asbestos fibres may be present, single-use disposable gloves should be worn. If latex gloves must be used, low protein (powder free) gloves should be used. If latex gloves are not available, disposable nitrile gloves can be used as an alternative.

Gloves used for asbestos removal work should be disposed of as asbestos waste and the workers should clean their hands and

fingernails thoroughly whenever leaving the asbestos removal work area. However, as with coveralls, if it is not reasonably practicable to use disposable gloves, they may be laundered appropriately in limited circumstances.

Footwear

Safety footwear (for example, steel-capped, rubber-soled work shoes or gumboots) should be provided for all workers removing asbestos. Footwear should be laceless, as laces and eyelets can be contaminated and are difficult to clean. It should remain inside the barricaded area or dirty decontamination area for the duration of the asbestos removal work and should not be shared for hygiene reasons. Disposable overshoes should be avoided unless they are of a design that has an anti-slip sole.

When safety footwear is not in use, it should be stored upside down to minimise asbestos contamination inside the footwear. Storage facilities should be provided to allow for storage of the shoes. At the end of the removal work and each time the worker leaves the asbestos removal work area, safety footwear must be:

- decontaminated
- sealed in double bags for use on the next asbestos removal site (but not for any other type of work)
- disposed as asbestos waste.

Respiratory protective equipment (RPE)

All workers engaged in removal work must wear RPE conforming to the requirements of **AS/NZS 1716:2009** ***Selection, Use and Maintenance of Respiratory Protective Devices*** or its equivalent.

The level of respiratory protection and supplied air respirators should be determined by a competent person. The selection of suitable RPE depends on the nature of the removal work, the probable maximum concentrations of asbestos fibres expected and any personal characteristics of the wearer that may affect the facial fit of the respirator (for example, facial hair and glasses).

Disposable RPE is not preferred, however if selected, it should be stored in a suitable and clean location before use and disposed of after a single use.

A competent person may change the level of RPE at any stage during the removal process following an assessment of the asbestos fibre levels experienced inside the removal work area. For example, this may occur during the final clean-up after the removal of friable asbestos when the use of air-lines is no longer considered necessary.

If a medical condition precludes the use of negative pressure respirators, workers should be provided with a continuous-flow, positive pressure respirator wherever possible.

At every asbestos removal job, the workers should be reinstructed in the necessity to wear RPE correctly to guard against complacency.

A fit test should be performed to ensure the RPE fits the individual and provides a good face seal between the worker's skin and the face piece. Fit tests should be repeated when changing from different models of RPE or a different sized face piece.

Appendix B provides more information on selecting suitable RPE and fit tests.

Using and maintaining RPE

RPE must be worn at all times in the asbestos removal area and until the appropriate stage of personal decontamination.

Asbestos removalists or asbestos removal supervisors must ensure all workers undertaking any asbestos removal work receive instruction and training in:

- fit testing/checking
- the importance of a correct facial fit
- the correct method of using their respirators
- the procedures for regular cleaning, inspection and maintenance of respirators before use
- when to stop asbestos removal work and leave the area if they think their RPE is not working properly.

The respirator must be worn in accordance with the manufacturer's instructions and the coverall hood must go over the respirator straps. It should be examined in accordance with the manufacturer's instructions before use to ensure that it is not damaged and is in good working order. Respirator defects should be reported immediately to the asbestos removal supervisor. The pre-use examination should include an inspection of:

- the condition of the straps and face piece, including the seal and the nose piece
- the condition of the exhalation valve
- a fit check.

Non-disposable respirators should be cleaned, disinfected and stored in a safe place away from the asbestos-contaminated removal area.

The length of time a particulate filter can be used for the asbestos removal work depends on the resistance to breathing and damage to the filter. The filter should be replaced if

damaged or when resistance increases. A damaged filter must be replaced before resistance begins to increase. The replacement should be according to the manufacturer's instructions.

Certain brands of filters may not be usable after being exposed to certain conditions such as a full decontamination shower. Specific advice should be sought from the supplier regarding the effectiveness of a filter after being subjected to certain conditions.

All parts, including filters, valves and seals, should be inspected before and after each use. Respirator defects should be reported immediately to the supervisor for repair or replacement.

A system of regular cleaning, inspection and maintenance of non-disposable respirators should be in place to ensure they are clean and in a safe working condition.

Records of all respirator issues, uses and maintenance should be kept up-to-date.

At the end of a shift or at a break, as part of the decontamination process, ensure the respirator is taken off last.

Air-line respirators

Air-line respirators are used when the asbestos being removed is friable. When in use, the air-line should incorporate a belt-mounted back-up filter. If a failure of the air supply system occurs, workers should leave the asbestos removal work area using normal decontamination procedures; the use of a back-up belt-mounted filter device allows for adequate respiratory protection during this process.

If the number of workers wearing air-line respirators inside an enclosure is likely to result in the tangling of air lines, manifolds should be provided to minimise this tangling and assist workers in moving around the enclosure.

The capacity of the compressor should be adequate for the number of air-lines, and the location of the compressor's air intake should be assessed to ensure appropriate air quality and avoid contamination. Air from a compressor must be filtered before supply to a respirator.

4.6 DECONTAMINATION

Decontamination for the work area, workers, PPE and tools used in asbestos removal work is an important process in eliminating or minimising exposure to airborne asbestos fibres, particularly to persons outside the asbestos removal work area.

To determine the appropriate decontamination procedure, the risks of each individual asbestos removal job should be assessed.

Decontamination of the removal work area

There are two types of decontamination processes:

- Wet decontamination, or wet wiping, involves the use of damp rags to wipe down contaminated areas. Rags should only be used once, although they may be refolded to expose a clean surface. The rags should be used flat and should not be wadded. If a bucket of water is used, the rags should not be re-wetted in the bucket as this will contaminate the water. If the water is contaminated, it must be treated as asbestos waste. Care should be taken to avoid any potential electrical hazards when using this procedure.
- Dry decontamination involves carefully rolling or folding up and sealing plastic sheeting and/or vacuuming the removal area with an asbestos vacuum cleaner. Dry decontamination should only be used where the wet method is not suitable or poses a risk because of other hazards such as electricity or slipping.

Contaminated items, tools, equipment and clothing must not be removed from the removal work area unless they have been decontaminated or contained.

If an item is not able to be decontaminated, or is not suitable for decontamination, it should be placed in a sealed container and disposed of in accordance with the WHS Regulations. The sealed container must be decontaminated before it is removed from the asbestos removal work area.

If removal work involves friable asbestos, the decontamination procedures must include decontamination units. Glove bag and wrap and cut methods are exceptions where personal decontamination procedures are likely to be satisfactory and units are not necessary. Mini-enclosure removals may require a combination of personal decontamination and decontamination units.

Decontamination of tools

All tools used during asbestos removal work should be fully dismantled (where appropriate), cleaned under controlled conditions and decontaminated using either the wet or dry decontamination procedures described above before they are removed from the removal work area. The method chosen will depend on its practicality, the level of contamination and the presence of any electrical hazards.

If tools cannot be decontaminated in the asbestos removal work area, or are to be reused at another asbestos removal work area, they should be:

- tagged to indicate asbestos contamination
- double bagged in asbestos labelled bags before removing from the asbestos removal work area.

The bags containing the tools must remain sealed until decontamination or the commencement of the next asbestos maintenance or service task where the equipment can be taken into the removal work area and reused under full control conditions.

PPE should be worn when opening the bag to clean or reuse the equipment or tools, and decontamination should only be performed in a controlled environment.

In some circumstances it may be better to dispose of contaminated tools and equipment, depending on the level of contamination and the ease of replacement.

Personal decontamination procedures

Personal decontamination involves the removal of all visible asbestos dust/residue from PPE and RPE. Personal decontamination must be undertaken each time a worker leaves the asbestos removal work area and at the completion of the asbestos maintenance or service work. Personal decontamination should be done within the asbestos removal work area to avoid recontamination. Personal decontamination should be carried out where a decontamination unit is not necessary such as during minor or small scale removal and maintenance work.

Asbestos-contaminated PPE must not be transported outside the asbestos removal work area except for disposal purposes. Before work clothes and footwear worn during asbestos removal work are removed from the asbestos removal work area for any reason, they should be thoroughly vacuumed with an asbestos vacuum cleaner to remove any asbestos fibres and the footwear should also be wet wiped.

RPE should be used until all contaminated disposable coveralls and clothing has been vacuum cleaned and/or removed and bagged for disposal and personal washing has been completed. Any PPE used while carrying out asbestos removal work must not be taken home by a worker.

Personal hygiene and careful washing are essential. Particular attention should be paid to the hands, fingernails, face and head.

PERSONAL DECONTAMINATION

Never leave the asbestos removal work area until decontamination is complete.

- Remove any visible asbestos dust/residue from protective clothing using an asbestos vacuum cleaner or wiping down with damp cloths. Warning: do not reuse or resoak damp cloths.
- Carefully remove disposable protective clothing and place into bags (RPE must still be worn).
- Place cloths into disposal plastic bags (200µm thick).
- Take disposable coveralls off and place into disposal bags (RPE must still be worn).
- Use damp cloths to wipe down footwear and place cloths into disposal bag.
- Seal all plastic bags with duct tape and place each into a second plastic bag.
- Seal this second plastic bag and label/mark as 'Asbestos Waste'.
- Use damp rags to wipe external surfaces of the disposal bags to remove any dust before it is removed from the asbestos removal work area.
- Remove PPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.
- Remove non-disposable PPE and place in container labelled as containing asbestos.
- Remove RPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.
- Ensure the outside of the bags are decontaminated by using a damp cloth.
- Place the damp cloth into disposable bags.
- Dispose of asbestos waste at the appropriate waste facility.

Setting up personal decontamination areas outside the removal work area

The asbestos removalist must ensure particular areas are set up for people to personally decontaminate themselves and any tools and equipment when they are entering and leaving the asbestos removal work area to eliminate or minimise airborne asbestos from being released from the asbestos removal work area.

