



ACT Asbestos Awareness



RTO Safety Training is a Nationally Registered Training Organisation

RTO Code 40992 ABN 89 164 524 994

T (02) 9892 3370 F (02) 9892 3662 bookings@sydneysafety.com.au www.sydneysafety.com.au

Welcome to the Safety Training Group.

We have a purpose built training centre located in the geographic centre of Sydney at Villawood. The training rooms have the latest AV equipment and our world class indoor practical training areas have everything you would expect in a fully air-conditioned training centre:

- ◆ 3 Elevated training decks
- ◆ Tripods with 6:1 VEDs
- ◆ Davits with winches
- ◆ Tripods with access beams
- ◆ 2 x 6m high rescue poles
- ◆ Fixed horizontal static lines
- ◆ Fixed ladders with vertical static lines

We also provide the following services:

- ◆ HP Air fills for your SCBA cylinders
- ◆ Hydrostatic Cylinder Testing, Station #GM009

- ◆ Equipment inspections in compliance AS 1891.4
- ◆ Calibration of gas monitors
- ◆ Servicing of breathing apparatus
- ◆ Sales of safety equipment
- ◆ Hire of safety equipment
- ◆ Standby & Rescue personnel
- ◆ Confined Space Audits
- ◆ Heights Audits
- ◆ Confined Space Risk Assessing
- ◆ Confined Space Rescue Plans
- ◆ Obligation free site inspections

Just call us, we are here to assist you with any problems you have with confined spaces or working at heights.

Regards

Bob Taylor

CEO

T (02) 9892 3370 F (02) 9892 3662

bookings@sydneysafety.com.au

www.sydneysafety.com.au



Forward

The 11084NAT Course in Asbestos Awareness provides learners with knowledge of the hazards and risks associated with asbestos exposure and inhalation.

Learners will gain the necessary knowledge and skills to determine when and where asbestos and Asbestos Containing Material (ACM) may be present, the precautions that need to be taken if it is present and reporting procedures.

This course does **NOT** provide course participants with the knowledge to perform asbestos removal work or to perform minor routine maintenance work or other minor work.

The course also involves understanding each individual's general duty of care to ensure the health, safety and welfare of all workers, visitors, contractors and others in the workplace.

Developed by:

This resource was developed by the ACT Regional Building and Construction Industry Training Council (CITC). From 1 August 2014 ownership of this course was transferred to the Office of the Work Safety Commissioner. All reviews, development and updates as of 1 January 2019 are the responsibility of WorkSafe ACT. This resource may only be used with the written permission of the ACT Work Safety Commissioner.

Version Control:

Version 1 October 2017

Version 2 October 2018

Version 3 April 2019

Version 4 April 2021

Version 5 February 2022

Version 6 June 2022 Reaccredited by ASQA on 22nd June 2022

All material in this handbook is, unless otherwise stated, the property of WorkSafe ACT. Copyright and other intellectual property laws protect these materials. Reproduction or retransmission of the materials, in whole or in part, in any manner, without the prior written consent of the copyright holder, is a violation of copyright law.

A single copy of the materials available through this course may be made, solely for personal, non-commercial use. Individuals must preserve any copyright or other notices contained in or associated with them. Users may not distribute such copies to others, whether or not in electronic form, whether or not for a charge or other consideration, without prior written consent of the copyright holder of the materials. Contact information for requests for permission to reproduce or distribute materials available through this course should be made to the ACT Work Safety Commissioner.

