



Remove Friable Asbestos

Course 10836

Product Code: 5713

Publishing details:

Second Edition 2012

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Acknowledgement

TAFE NSW Hunter Institute

TAFE NSW Illawarra Institute

TAFE NSW North Coast Institute

TAFE NSW South Western Sydney Institute

TAFE NSW Sydney Institute

TAFE NSW Western Sydney Institute

Environmental Site Services Scarborough WA

Asbestos Industry Association of Queensland

References

How to Safely Remove Asbestos Code of Practice

ISBN 978 1 74218 989 5 © Copyright WorkCover NSW 0112

How to manage and control asbestos in the workplace

ISBN 978 0 642 33315 5 © Copyright Safe Work Australia

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ISBN 978 1 74236 422 3

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Contents

INTRODUCTION	1
LEGISLATION.....	1
AIR MONITORING	4
RESPIRATORY PROTECTIVE EQUIPMENT	6
REMOVING FRIABLE ASBESTOS.....	10
TOOLS AND EQUIPMENT	24
SIGNS, LABELS AND BARRICADES.....	26
REMOVAL METHODS	28
METHODS FOR SMALL SCALE REMOVAL WORK	31
REMOVING ASBESTOS-CONTAMINATED SOIL	34
REMOVING FRIABLE ASBESTOS FROM HOT SURFACES	36
REMOVING ASBESTOS IN PLANT AND PIPES OR PITS	36
DECONTAMINATION.....	38
PERSONAL DECONTAMINATION PROCEDURES.....	38
WASTE CONTAINMENT AND DISPOSAL.....	40
TRANSPORT AND DISPOSAL OF ASBESTOS WASTE	44
CLEARANCE INSPECTIONS.....	44

INTRODUCTION

This resource covers the process required to remove friable asbestos containing material (ACM). It includes preparing, containing and removing friable ACM, decontamination and disposal requirements.

About Asbestos

Asbestos was the wonder building product of the post World War 2 years; strong, light, durable, waterproof and fireproof, and a good insulator.

Between 1945 and 1980 in Australia, asbestos was widely used in the construction industry, as well as in shipyards, power stations, boiler makers and plumbing.

It was a staple of home building too – used in fibro cement, insulation, fireproofing, pipes, paint, floor coverings, ceiling tiles, and roofing materials.

Such was the local – and global demand – for asbestos that it was mined in Australia and exported.

Asbestos is highly toxic, causing a range of lung diseases, that are slow to develop but in many cases deadly. Inhaling the fibres can cause a fibrous stiffening and shrinking of the lung, as well as lung cancer, particularly the incurable, rapidly-growing lung cancer known as mesothelioma.

Since 31 December 2003, using all forms of asbestos has been banned.

LEGISLATION

NSW legislation banned the spraying of asbestos in 1975. The spraying of asbestos had, up until that time, been a major use for asbestos in industry, and a significant health hazard.

The Work Health and Safety (WHS) Act 2011 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 2011 include specific obligations to manage and control asbestos and Asbestos Containing Material (ACM) at the workplace.

A summary of the specific duties in the WHS Regulations 2011 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 the regulator 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.472-474)**
- 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.

Officers, such as company directors, have a duty to exercise due diligence to ensure that the business or undertaking complies with the WHS Act 2011 and WHS Regulations 2011. 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.