These areas are:

- a dirty decontamination area that includes:
  - a suitable rack for air-lines to be stored on at the entrance of the area

- equipment for vacuum cleaning or hosing down (by use of a fine mist) contaminated clothing and footwear
- storage for contaminated clothing and footwear
- labelled waste bags/bins for disposing of protective clothing
- shower area with an adequate supply of hot and cold water and toiletries

- a clean decontamination area that includes:
- storage for individual RPE in containers or lockers
- airflow towards the dirty decontamination area
- shower area with an adequate supply of hot and cold water and toiletries

- a clean changing area that includes:
- storage for clean clothing
- separate storage for clean and dirty towels
- airflow towards the clean decontamination area.

Below is an example of how a person would enter and leave a removal work area.

Entering the removal area

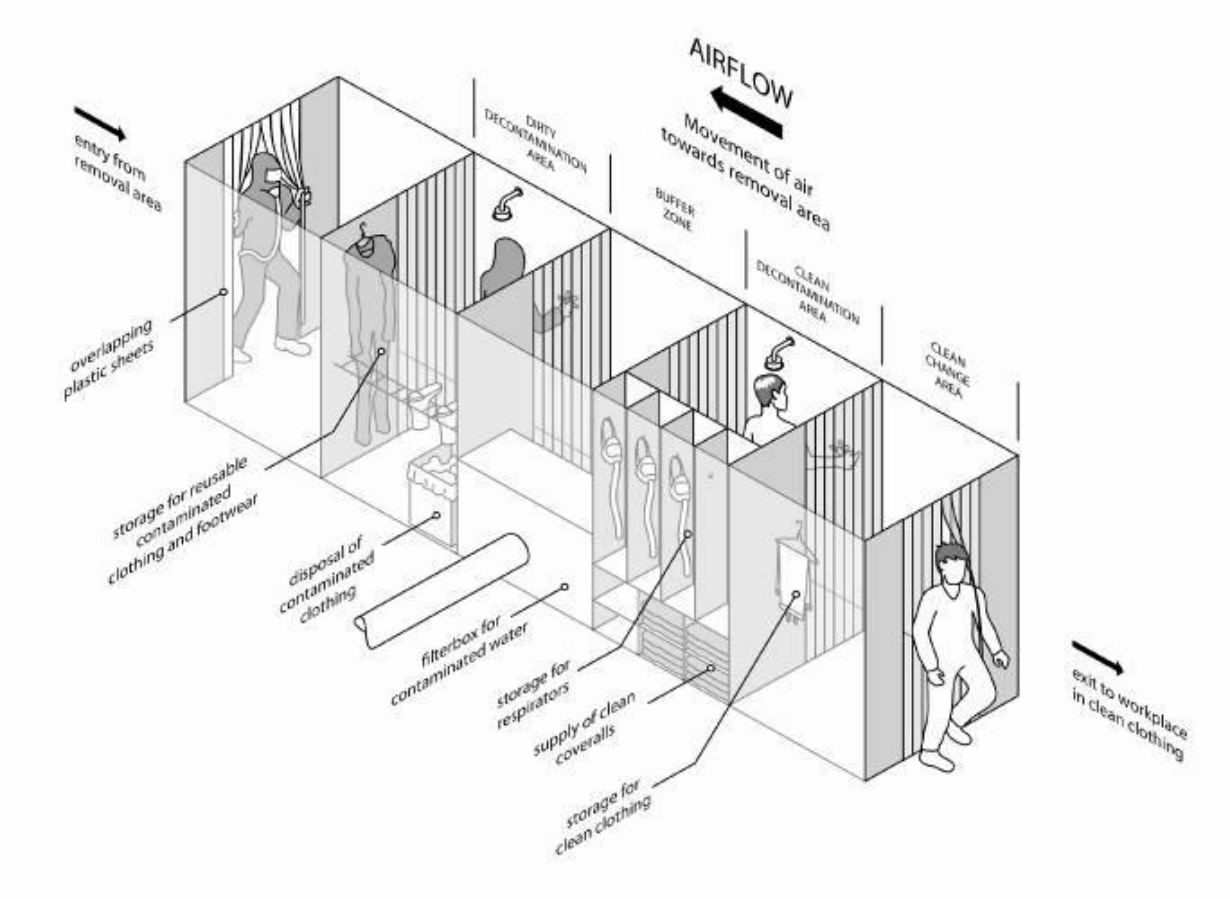
- Clean change area: Change into clean work clothes and put on clean protective clothing. Store any removed clothing in a dust-proof container. Move into clean decontamination area.
- Clean decontamination area: Put on RPE. Check that it is working properly and there is a good facial seal (for instance, fit check). Move to the dirty decontamination area.
- Dirty decontamination area: Put on any additional PPE that has been stored in the dirty decontamination area such as footwear. Connect to the RPE air supply if required. Move from the decontamination unit to the removal work area.

Leaving the removal area

- Asbestos removal area: Use an asbestos vacuum cleaner to remove any obvious signs of asbestos dust from protective clothing. Remove footwear and leave shoes/boots inside the asbestos removal area next to the decontamination unit (footwear should be stored upside down to minimise further contamination). Proceed into the dirty decontamination area.
- Dirty decontamination area: If shoes/boots have not already been removed, remove them and store upside-down within the dirty decontamination area. Disconnect air-line respirator if being used. Shower

while wearing protective clothing and RPE. Leaving RPE on, remove protective clothing and place in labelled waste bags. Remove wet underclothing, such as t-shirts or shorts, while showering and place in the storage unit provided within the dirty decontamination area. Pass through the airlock into the clean decontamination area.

- Clean decontamination area: Shower and remove RPE. Thoroughly wash hands, fingernails, face, head and respirator. Store RPE in a suitable container within the clean decontamination area. Move to the clean change area.



- Clean change area: change into clean clothing.

Figure 1: *Decontamination unit.*

Decontamination units attached to an enclosure

A risk assessment should be conducted to determine the number of units required based on the number of workers in the asbestos removal work area. As a guide, one decontamination unit should be provided for every six workers in the asbestos removal work area.

Where men and women are required to use the same decontamination unit, a system of work needs to be implemented to enable them to access the unit separately. In

many instances, the only satisfactory way of providing appropriate changing facilities is to provide a mobile or specially constructed on-site decontamination unit.

The decontamination unit should be immediately adjacent to and directly connected with the enclosed removal work area. It should be located as far away as practicable from amenities and lunch rooms.

The decontamination unit should include a dirty decontamination area, a clean decontamination area and a clean changing area. These areas need to:

- be large enough to enable workers to adequately decontaminate themselves
- be separated by suitable airlocks or buffer zones
- have doors with large openings with a hinged flap operating as a one-way valve to ensure there is sufficient airflow through the decontamination unit.

Towels and soap should be provided to allow workers to appropriately decontaminate themselves.

All water from the decontamination facility should pass through a particulate filter or other trap before it passes into sewer mains. The filter or trap should be capable of capturing particles down to 5 µm.

Workers should not smoke, eat or drink in any part of the decontamination unit.

The asbestos removalist may want to have a worker stationed outside an enclosure for the duration of the removal work to liaise with the project supervisor, communicate with personnel inside the work enclosure and instigate emergency/evacuation procedures if necessary.

Records about these activities should be kept on a daily basis.

Remote decontamination units for friable asbestos removal

Remote decontamination units are decontamination units not attached to an enclosure when friable asbestos is being removed. Remote units are not located next to the asbestos removal work area and can only be used if a decontamination unit cannot be located immediately adjacent to the asbestos removal work area.

When a remote decontamination unit is to be used, the asbestos removalist would need to implement additional transiting procedures to minimise asbestos contamination of pathways leading from the enclosure to the decontamination unit. These procedures are longer and more complex than non-transiting.

This involves the use of 'transiting' PPE and additional facilities to enable the worker to carry out preliminary decontamination before travelling to the decontamination unit for full decontamination.

This may include a three-stage airlock isolated changing area, which should be specially constructed and made of 200 µm thick polythene sheeting. The area should be attached to the enclosure and should comprise three compartments separated by weighted sheets to minimise the spread of dust between the compartments.

Before workers enter this changing area, all obvious signs of asbestos dust need to be removed from their protective clothing using an asbestos vacuum cleaner. The isolated changing area is then used to discard outer garments, including coveralls and overshoes, before workers can put on fresh outer/protective clothing for the journey to the decontamination unit. RPE should be worn until the appropriate phase of the decontamination procedure within the remote decontamination unit.

The route of access from the asbestos removal area to the decontamination unit should be suitably signposted and barricaded to restrict public access.

Air monitoring must be conducted in the immediate vicinity of this access route and at other suitable locations outside the asbestos removal area.

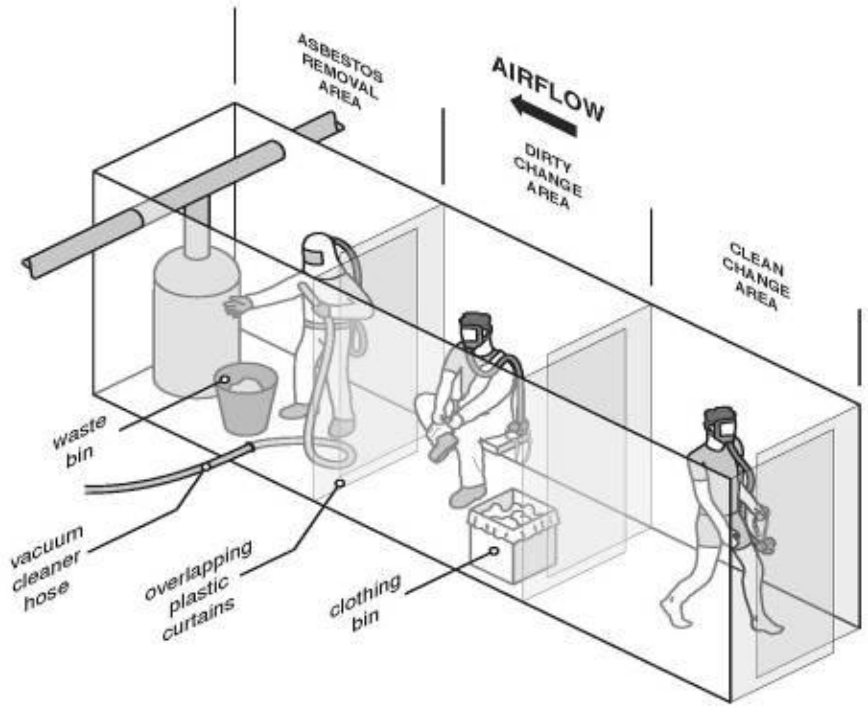


Figure 2: Decontamination area.