WorkSafe ACT © 2017

Table of Contents

Why 11084Nat Course in Asbestos Awareness?	5
Asbestos Laws/Regulations	5
Asbestos Work Guide for Trades	5
The History of Asbestos	5
Why Was Asbestos Used?	6
What is Asbestos?	6
Asbestos Containing Material (ACM)	6
Non-Friable (previously referred to as ‘bonded’) Asbestos Containing Material (ACM)	7
Friable (Loosely Bound) Asbestos Containing Material (ACM)	7
Loose-fill Asbestos Insulation - ‘Mr Fluffy’	7
Where is asbestos likely to be found / located?	9
Asbestos Register	9
Asbestos Management Plan	10
Loose Fill Asbestos Insulated Properties “Mr Fluffy”	10
Asbestos Assessment Report	11
Map of ACT Suburbs	12
Where Asbestos Might Be Found In a Building	13
What if I Come Across a Material I Suspect to be Asbestos or Asbestos Containing Material (ACM)?	16
Disturbed or Damaged Asbestos or ACM	17
Risk of Exposure to Asbestos	18
Asbestos Related Disease	18
Lung Cancer	19
Mesothelioma	19
Asbestosis	21
Health Monitoring	21
Risk Management	22
Prior to Site Entry	22
Workplace Risk Assessment	23
Assessing the Risk	23
Risk Matrix	23
Hierarchy of Controls and Control Measures	24
Safety Duties of Workers	24

Rights of Workers	24
Licence Holders.....	25
Licensed Asbestos Assessor.....	25
Licensed Class A Asbestos Removalist.....	25
Licensed Class B Asbestos Removalist.....	25
Asbestos Removal (Abatement)	25
In Situ Asbestos	27
The 10 Square Metre Rule.....	27
Minor Routine Maintenance Work	27
Minor Work	28
General Requirements for Minor Routine Maintenance Work or Other Minor Work	28
Appendix A: Definitions	30
Appendix B: List of Asbestos Containing Material.....	32
A.....	32
B.....	32
C.....	33
D.....	33
E.....	33
F.....	33
G.....	33
H.....	34
I.....	34
L.....	34
M.....	34
P.....	34
R.....	35
S.....	35
T.....	35
V.....	35
W.....	35
Appendix C: Examples	36

Why 11084Nat Course in Asbestos Awareness?

This course supports the attainment of skills and knowledge required by workers who may potentially be exposed to asbestos during their work.

Learners will be provided with:

- the necessary knowledge and skills to determine when and where asbestos and Asbestos Containing Material (ACM) may be present
- knowledge of the hazards and risks associated with asbestos exposure and inhalation
- precautions that need to be taken if it is present
- reporting procedures
- an understanding of each individual's general duty of care.

Asbestos Laws/Regulations

The ACT laws that manage and regulate asbestos are:

- [Work Health and Safety Act 2011](#) (ACT)
- [Work Health and Safety Regulation 2011](#) (ACT)
- [Dangerous Substances Act 2004](#) (ACT)
- [Dangerous Substances \(General\) Regulation 2004](#) (ACT)
- [Building Act 2004](#) (ACT)
- [Environment Protection Act 1997](#) (ACT)

NOTE: Other States and Territory will have similar Safety Regulations; Acts and Codes of Practice but they may vary from the list above. You will need to ensure that you receive this information from your Trainer and/or RTO that is delivering this course.

Asbestos Work Guide for Trades

It is recommended that you familiarise yourself with your local regulator's asbestos web page. In the ACT go to www.accesscanberra.act.gov.au to access and if necessary, download information regarding asbestos laws, regulations and general information including:

- What is asbestos?
- What are the risks?
- New asbestos laws

The History of Asbestos

The word "asbestos" comes from a Greek word meaning "inextinguishable". Records indicate that the first asbestos mine was located in Greece around the first century A.D. The Greeks were awed by the mineral for which they found many uses. Soon they recognized that workers who mined the silken material from the ancient stone quarries or wove the asbestos into cloth tended to have "sickness of the lungs." Regardless, the "miracle" product continued to be utilized to produce fabric that would be used in clothing and a variety of other textiles.