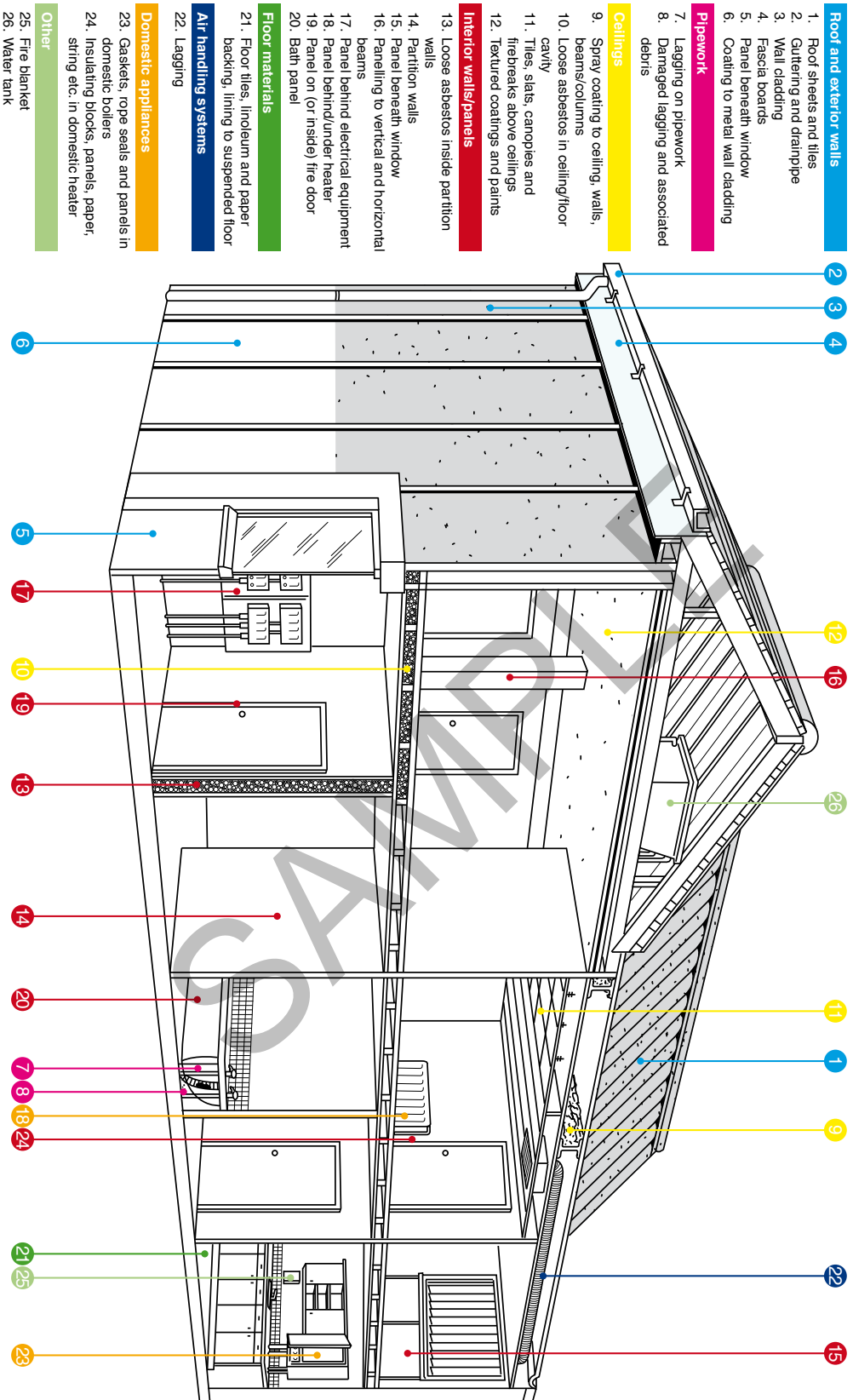
Workers have a duty to take reasonable care for their own health and safety and that they do not adversely affect the health and safety of other persons. They must comply with any reasonable instruction and cooperate with any reasonable policy or procedure relating to health and safety at the workplace. 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.

Asbestos has been used in more than 3,000 products. It can be found in buildings in such forms as:

- Fire blankets
- Fire door insulation
- Fire-rated wall rendering containing asbestos with mortar
- Fire-resistant plaster board, typically on ships
- Fire-retardant material on steel work supporting reactors on columns in refineries in the chemical industry
- Lagged exhaust pipes on emergency power generators
- Lagging in penetrations in fireproof walls
- Non-Friable asbestos materials may become Friable if they are severely weathered, damaged or been through a fire

Do you have asbestos at home?

Typical locations for the most common asbestos-containing materials around the home.



Roof and exterior walls

1. Roof sheets and tiles
2. Guttering and drainpipe
3. Wall cladding
4. Fascia boards
5. Panel beneath window
6. Coating to metal wall cladding

Pipework

7. Lagging on pipework
8. Damaged lagging and associated debris

Ceilings

9. Spray coating to ceiling, walls, beams/columns
10. Loose asbestos in ceiling/floor cavity
11. Tiles, slats, canopies and firebreaks above ceilings
12. Textured coatings and paints

Interior walls/panels

13. Loose asbestos inside partition walls
14. Partition walls
15. Panel beneath window
16. Paneling to vertical and horizontal beams
17. Panel behind electrical equipment
18. Panel behind/under heater
19. Panel on (or inside) fire door
20. Bath panel

Floor materials

21. Floor tiles, linoleum and paper backing, lining to suspended floor

Air handling systems

22. Lagging

Domestic appliances

23. Gaskets, rope seats and panels in domestic boilers
24. Insulating blocks, panels, paper, string etc. in domestic heater

Other

25. Fire blanket
26. Water tank

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.



Image courtesy of Environmental Site Services Scarborough WA

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 the following table, 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	Stop removal work	Stop removal work
	Notify regulator	Notify the relevant regulator by phone followed by fax or written statement that work has ceased and the results of the air monitoring
	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
	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.
	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

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.

RESPIRATORY PROTECTIVE EQUIPMENT

When selecting Respiratory Protective Equipment (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 1: Disposable, half-face particulate respirator



Figure 2: Half-face, particulate filter (cartridge) respirator.



Figure 3: Powered, air-purifying, ventilated respirator.



Figure 4: Full-face, particulate filter (cartridge) respirator.

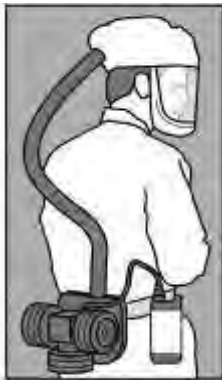


Figure 5: Full-face, powered air-purifying particulate respirator.



Figure 6: 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.

The following table 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 material 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
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 back up