4.7 LAUNDERING CLOTHING

Disposable coveralls should be used as protective clothing unless it is not reasonably practicable to do so. When non-disposable protective clothing is used, the contaminated clothing must be laundered in a suitable laundering facility that is equipped to launder asbestos-contaminated clothing. Contaminated protective clothing must not be laundered in homes. Any clothing worn under coveralls must be disposed of or suitably bagged for laundering as asbestos-contaminated clothing.

The laundering facility that is equipped to launder asbestos-contaminated clothing:

- should be informed of the asbestos contamination
- should have a management plan in place to control the release of respirable fibres
- should be constructed of smooth surfaces that are able to be lined with polythene sheeting or easily wiped clean
- may use conventional washing machines provided they are not used for other clothing
- may need to have a laundry room that is under negative pressure to eliminate or minimise the release of airborne asbestos fibres during the laundering process – this can be determined during the risk assessment
- should have procedures established for cleaning up spills and for the prevention of flooding of neighbouring areas.

The contaminated clothing should:

- be removed damp and thoroughly wet, then placed in impermeable containers or bags the outside of which are decontaminated and labelled to indicate the presence of asbestos before being sent to the commercial laundering facility
- not be allowed to dry out before washing.

At the laundry facility:

- the containers and bags holding the asbestos-contaminated clothing should be opened in the washing machine while being further saturated. As a minimum, P1 respiratory protection must be worn while unloading clothes into the washing machine
- the empty containers or bags should be disposed of as asbestos waste. Waste water must be

filtered and the filtering medium disposed of as asbestos waste.

4.8 WASTE CONTAINMENT AND DISPOSAL

An asbestos removalist should design the route for removal of the asbestos waste bags or containers through the asbestos removal work area prior to commencement of the asbestos removal work. Only unused bags and heavy-duty 200 µm (minimum thickness) polythene sheeting can be used. Bags labelled for asbestos waste should not be used for any other purpose.

When developing a waste disposal program, the following should be taken into account:

- the containment of waste so as to eliminate the release of airborne asbestos fibres
- details of any asbestos or ACM to be left in-situ
- the types of fittings and supports and whether removal and disposal of these items is part of the work specifications
- the location and security of waste storage on site
- the transport of waste within the site and off site
- the location of the waste disposal site
- ensure that the proposed location for the storage and asbestos removal work area and the surrounding area will be unoccupied for the duration of the removal
- approvals needed from the relevant local disposal authority
- any local disposal authority requirements that may apply to the amount and dimensions of asbestos waste.

The development of the waste disposal program and methods used to transport waste through a building needs to be determined by a competent person (usually the asbestos removal supervisor) following discussions with the person with management or control. In occupied workplaces, all movement of waste containers through a building should take place outside normal working hours.

Removal work area waste containment

The waste disposal program should be included in the asbestos removal control plan and specify the method of transport and routes to be used for removing waste from the asbestos removal area before the commencement of each removal.

Loose asbestos waste must not accumulate within the asbestos removal work area by containing the waste in labelled asbestos waste bags or wrapped in plastic. Once the asbestos waste has been removed from the asbestos removal area, it should either be placed in a solid waste drum, bin or skip for secure storage and eventual disposal, or removed immediately from the site by an environmental protection agency (EPA) approved/licensed carrier for disposal.

The asbestos waste must be disposed of at a licensed asbestos waste disposal site. The disposal process must be in a manner that eliminates the release of airborne asbestos fibres by ensuring:

- bagged asbestos waste is securely packaged in labelled containers
- waste containers are secure during transport
- the method of unloading the waste is according to waste disposal procedures so that tearing of the plastic lining at the landfill site is prevented.

The asbestos waste must be disposed of as soon as reasonably practicable, whether that is:

- at the end of the removal job
- when the waste containers are full
- at the end of each day if the asbestos waste cannot be secured at the removal site.

Asbestos waste bags

All asbestos waste, friable asbestos and small pieces of non-friable asbestos must be contained to prevent exposure to airborne asbestos fibres. Containment is to be in new heavy-duty 200 µm (minimum thickness) polythene bags that are no more than 1200 mm long and 900mm wide to prevent manual task injuries.

Controlled wetting of the asbestos waste should be carried out to minimise asbestos dust emissions during bag/polythene sealing or any subsequent rupture of the bag or wrapped bundles. The bags must be twisted tightly and have the neck folded over and secured with adhesive tape (referred to as goose-necking).

To minimise the risk of a bag tearing or splitting and to assist in manual handling, asbestos waste bags should not be filled more than half full (depending on the weight of the items) and excess air should be gently evacuated from the waste bag in a way that does not cause the release of dust.

The bags should be labelled with appropriate signage stating that they contain asbestos and that dust creation and inhalation should be avoided.

The external surface of each bag should be cleaned to remove any adhering dust before the bag is removed from the asbestos removal work area and double bagged outside the asbestos removal areas immediately following the decontamination process.

Polythene sheeting for containing asbestos waste

Asbestos sheeting and redundant asbestos-lagged pipes and equipment should be contained in heavy-duty 200 µm (minimum thickness) polythene sheeting.

Polythene sheeting should be new (not recycled) as recycled sheeting can have flaws in it. Once wrapped in plastic, the bundles need to be labelled to indicate they contain asbestos so they can be treated appropriately.

Asbestos sheeting and redundant asbestos-lagged pipes and equipment should be double wrapped in the polythene sheeting and adhesive tape applied to the entire length of every overlap to secure the bundles to minimise the risk of the polythene sheeting tearing or splitting.

Removing waste from the removal work area

Once the waste has been removed from the asbestos removal work area, it should either be:

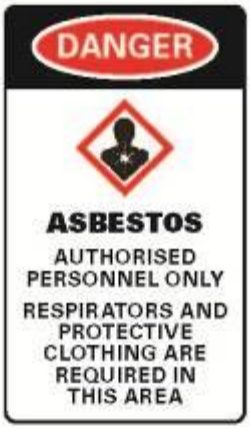
- placed in a solid waste drum, bin or skip for secure storage and eventual disposal
- immediately removed from the site by the relevant EPA approved/licensed carrier for disposal.

Labels for waste containers and drums

All containers containing a hazardous chemical such as asbestos must conform to the labelling elements of the GHS. The waste drums or bins should be lined with plastic (minimum 200 µm thickness), and labels warning of the asbestos waste should be placed on the top and side of each drum or bin with the words, '*Danger: Asbestos Do not break seal'* or a similar warning.

Examples of labels are included below.

Label 1: Sample asbestos waste bag.



Sign 1: Sample asbestos removal area.

Asbestos waste drums or bins

All drums or bins used for the storage and disposal of asbestos waste should be in good condition with lids and rims in good working order and free of hazardous residue.

The drums or bins should:

- be placed in the asbestos removal work area or located as close to the asbestos removal work area as possible before removal work commences
- be lined with plastic (minimum 200 µm thickness) and labels warning of the asbestos waste must be placed on the exterior of each drum or bin
- have their rims sealed and their outer surfaces wet-wiped and inspected before they are removed from the asbestos removal work area.

Controlled wetting of the waste during drum or bin filling should be carried out to minimise asbestos dust emissions.

Drums or bins used to store asbestos waste must be stored in a secure location when they are not in use. They should not be moved manually once they have been filled. Trolleys or drum lifters should be used.

If the drum or bin is to be reused, the asbestos waste should be packed and sealed so that when the drum or bin is emptied there is no residual asbestos contamination. The drum or bin should be inspected after use to ensure there is no asbestos residue.

Asbestos waste skips, vehicle trays and similar containers

If the volume or size of the asbestos waste cannot be contained in asbestos waste bags, drums or bins, a waste skip, vehicle tray or similar container in good condition should be used.

The asbestos should be sealed in double-lined, heavy-duty plastic sheeting or double bagged before it is placed in the skip. However, non-friable asbestos waste may be placed directly into a skip or vehicle tray that has been double-lined with heavy-duty plastic sheeting (200 µm minimum thickness) provided it is kept damp to minimise the generation of airborne asbestos.

Once the skip is full, its contents should be completely sealed with the plastic sheeting. If the skip is emptied at a waste disposal site, procedures for containment of the plastic lining to prevent tearing should be developed.

If asbestos waste cannot be disposed of immediately, the skip may be used for storing the asbestos waste on site over a period of time provided that the contents are secured (for example, using a lockable lid or locating the skip in a secure area) to prevent unauthorised access.

Transport and disposal of asbestos waste

Disposal of asbestos waste is the final step in the process of asbestos removal work. It is therefore the last point at which the exposure to risks associated with asbestos is likely to occur. The asbestos waste must be disposed of as soon as is practicable at a licensed asbestos disposal site.

The transport of commercial asbestos waste is covered under EPA legislation. Disposal sites are regulated by the EPA and local government regulations.

5. USING AN ENCLOSURE DURING LARGE SCALE REMOVAL WORK

Large scale asbestos removal includes removal that occurs on a frequent basis, is generally of a longer duration, usually generates a significant amount of airborne asbestos fibres and may pose a serious risk both to workers and others.

Where friable asbestos is removed, a licensed asbestos removalist that holds a Class A licence must remove the asbestos. The licensed asbestos removalist must ensure, so far as is reasonably practicable, the asbestos removal work area is enclosed (sometimes referred to as the 'bubble') to eliminate or minimise the release of airborne asbestos fibres.

When large scale friable asbestos removal work is being undertaken, the asbestos removal work areas should be enclosed and under 'negative pressure' with the use of negative air pressure units.

The use of enclosures in large scale non-friable asbestos removal requiring a Class B licence should be determined on the basis of a risk assessment. Factors such as proximity to other work areas, weather conditions if outdoors, and the amount of material to be removed should be considered.

5.1 DESIGNING AND INSTALLING AN ENCLOSURE

The design and installation of the enclosure should consider:

- methods used to contain the asbestos removal work area
- provision and locations of decontamination/changing facilities and negative pressure exhaust units
- precautions to be implemented to eliminate or minimise the spread of asbestos contamination outside the asbestos removal work area
- air quality within the enclosure
- types of lighting, whether natural or artificial
- temperature within the enclosure to avoid heat stress
- any other hazards in the enclosure (these must be identified and the risks controlled before any removal work commences).

The enclosure should:

- be constructed of heavy-duty plastic sheeting (200 µm minimum thickness) and enclose all the walls, windows and doors. Wooden cleats may be

used to anchor the plastic sheeting to walls. Re-milled plastic sheeting should not be used

- have viewing panels placed in appropriate locations so that the asbestos removal work area can be seen from outside the enclosure
- have adequate lighting within the enclosure, either:
  - naturally, using clear plastic or perspex panels in the enclosure walls
  - artificially, preferably from outside the enclosure using clear plastic or perspex panels.

During the masking up and later removal of the sheeting, all persons must wear appropriate PPE, for example coveralls, and as a minimum a half-face respirator with P1 filters.

Where the asbestos removal work area connects either to the outside environment or to the rest of the building, it should be enclosed so that an airtight seal is maintained for the duration of the asbestos removal work (for example, windows, ducts, wall cavities and lift entrances).

All movable items should be removed from the removal area. If this is not possible, move the items from the immediate asbestos removal work area and cover with two layers of plastic sheeting with a minimum overlap of 300 mm between the layers. Both layers should be double taped.

All non-movable items such as fixtures and fittings should be covered with plastic sheeting and the joints sealed.

Airlocks should be placed at the entry points to the change area and constructed using double sets of overlapping plastic with suitable provisions for ensuring a seal.

All floors should be protected with at least one layer of woven plastic to prevent penetration during the removal work. The joints should be lapped 300 mm and sealed with double-sided tape and duct tape.

If the asbestos removal area is next to areas occupied by unprotected persons, priority should be given to:

- performing the asbestos removal work during periods when these areas are unoccupied
- greater isolation of the asbestos removal area. This is the preferable option.

Consideration should be given to the use of hoarding to form a barrier between the asbestos removal work area and the adjoining occupied areas. A plastic-lined barrier should be

erected within this hoarding and a buffer area should be reserved between the hoarding and occupied areas.

Platforms and fixed scaffolding should be erected during the early stages of the work. These structures should ideally be erected on the outside of the enclosed area. Any platforms or fixed scaffolding within the enclosed area must be decontaminated and visually inspected at the end of the removal work.

All tools and equipment used for removal work, including asbestos vacuum cleaners, must remain within the asbestos removal work area until the completion of the job.

All the plastic and tape used for the enclosure must be disposed of as asbestos waste. Any temporary structures must be disposed of as asbestos waste if they cannot be decontaminated. An inspection by a competent person will confirm if the structures are free of any visible asbestos.

Work methods should be adapted for the work environment within the enclosure. For example, rest breaks need to be based on a risk assessment taking into account factors such as the weather and heating/cooling requirements.

5.2 TESTING AN ENCLOSURE

Prior to the removal work commencing, the licensed asbestos removalist should ensure the enclosure is tested by a licensed assessor.

A licensed assessor should visually inspect, test and smoke the enclosure prior to commencement of the asbestos removal work.

- While smoke is generated within the enclosure, a worker should be outside the enclosure to check for leaks.
- Only smoke-generating devices incorporating non-oil-based, non-toxic smoke fluids can be used. Flares should not be used.
- Smoke (fire) detection devices in the immediate vicinity of the asbestos removal area should be isolated for the duration of the smoke test.
- The results of the smoke test should be documented and a copy provided to the licensed asbestos removalist.

Negative pressure exhaust units should not be used while the smoke test is being conducted.

The effectiveness of the enclosure should be regularly monitored while asbestos removal work is underway (for example, a visual

examination, air-monitoring results and negative pressure readings).

If leaks or deficiencies are found during the initial testing of the enclosure, these must be rectified (an expandable foam sealant, tape or equivalent may be used) and another smoke test performed until no leaks or deficiencies are identified.

Following a visual examination of the enclosure and surrounding area, if a leak of asbestos (more than 0.02 fibres/ml) is detected:

- the asbestos removal work must stop until any defects have been rectified
- before work recommences, it is essential to:
  - identify the source of the leak/s
  - eliminate or minimise further release of airborne asbestos fibres
  - seal the leaks in the enclosure
  - re-test the enclosure by smoke testing until the enclosure is effective again
  - clean any contaminated areas
  - conduct visual inspections
  - conduct an air monitoring test specific to the incident (air monitoring)
  - notify the relevant authority where applicable
  - re-assess the boundaries of the asbestos removal work area and site

A supply of expandable foam sealant, polyester insulation or equivalent should be kept on site for sealing leaks.

5.3 INFORMATION ON PRESSURE EXHAUST UNITS (NEGATIVE UNITS)

To prevent the escape of airborne asbestos from an enclosed asbestos work area, an exhaust extraction fan should be installed so as to create a 'negative' air pressure of approximately 12 Pa (water gauge) within the enclosed asbestos work area.

An exhaust extraction fan should be installed in the enclosure to create a 'negative' air pressure of approximately 12 Pa (water gauge) within the enclosed asbestos removal work area. This may require the use of more than one negative pressure exhaust unit.

Units should incorporate warning devices for filter integrity/overload and power failure, and should have a

manometer or magnohelic gauge and an audible and visual alarm system.

The negative pressure exhaust unit should be positioned opposite the decontamination unit to enable laminar (smooth) air flow.

- The air entering the asbestos removal work area passes through the decontamination unit or point-of-entry while the air extracted passes through a HEPA filter to remove any asbestos before it is discharged to the outside.
- If this is not possible, consideration should be given to how to set up the enclosure, decontamination unit and negative pressure exhaust unit to enable optimum smooth flow of air through the enclosure so as to minimise dead air pockets. Discharge of the air from the enclosure should be at a location away from other working areas, air-conditioning inlets or breathing air compressors.

The HEPA filter must comply with AS 4260:1997 *High efficiency particulate air (HEPA) filters – Classification, construction and performance* or its equivalent.

- A coarse pre-filter should be installed on the air intake side of the negative air unit to prolong the useful life of the HEPA filter.
- These pre-filters may need to be changed once per work shift or more frequently depending on dust loads.
- Used pre-filters must be disposed of as asbestos waste.
- A process of regular inspection of the integrity of the HEPA filter and seal fittings in conjunction with a static pressure alarm should indicate failures in the system.

The negative air units should operate continuously (24 hours a day) until all asbestos removal work and decontamination within the enclosure has been completed, a clearance certificate issued and the enclosure dismantled. If the units stop during removal work, the licensed asbestos removalist must ensure all removal work ceases immediately until the problem is rectified and the required number of units are in operation. To minimise the risk of airborne asbestos fibres escaping the enclosure, the delay should be as short as possible to avoid interruption. Consideration should be given to backup negative pressure exhaust units and the use of a generator.

Maintenance work on these units should only be performed after they have been thoroughly decontaminated, or the work may be carried out under controlled conditions, such as in an asbestos removal enclosure while wearing appropriate PPE.

Bulk stripping and cleaning within an enclosure

Sprayed asbestos insulations need to be wet thoroughly using a fine water spray. Aim to achieve maximum saturation with minimum run-off to minimise any subsequent clean-up and slip hazards.

Wetting, scraping and vacuuming methods need to be used wherever reasonably practicable. Where the ACM is covered with cloth, metal cladding or wire reinforcing, it should be wet thoroughly during the removal process.

Once a competent person has determined the removal area is clean, the licensed removalist should, wherever reasonably practicable, spray clean surfaces within the removal area with tinted PVA or a similar acrylic emulsion using airless spraying equipment. This includes any layer of plastic forming the inner surface of the enclosure to ensure any loose asbestos fibres on the plastic are firmly adhered to prior to its dismantling.

After the PVA has dried and sufficient time has elapsed for it to dissipate, air (clearance) monitoring should take place, where required. The plastic enclosure must not be dismantled until a satisfactory visual inspection and monitoring has taken place.

Dismantling an asbestos removal enclosure

The licensed asbestos removalist should only dismantle a structure used to enclose an asbestos removal area once all of the following are done:

- asbestos removal work has been completed
- visual inspection by an independent competent person is satisfactory
- air monitoring, in the case of friable asbestos removal, is found to be less than 0.01 fibres/ml.

The plastic that formed the enclosure must be disposed of as asbestos waste, along with any other contaminated material that assisted in forming the enclosure. In some cases, structures used in building the enclosure (other than the plastic that formed the enclosure) may be wrapped and sealed in plastic and not opened until in a similar controlled environment, such as another asbestos removal enclosure (for example, collapsible rods used to form the enclosure frame).

The area from which the enclosure was dismantled must be thoroughly cleaned and inspected. This should be followed by

further air monitoring demonstrating the levels are below 0.01 fibres/ml.

Ropes, warning signs and protective plastic isolating public areas should not be removed until:

- the enclosure has been dismantled and removed as asbestos waste
- satisfactory air monitoring results have been achieved
- the removal area and its surrounds have been visually inspected by an independent person and found to be satisfactory for reoccupation.

Security and checks when using an enclosure

The licensed asbestos removalist should ensure an employee is stationed outside the asbestos work area for the duration of the asbestos removal work to:

- liaise with the project supervisor
- check and maintain negative air units, compressor units, decontamination units and hot water service
- ensure security of the area is maintained
- communicate with personnel inside the work enclosure
- instigate emergency or evacuation procedures if necessary.

Records of these checks should be made on a daily basis and kept.

6. METHODS FOR SMALL SCALE REMOVAL WORK

Small scale friable asbestos removal work usually generates enough airborne asbestos fibres to require the use of PPE and generally is carried out only in short periods, for example minor maintenance work. Small scale removal work involves using mini-enclosures, 'glove bag' and 'wrap and cut' techniques.

6.1 MINI-ENCLOSURE

Mini-enclosures are suitable for asbestos removal work in areas with restricted access, such as ceiling spaces, and for emergency asbestos removals. Hazards and work procedures that should be considered for large enclosures should also be considered for mini-enclosures.

Building the mini-enclosure

To build a mini-enclosure, the below process should be followed:

- Off-the-shelf mini-enclosures can be used or alternatively timber or other materials can be used to build a frame. The frame of a mini-enclosure can be made from a variety of materials, but has to be strong enough to support the plastic sheeting that forms the enclosure.
- Heavy-duty plastic sheeting (200 µm minimum thickness) should be used for making the enclosure. Do not use recycled or re-milled plastic.
- Make the enclosure large enough to do the work safely, allowing for movement inside the enclosure and all the equipment needed for the removal work such as tools for the task including a bucket of water, rags, sprayer, vacuum cleaner nozzle and hose.
- Machinery that emits exhaust fumes should not be placed in a mini-enclosure.
- Attach the polythene sheeting inside the frame with duct tape.
- Attach the polythene sheeting to the ceiling with masking tape only. Attach it to non-asbestos surfaces with duct tape. The tape used to connect the plastic to the frame should be strong enough to securely hold the plastic to the frame.
- Make an entry slit in one wall of the enclosure and reinforce this with duct tape from inside the enclosure. Attach a polythene sheet above the entry slit to cover it.
- Check all seals inside the enclosures for leaks with a smoke test using smoke tubes for mini-enclosures. The competent person, usually the licensed asbestos supervisor, outside the enclosure should check for leaks outside the enclosure and seals all leaks.

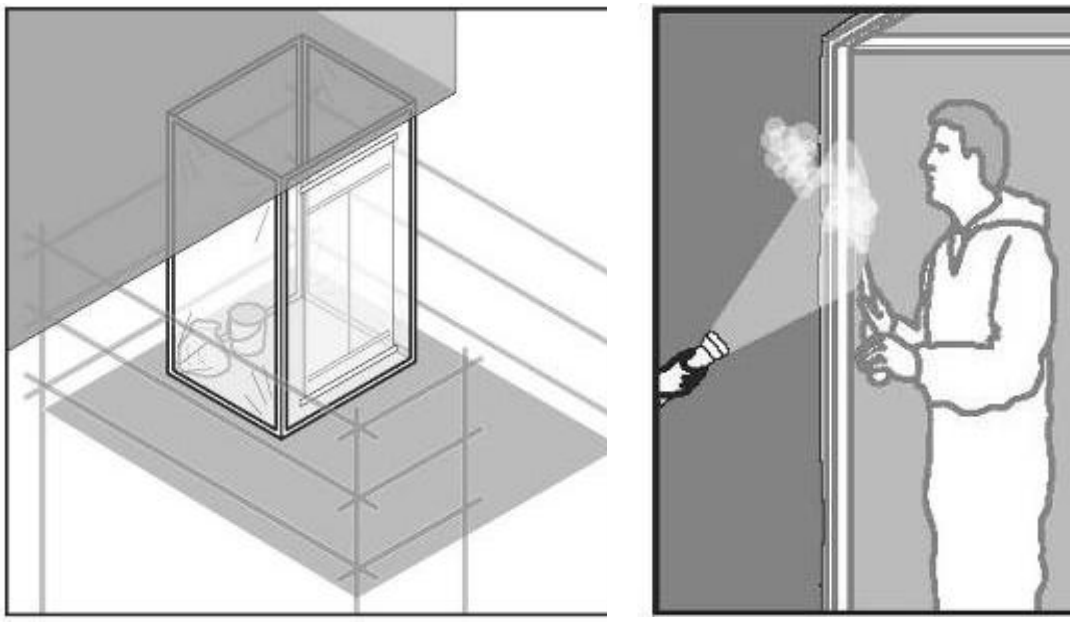


Figure 3: Building and using the enclosure.

Dismantling the mini-enclosure

To eliminate or minimise airborne asbestos fibres escaping when dismantling the mini-enclosure, the below process should be followed:

- Put the asbestos waste in a clear bag with an asbestos warning sign or label to indicate the presence of asbestos.
- Clean the enclosed area with the asbestos vacuum cleaner.
- Clean the equipment and polythene sheeting with damp rags.
- Workers leaving a mini-enclosure must follow personal decontamination procedures.
- Inspect the enclosure visually for cleanliness.
- Ensure that a clearance inspection is conducted by an independent licensed asbestos assessor or competent person and a clearance certificate is issued.
- Spray the polythene sheeting with PVA sealant.
- Remove the sheeting from the framework and put it in the labelled asbestos waste container.
- Remove PPE and put it in the labelled asbestos waste container, taping the container closed.
- If the framework was fully protected and it been decontaminated and inspected by the asbestos removalist, it can be reused.

6.2 GLOVE BAG ASBESTOS REMOVAL WORK

The glove bag removal technique is suitable for the removal of asbestos lagging from individual valves, joints and piping. Glove bags:

- are designed to isolate small removal jobs from the general working environment and provide a flexible, easily-installed and quickly-dismantled temporary enclosure for small removal work
- are single-use bags constructed from transparent, heavy-duty polyethylene with built-in arms and access ports. Glove bags are about one metre wide and 1.5 metres deep
- contain all waste and contamination within them, eliminating the need for extensive PPE and decontamination. A limitation in using glove bags is the volume of waste material they are able to contain. Care should be taken to prevent overfilling the bag with waste
- should not be used for hot pipe work due to difficulties in sealing the glove bag to the pipe or maintaining a seal.

The below process should be followed when using the glove bag removal technique:

- Equipment and removal tools for the asbestos removal work should be placed into the glove bag at the start of the job. The tools used to remove the asbestos depend on the nature of the material to be removed.
- A P1 filtered respirator and disposable coveralls need to be worn as a minimum while using glove bags in case a bag ruptures or leaks.
- The glove bag should completely cover the pipe or object. The lagging on either side of the bag should be sound enough to support the weight of the bag and its wet contents.
- Cut the sides of the glove bag to fit the size of the pipe from which asbestos is to be removed. Attach the glove bag to the pipe by folding the open edges together and securely sealing them with duct tape or an equivalent.
- Seal all openings in the glove bag with the tape, including the bottom and side seams to prevent any leakage if there is a defect in a seam.

- Saturate the asbestos with a wetting agent and then remove it from the pipe, beam or other surface. The wetting agent should be applied with an airless sprayer through a pre-cut port, as provided in most glove bags, or through a small hole cut in the bag. Asbestos that has fallen into the bag should be thoroughly saturated.
- Asbestos or ACM is generally covered with painted canvas and/or wire. Any canvas should be cut and peeled away from underneath. If the asbestos or ACM is dry, it should be re-sprayed with the wetting agent before it is removed.
- Clean the pipe or surface once the asbestos has been removed using a wire brush or similar tool and wet-wipe it until no traces of the asbestos can be seen. Wash down the upper section of the bag to remove any adhering asbestos.
- Seal edges of asbestos exposed by the removal or by maintenance activity to ensure the edges do not release respirable asbestos fibres after the glove bag is removed.
- When the asbestos has been removed and sealed, insert a vacuum hose from an asbestos vacuum cleaner into the glove bag through the access port to remove any air in the bag that might contain respirable asbestos fibres. When the bag has been evacuated, squeeze it tightly (as close to the top as possible) and twist and seal it with tape, keeping the asbestos safely in the bottom of the bag.
- Remove the vacuum line from the bag and then remove the glove bag from the workplace for disposal as asbestos waste.
- When the removal is complete, the worker must follow the procedures to personally decontaminate and decontaminate tools according to the decontamination requirements. The asbestos waste in the bag should be sealed and disposed of according to the waste disposal procedures.

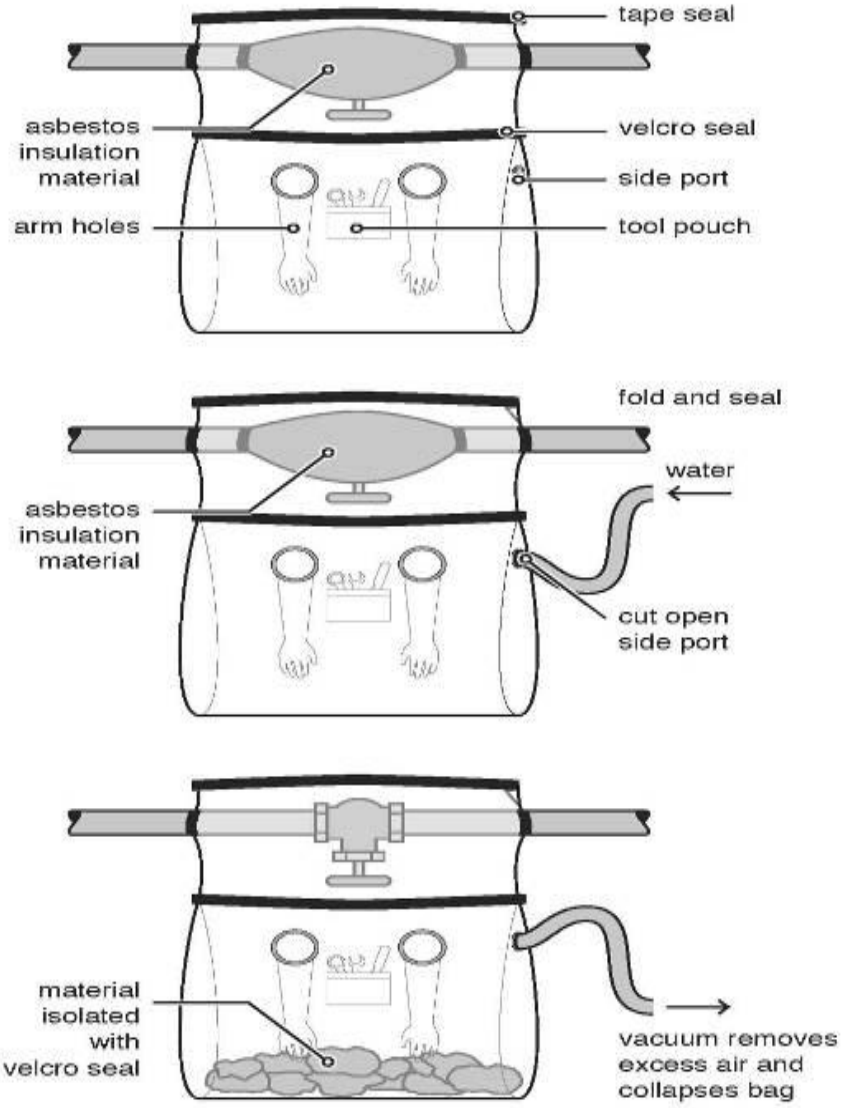


Figure 4: Example of Glove bag.

6.3 WRAP AND CUT ASBESTOS REMOVAL METHOD

The 'wrap and cut' technique of removal produces the lowest levels of respirable asbestos fibres and is used instead of full containment procedures when the asbestos is a small amount of non-friable asbestos in good condition and not damaged. This method is most appropriate when the entire component is to be removed, such as redundant plant and equipment covered with lagging. If lagging has to be removed to allow a pipe to be cut, the glove bag removal method may be used to expose the metal at the point to be cut and for a sufficient length on either side.

The pipe should be cut at the centre of the exposed section.

The below process should be followed when using the wrap and cut removal technique:

- The plant or equipment to be removed should be vacuumed with a HEPA-fitted vacuum cleaner and/or wiped with damp rags (which should be disposed of as asbestos waste).
- The plant or equipment should be double wrapped with 200 µm thick plastic and taped so that the asbestos is totally sealed within the plastic. The wrapped plant or equipment is cut from the rest of the plant and equipment using mechanical shears or oxy-cutting tools.
- Only exposed metal can be cut and care should be taken to ensure the plastic wrapping is not punctured or melted. The cut section is then removed as asbestos waste.
- If lagging has to be removed to allow a pipe to be cut, the glove bag removal method may be used to expose the metal at the point to be cut and for a sufficient length on either side. The pipe is then cut at the centre of the exposed section.
- A P1 filtered respirator and disposable coveralls should be worn as a minimum while doing wrap and cut removal work. If the lagging is in very poor condition, such that significant airborne asbestos fibres may be generated, a higher level of respiratory protection may be required or the method of removal reconsidered.
- On completion of the removal, workers need to follow the personal decontamination procedures and dispose of asbestos waste.

7. CONTROLS FOR SPECIFIC ASBESTOS REMOVAL WORK

Appendix D provides some additional examples of asbestos removal work.

7.1 REMOVING ASBESTOS-CONTAMINATED SOIL

Asbestos-contaminated soil comprises non-attached pieces of asbestos cement products and other material containing asbestos uncovered in soil during other work activities. Contamination can be detected during building and road construction and excavation, waste disposal, damage following a severe weather event such as a hail storm, weathering over time, or when asbestos is poorly handled or damaged during removal.

A risk assessment by an independent licensed asbestos assessor or competent person, including contaminated site assessment practitioners, should determine the most appropriate control measures and remediation strategies.

Asbestos-contaminated soil is also subject to requirements of other regulatory agencies such as the EPA, Public Health and local governments. Where guidance on the assessment and remediation of contaminated sites is sought, the Assessment of Contaminated Sites National Environmental Protection Measure (NEPM) should be referred to. The contaminated sites NEPM is published by the Environmental Protection Heritage Council (EPHC).

Removal of asbestos from contaminated soil will require a Class A licensed asbestos removalist for any friable asbestos to be removed, or a Class B licensed asbestos removalist if more than 10 m² of non-friable asbestos is to be removed. A person who does not have a licence can remove 10 m² or less of non-friable asbestos. Where there is uncertainty as to whether the amount of non-friable asbestos is more or less than 10 m², a Class A or Class B licensed asbestos removalist should be engaged.

For all asbestos removal requiring a Class A removal licence, an air monitoring program must be implemented to ensure the control measures do not release airborne asbestos fibre. When all visible asbestos has been removed, and the air monitoring program indicates that the level of respirable asbestos fibres does not exceed 0.01 f/mL (10 per cent of the asbestos exposure standard), the licensed assessor must complete the clearance certificate.

All asbestos and any contaminated soil removed must be disposed of as asbestos waste according to the EPA and the requirements of the local licensed waste disposal facility.

Immediate action

If the soil is suspected of containing asbestos, the person with management or control of the workplace must assume the soil contains asbestos and cease work immediately. A competent person should take samples of the material for analysis to confirm or refute that assumption.

If confirmed, the person with management or control of the workplace must ensure control measures are implemented to minimise the release of airborne asbestos. The control measures include:

- preparation of an asbestos management plan for the site
- setting the boundaries of the contamination as determined by an independent licensed asbestos assessor or competent person
- ensuring there is minimal disturbance of the contaminated soil until the asbestos management procedures have been implemented
- isolating and securing the removal work site using signs and barriers
- controlling dust with dust suppression techniques (such as water and wetting agents)
- providing PPE based on the level of contamination and the control measures implemented
- sampling and/or air monitoring
- providing education and training for workers on hazards and safe work practices to minimise airborne dust exposure
- implementing decontamination procedures for the workers and the equipment.

7.2 REMOVING FRIABLE ASBESTOS FROM HOT SURFACES

Friable asbestos in or on hot metal or machinery presents one of the worst conditions for removal, as airborne asbestos fibres can spread on convection currents in the air and the potential for burns is high.

Removal of work from hot surfaces should be avoided. If possible, the removal should be scheduled and planned around shutdowns, with sufficient time being allowed for the metal or machinery to cool down before removal is attempted. Hot metal

removal should be used only in emergency situations and where the use of water sprays may create steam, making the removal task unsafe or more difficult.

In the limited circumstances where the dry removal of asbestos from hot surfaces is the only option (for instance, emergency situations), particular care should be taken in the selection of dust extraction equipment to cope with the convection currents involved, and the selection of appropriate PPE also becomes even more important.

Heat stress should be considered when preparing the asbestos removal control plan, particularly in the selection of PPE and the design of the work program.

Arrangements for the removal of asbestos from hot plant and equipment should be factored into the asbestos management plan for the workplace. This should include cooling requirements and/or the shutdown periods required to achieve adequate cooling.

7.3 REMOVING ASBESTOS IN PLANT AND PIPES OR PITS

Asbestos products include gaskets reinforced with asbestos that are used in plant and equipment between flanges on pipes to control the temperature and pressure. Asbestos rope was used for lagging pipes and valves and for sealing hatches. Asbestos is also found in friction products such as brake linings and cylinders.

It is likely that the asbestos in gaskets and rope and friction products will be friable. This type of plant and equipment is subject to the removal of friable asbestos and may be removed using the 'glove bag' or 'wrap and cut' method. If the plant contains non-friable asbestos, a Class B licensed asbestos removalist can conduct the removal (which could also be removed by an asbestos removalist that does not have a licence).

In the past, telecommunication pits were constructed using asbestos and at the access points there is potential for exposure to airborne asbestos fibres when accessing these pits.

Work installing or modifying telecommunication lines in these pits may require cutting and removal. Where no other asbestos-related removal work is required and the asbestos is non-friable, a Class B licensed asbestos removalist can remove the asbestos; however, a Class A licensed asbestos removalist may also carry out the removal work. If the amount of non-friable asbestos to be removed is less than 10 m², it may be removed by a person who does not have a licence.

APPENDIX A – ASBESTOS REMOVAL CONTROL PLAN CONTENTS

	Building & structures		Plant & equipment	
	Friable	**Non-Friable**	**Friable**	**Non-Friable**
Notification				
Notification requirements have been met and required documentation will be on site (e.g. removal licence, control plan, training records)	Yes	Yes	Yes	Yes
Identification				
Details of asbestos to be removed (e.g. the locations, whether asbestos is friable/non-friable, its type, condition and quantity being removed)	Yes	Yes	Yes	Yes
Preparation				
Consult with relevant parties (health and safety representative; workers; person who commissioned the removal work, licensed assessors)	Yes	Yes	Yes	Yes
Assigned responsibilities for the removal	Yes	Yes	Yes	Yes
Program commencement and completion dates	Yes	Yes	Yes	Yes
Emergency plans	Yes	Yes	Yes	Yes
Asbestos removal boundaries, including the type and extent of isolation required and the location of any signs and barriers	Yes	Yes	Yes	Yes
Control of other hazards including electrical and lighting installations	Yes	Yes	Yes	Yes
PPE to be used including RPE	Yes	Yes	Yes	Yes
Removal				
Details of air-monitoring program Control and clearance	Yes	No	Yes	No
Waste storage and disposal program	Yes	Yes	Yes	Yes
Method for removing the asbestos (wet and dry methods)	Yes	Yes	Yes	Yes
Asbestos removal equipment (e.g. spray equipment, asbestos vacuum cleaners, cutting tools)	Yes	Yes	Yes	Yes
Details of required enclosures, including their size, shape, structure etc, smoke testing enclosures and the location of negative pressure exhaust units	Yes	No	Yes	No
Details on temporary buildings required by the asbestos removalist (e.g. decontamination units) including details on water, lighting and power requirements, negative pressure exhaust units and the locations of decontamination units	Yes	May be required depending on the job	Yes	May be required depending on the job

Other risk control measures to prevent the release of airborne asbestos fibres from the area where asbestos removal is undertaken	Yes	Yes	Yes	Yes
Decontamination				
Detailed procedures for workplace decontamination, the decontamination of tools and equipment, personal decontamination and the decontamination of non-disposable PPE and RPE	Yes	Yes	Yes	Yes
Waste Disposal				
Method of disposing of asbestos wastes, including details on: • the disposal of protective clothing	Yes	Yes	Yes	Yes
• the structures used to enclose the removal area	Yes	No	Yes	Yes
Clearance and air monitoring				
Name of the independent licensed asbestos assessor or competent person engaged to conduct air monitoring (if any)	Yes	No	Yes	No
Consultation				
Consult with any people who may be affected by the removal work, including neighbours	Yes	Yes	Yes	Yes

APPENDIX B – RESPIRATORY PROTECTIVE EQUIPMENT

When selecting RPE, you should also refer to the ***AS/NZS 1715:1994 Selection, Use and Maintenance of Respiratory Protective Devices*** and **AS1716:2003 *Respiratory Protective Devices*.**

The figures below provide examples of some respirators that can be used. The protection afforded by each device depends not only on the design and fit of the respirator but also upon the efficiency of the filters (for instance, P1, P2 or P3). These figures are indicative only. In order to show the correct respirator fit, they do not show the use of hoods. Respirators must always be worn under a hood.

Figure 5: Disposable, half-face particulate respirator.

Figure 6: Half-face, particulate filter (cartridge) respirator.

(C) Powered, air-purifying, ventilated respirator

Figure 7: Powered, air-purifying, ventilated respirator.

(D) Full-face, particulate filter (cartridge) respirator

Figure 8: Full-face, particulate filter (cartridge) respirator.

Figure 9: Full-face, powered air-purifying particulate respirator.

Figure 10: Full-face, positive pressure demand air-line respirator.

Selection of RPE

The most efficient respirator and filter for the task should be used. Proper fit is critical; a disposable half-face respirator is especially difficult. Consideration should be given to upgrading to a non-disposable half-face respirator.

Table 2 provides guidance for the selection of appropriate respiratory protection for different tasks, assuming the correct work procedures are being followed. This table does not take into account personal features including facial hair or where glasses are worn. Full protection cannot be achieved if either of these factors interferes with the face seal.

Workers should be consulted on the selection of RPE to ensure individual fit and medical factors have been considered.

Work Procedure	Required respirator	Filter type
Simple enclosure erection for containing undamaged asbestos materials to prevent damage – no direct handling but possible disturbance of asbestos	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Inspection of the condition of any installed friable asbestos, which appears in poor condition or has been disturbed	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Sampling material for the purpose of identifying asbestos	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Removal of non-friable asbestos (e.g. asbestos cement sheets, ceiling tiles and vinyl tiles)	Disposable, half-face particulate respirators OR Half-face, particulate filter (cartridge) respirator	P1 or P2
Extensive sample operations on friable asbestos	Full-face, particulate, filter (cartridge) respirator	P3
Maintenance work involving the removal of small quantities of friable asbestos (e.g. replacement of friable asbestos gaskets and insulation)	Full-face, particulate, filter (cartridge) respirator	P3
Certain forms of wet stripping in which wetting is prolonged and effective, and certain small-scale dry stripping operations	Full-face, powered air-purifying particulate respirator OR Full-face, positive pressure demand air-line respirator	P3

Work Procedure	Required respirator	Filter type
Certain forms of dry stripping and ineffective wet stripping (light wetting, no time given to saturate)	Full-face, powered air-purifying particulate respirator OR Full-face, positive pressure demand air-line respirator No lesser respirator will suffice	P3
Dry stripping in confined areas	Full suit or hood, positive pressure demand continuous flow air-line respirator No lesser respirator will suffice	P3 only as a backup

Table 2: Selecting RPE.

Fit testing of face pieces

The fit of a negative-pressure respirator to a worker's face is critical. A fit test, in accordance with ***AS/NZS 1715:2009 Selection, Use and Maintenance of Respiratory Protective Devices*** and the manufacturer's instructions, should be performed to assist in determining the best fit respirator for the individual worker immediately before commencing work and a fit check performed each time the respirator is to be used.

The performance of RPE depends on a good contact between the wearer's skin and the face seal of the mask so that the mask is a tight-fitting face piece or full mask. A good face seal can only be achieved if the wearer is clean-shaven in the region of the seal and the face piece is the correct size and shape to fit the wearer's face.

Workers using negative-pressure respirators should also be clean-shaven to ensure a good face seal. Workers with beards, stubble or facial hair should use a continuous-flow positive pressure respirator.

Workers wearing prescription glasses with side arms may not be able to use full-face respirators because of the loss of seal around the spectacle arms. If their glasses cannot be modified so they do not need the support of the ears, these workers should not use full-face respirators and should wear air supply hoods instead. Ensure that these hoods will provide a sufficient level of protection.

Where the half-face respirator has been selected as providing the most appropriate protection and a seal or fit is not achievable from non-disposable respirators, a disposable respirator may be used.

To conduct a full- or half-face respirator fit check:

- close off inlet to filter
- inhale gently
- hold for 10 seconds
- check that the face piece remains slightly collapsed, as it should.

APPENDIX C – EXAMPLE OF A CLEARANCE CERTIFICATE

SECTION A – CLEARANCE INSPECTION DETAILS

NOTE: Where asbestos removal work requires a Class A licence, a licensed asbestos assessor must carry out the clearance inspection and complete an asbestos removal clearance certificate if satisfied that the area is safe to reoccupy.

Client details	
Name of client:	
Client contact details:	
Removal work details	
Date removal work carried out:	
Site address where removal work is being carried out:	
Details of the specific asbestos removal work area(s):	
Name of licensed asbestos removalist:	
Name and contact details of licensed asbestos removalist supervisor (if different to removalist):	
Inspection details	
Date of clearance inspection:	
Time of clearance inspection:	

SECTION B – ASBESTOS REMOVAL WORK PAPERWORK

	Yes	**No**
Do you have a copy of the asbestos removal control plan?		
Do you have a copy of the notification form?		
Is the removal work consistent with the control plan and the notification form? (e.g. use of enclosures, decontamination facilities, waste facilities)		

SECTION C – ASBESTOS REMOVAL WORK AREA

1. Visual Inspection

	Yes	No
Inspection of the specific area detailed in Section A found no visible asbestos remaining as a result of the asbestos removal work carried out.		
Is air monitoring required (if no, proceed to Section E)		
Can the area be reoccupied?		
Has additional information been attached? (e.g. photos, drawings, plans)		

2. Air monitoring

	Yes	No
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01 f/ml.		
Has the air monitoring sample been analysed by a NATA-accredited laboratory?		
Is the air monitoring report attached?		
Can the area be reoccupied?		

SECTION D – ENCLOSURES

1. Prior to dismantling the enclosure

	Yes	No
The area within the enclosure and the area immediately surrounding the enclosure was inspected and no visible asbestos was found.		
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01f/ml.		
Is the air monitoring report attached?		
Can the enclosure be dismantled?		

Number of samples collected:_____

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
RESULTS					

2. After the enclosure was dismantled and removed

	Yes	No
An inspection of the area in which the enclosure was erected and the area immediately surrounding the area where the enclosure was erected was inspected and no visible asbestos was found.		
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01f/ml.		
Is the air monitoring report attached?		
Can the area be reoccupied?		

Number of samples collected: _____

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
RESULTS					

SECTION E – CLEARANCE DECLARATION

☐ I declare that:

- the former enclosure, asbestos removal work area and the surrounding area are free from any visible asbestos
- the transit route and waste routes are free from any asbestos, and
- all asbestos in the scope of the removal work has been removed and any known asbestos is intact.

.....	.....
.....	.....
Signature of licensed assessor/competent person	Assessor licence number (if applicable)

.....
.....
Name of licensed assessor /competent person

APPENDIX D – EXAMPLES OF ASBESTOS REMOVAL WORK

NOTE: This appendix does not address hazards other than asbestos, including fall from heights or electrical hazards. These hazards also need to be identified and the associated risk controlled.

This appendix provides guidance on how to perform a specific task associated with asbestos removal work.

With all tasks, some general requirements include the following:

- Obtain the asbestos register prior to commencing asbestos removal work.
- Depending on the type of asbestos removal work, follow the requirements outlined in Chapters 2–4 of this Code (for example, laying plastic sheeting, isolating the work areas, signs and barricades, PPE, cleaning up site).

Asbestos cement products

Asbestos cement products consist of approximately 15 per cent asbestos fibres by weight. A wide range of products have been commonly found—including roofing, shingles, exterior cladding on industrial, public and some domestic premises, corrugated/profile sheets as well as flat sheets—that have been used for exterior flexible building boards.

If possible, you should remove the asbestos cement products whole. If some sections have been damaged prior to removal, these may be strengthened by applying duct tape.

Identify the method in which the asbestos cement product is held in place, then use a method that would minimise airborne dust generation in removing the product. For example:

- fasteners: dampen then carefully remove using a chisel
- bolts: dampen then use bolt cutters (or an oxy torch) – do not use an angle grinder
- screws: dampen then carefully unscrew with a screwdriver
- nails: dampen then carefully lever the panel or punch through if absolutely necessary.

Avoid breaking the asbestos cement products. If breakage is absolutely necessary to remove/dislodge the product, dampen the material and minimise breakage.

Remove the asbestos cement product wet/damp by applying a fine water spray, unless this creates an electrical risk.

Once removed from its position, spray the back of the product with a fine water spray. Frequent application of a fine water spray may be required depending on the circumstances (for example, a very hot day) but be careful not to create a slip hazard.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Asbestos cement roof sheeting

Asbestos cement can become brittle with age, so any removal work on roofs should address the risk of fall hazards. If lichen is encountered on roof sheeting, caution should be exercised in the use of water and the choice of workers' footwear because lichen can be slippery, especially when it is wet.

The removal of asbestos cement roofing must be performed in accordance with the WHS Regulations.

Angle grinders should not be used because of the potential for damage to the asbestos cement and subsequent fibre release. Anchoring screws/bolts should be removed from the roofing sheets using an oxy torch or another suitable device that will not significantly damage the sheet.

If the system of removal involves walking on the roof to remove roof sheeting (this should be the last option when choosing a method to remove roof sheeting), spray the asbestos cement roof sheeting with a PVA solution prior to removal. Ensure the PVA is dry before removing it so as to avoid a slip hazard. Once removed, spray the back (underside) of the asbestos cement with either a fine water spray or the PVA solution.

Where the asbestos cement product requires lowering to the ground, ensure this is done in a manner that will minimise the generation of respirable dust. Do not use chutes, ramps or similar gravity dependent devices. Examples of appropriate lowering methods for roof sheeting include:

- by hand, over short distances
- loading the wrapped sheets on to a cradle for support
- using scissor lifts or similar devices
- using scaffolds.

You should follow the cleaning, decontamination, waste removal and disposal procedures in this Code once the asbestos sheeting has been removed.

Where the area to be removed is greater than the size of an average domestic house or where considerable dust will be generated, you should use a full decontamination unit.

Ensure that clearance of the area has been completed and a clearance certificate has been issued prior to reoccupation of the area.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removal of floor tiles

Flooring products such as Polyvinyl chloride (PVC or vinyl) tiles often contain a few per cent (5–7 per cent) of very fine chrysotile. Black and brown thermoplastic tiles containing larger amounts and often visible clumps of chrysotile were also produced. Sheet floor coverings were sometimes backed with a thin layer of chrysotile paper. Some underfelts, such as hessian underlays for carpets and linoleum, were also manufactured containing asbestos. The mastics which were used to bond the floor covering to the surface could also contain asbestos. Some hard-wearing composite floors (for example, magnesium oxychloride) also contain about 2 per cent of mineral fibres, which could be asbestos.

Place a tool (such as a scraper or wide blade) between the tiles and lift the tile away from the floor, being careful to minimise breakage. A hammer or mallet can be used to tap the tool under

Minimise dust by spraying fine water mist under tiles as they are lifted.

Place the tiles into a 200 µm plastic waste bag or suitable alternate waste container dedicated for asbestos waste that is clearly labelled with an appropriate warning sign indicating asbestos waste.

Use the scraper to remove any adhesive that is left adhered to the floor after each tile has been removed and place this waste into the asbestos waste bag or suitable waste container.

The vinyl can be cut into strips prior to its removal to facilitate bagging, or it can be rolled into one roll and wrapped securely with plastic, making sure it is totally sealed.

If a heat source is used to soften the adhesive beneath a vinyl tile, care should be taken not to scorch or burn the tile. Burning or scorching vinyl tiles can result in the release of toxic decomposition products and generate a fire hazard. In some cases, the adhesive may contain asbestos.

Follow the cleaning, decontamination, waste removal and disposal procedures once the tiles have been removed.

Ensure that clearance of the area has been completed prior to reoccupation of the area.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removing bituminous (malthoid) products

This material is generally regarded as non-friable and includes bitumen products such as roofing felts and damp-proof courses that have been widely reinforced by the addition of asbestos, usually in the form of chrysotile paper. Bitumen-based wall and floor coverings were also produced.

Some mastics used to stick the bitumen products commonly had asbestos added to them for flexibility. Other sealants also had asbestos added to improve the performance of the product.

When removing bituminous products:

- seal access points (for example, skylights) with material such as 200 µm plastic sheeting and duct tape
- where there are exhaust vents from gas fired equipment in the area, it is dangerous to seal over them. Turn the gas off if possible
- cut and remove manageable sections. Place cut pieces in a lined skip or wrap in plastic sheeting
- remove adhering material by dampening and gently scraping. Consider using an industrial vacuum cleaner fitted with a HEPA filter while scraping
- remember that mastics are flexible and may require removal by using scraping and chipping tools. The pieces removed should be kept as intact as possible
- if heating is used to soften the material to enable the material to be peeled, it is important not to burn the material, as this can release respirable asbestos fibres. Excessive heating is also likely to generate toxic fumes and gases and generate a fire hazard
- collect all debris and dispose of waste according to the waste disposal procedures.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removal of ceiling tiles

False ceiling tiles or suspended ceilings sometimes need to be removed so maintenance work can be performed. If asbestos has been used on structural materials above a false ceiling there could be contamination on the upper surface of the tiles.

The minimum respiratory protection suitable for this operation is a P1 or P2 filter with a half-face piece respirator. If considerable amounts of asbestos dust or debris are likely to be involved, full-face air-purifying positive pressure respirators should be worn.

Any surface below the tiles that might be contaminated should be covered with plastic sheeting.

The first tile should be lifted carefully to minimise the disturbance of any asbestos fibres. The top of each tile should be thoroughly vacuumed and wet wiped, where possible, prior to removing subsequent tiles.

Where non-asbestos ceiling tiles are to be reused, they should be covered with plastic as they are removed from the ceiling to prevent further dust settling on them.

Wrap the asbestos ceiling tiles in a double layer of heavy-duty, 200 µm thick plastic sheeting.

Waste containment, disposal and clearance must be carried out in accordance with the WHS Regulations and this Code.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removal of gaskets and rope seals

This material is generally regarded as friable. If there is any doubt, advice should be sought from a person with knowledge and experience in dealing with asbestos.

Gaskets reinforced with asbestos were once used extensively in plant and equipment exposed to high temperatures and/or pressures. These gaskets were typically used between the flanges of pipes.

Asbestos rope was often used for lagging pipes and valves and for sealing hatches. It is likely that the asbestos in gaskets and rope from plant and equipment will be friable. When removing gaskets and rope seals:

- ensure the plant or equipment is shut down and isolated
- dismantle the equipment carefully. Protect any other components with plastic sheeting
- ensure the plant and equipment has been made safe (pipework emptied, electrical supply isolated and equipment shutdown, etc.)
- unbolt or unscrew the flange or dismantle the equipment

- once accessible, dampen the asbestos with a fine water mist or similar. Continue dampening the asbestos as more of it is exposed/accessible
- ease the gasket or rope seal away with the scraper and place into the waste container positioned directly beside/beneath it. Keep the area damp and scrape away any residue
- consider using an industrial vacuum cleaner fitted with a HEPA filter while scraping.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removal of pipe lagging using a glove bag (small section)

Asbestos was widely used to insulate pipes, boilers and heat exchangers.

There are several types and forms of insulation, often with multi-layer construction. Pre-formed sections of asbestos insulation were made to fit the diameter of the pipe. These would be strapped on and calico-wrapped and sometimes painted (for example, 'Decadex' finish) or sealed with a hard plaster (often asbestos-containing) to protect against knocks and abrasion. Other types of asbestos-containing felts, blankets, tapes, ropes and corrugated papers were also used. For bends and joins, ensure the plant and equipment has been made safe (for example, pipework emptied, electrical supply isolated and equipment shut down).

Set-up/attach the glove bag and perform the removal work as described in this Code. Remove and dispose of waste according to the relevant sections of this Code.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Fire retardant material

These are normally homogeneous coatings sprayed or trowelled onto reinforced concrete or steel columns or beams as fireproofing. Sprays were also commonly used on the underside of ceilings for fireproofing and sound and thermal insulation in many high-rise premises. Warehouses and factories commonly had sprayed asbestos applied to walls, ceilings and metal support structures for fireproofing.

Some fire doors contained loose asbestos insulation sandwiched between the wooden or metal facings to give them the appropriate fire rating. Loose asbestos was also packed around electrical cables, sometimes using chicken wire to contain it.

Mattresses containing loose asbestos were widely manufactured for thermal insulation. Acoustic insulation has been provided between floors by the use of loose asbestos in paper bags, and in some areas near removal works it is known that loose asbestos has been used as a readily available form of loft insulation.

Asbestos textiles were manufactured for primary heat (for example, insulation tapes and ropes) or fire protection uses (for example, fire blankets, fire curtains and fire-resistant clothing). Textiles were also used widely as a reinforcing material in friction products/composites.

It will depend on where the fire retardant material is located and the quantity of the material as to how the removal process is conducted, however the asbestos is friable and a Class A licensed asbestos removalist must perform the asbestos removal work.

An asbestos removal control plan must be developed.

- Establish the extent of the removal area and move all items out of the area or cover them with 200 µm plastic sheeting if they could be contaminated during the removal work.
- Develop an enclosure that allows smooth flow of air from the decontamination unit to the negative air units. In constructing the enclosure, pay particular attention to penetrations through the floor and ceiling/roof. Set up the enclosure and decontamination unit, and remove and dispose of asbestos.
- Ensure all air-conditioning equipment has been shut and isolated/blanked from this area. Maintain regular checks on the negative air unit and decontamination unit. A licensed assessor must conduct/control air monitoring throughout the asbestos removal work.
- Clearance monitoring by a licensed assessor and the issue of a clearance certificate is required before re-entry into the removal work area.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.

Removal of asbestos-backed vinyl and millboard from beneath a vinyl floor

As asbestos millboard is typically 100 per cent asbestos and very friable. A full enclosure with negative air extraction units must be used for this type of asbestos removal work.

The asbestos millboard should be wetted down as the vinyl is peeled from the floor, preferably with the millboard attached. The vinyl can be cut into strips prior to its removal to facilitate bagging, or it can be rolled into one roll and wrapped securely with plastic, making sure it is totally sealed. If the vinyl sheeting cannot be removed without leaving some of the asbestos millboard on the floor surface, the remaining asbestos millboard should be wetted down and, when thoroughly soaked, scraped off the floor surface.

Sufficient water should be used to dampen the asbestos millboard, but not so much that run-off or pools of contaminated water will occur.

If a heat source is used to soften the adhesive beneath a vinyl tile, care should be taken not to scorch or burn the tile. Burning or scorching vinyl tiles can result in the release of toxic decomposition products and generate a fire hazard.

Alternative removal methods should only be used if they do not result in excessive fibre release from the asbestos millboard and do not result in any additional hazard.

Personal decontamination must be carried out in accordance with the WHS Regulations and this Code.