The Industrial Revolution represented a huge boom for the asbestos industry. In the late 1800's asbestos mining began in earnest and Asbestos Containing Material (ACM) rapidly became commonplace in factories, oil and chemical refineries, on railroad cars and in shipyards. Despite consistent health warnings, asbestos mining and manufacturing increased as the twentieth century progressed. World usage peaked

throughout the 1940's-1970's when some 25 countries were producing almost 4.8 million metric tons of asbestos per year and 85 countries were producing thousands of asbestos products. Asbestos products included brakes, clutches, hair driers, irons, electric blankets, curtains, cosmetics and fertiliser. Asbestos was also used extensively in the construction industry. Approximately 25% of all new houses in Australia were clad in asbestos cement and asbestos products such as roof shingles, floor and ceiling tiles, insulation, roofing tar, pipes, gaskets and plaster could be found in homes and commercial buildings across the Nation.

Growing concerns over the dangers of asbestos, demands for safer working conditions, liability claims and Regulations of the 1970's saw a dramatic decline in the asbestos industry in industrialized nations. Asbestos use in Australia started to be phased out in the 1980's when its use in domestic building materials ceased. Asbestos continued to be used in specialized equipment in plant rooms, brakes and gaskets until 31 December 2003 when the use of asbestos and all products containing asbestos were banned throughout Australia. Although it is illegal to import, store, supply, sell, install, use or reuse Asbestos Containing Material (ACM) in Australia some asbestos is present in products imported prior to the National ban, in older buildings and as naturally occurring deposits throughout the country.

While asbestos is banned in more than 20 countries it continues to be mined, used and exported in parts of the world. Russia is a huge producer. Russia, Kazakhstan and Brazil are the main exporters. USA use limited quantities of asbestos while the biggest consumers, by far, are China, India and Russia.

Why Was Asbestos Used?

Asbestos was mined and used extensively for many decades due to its remarkably versatile characteristics:

- Insulation
- Poor conductor of electricity
- Heat, fire, water, chemical and corrosion resistant
- Flexible
- Strong

What is Asbestos?

Asbestos is the generic name for the 86 different types of naturally occurring silicate mineral fibres. The most common types of asbestos are:

- Chrysotile – White asbestos which makes up 95% of Asbestos Containing Material (ACM)
- Amosite – Brown asbestos which makes up 4% of Asbestos Containing Material (ACM)
- Crocidolite – Blue asbestos which makes up less than 1% of Asbestos Containing Material (ACM)
- Tremolite – Trace use only
- Actinolite – Trace use only
- Anthophyllite – Trace use only

Asbestos Containing Material (ACM)

Asbestos Containing Material (ACM) means any material, object or product that contains asbestos.

All forms of Asbestos Containing Material (ACM) can be broadly divided into two categories:

- Non-friable (bonded)
- Friable

Non-Friable (previously referred to as ‘bonded’) Asbestos Containing Material (ACM)

Any material that contains asbestos in a non-friable matrix. It cannot be crushed by hand when dry. A large amount of non-friable asbestos material can be found in buildings and structures. Some examples include:

- Asbestos Cement (AC) products such as flat fibro, corrugated or compressed asbestos cement sheeting which is used in a wide range of applications such as roof sheeting and shingles
- External and internal wall cladding, ceilings, under lays and shower recesses
- Asbestos cement pipes

Non-friable asbestos and Asbestos Containing Material (ACM), if in good condition and well-sealed (painted or sprayed with PVA glue) poses minimal risk of asbestos fibres being released as the asbestos fibres are bound to the surface of the asbestos or Asbestos Containing Material (ACM) by the paint or sealant.

Where non-friable asbestos or Asbestos Containing Material (ACM) is in poor condition or has been disturbed by accident, weather, fire or storm damage, there is a potential for the asbestos or Asbestos Containing Material (ACM) to become friable. Accidental breakage, drilling, sanding or similar tasks which may penetrate into non-friable Asbestos Containing Material (ACM) or damage the surface can significantly increase the risk of the material becoming friable and asbestos fibres being released.

The use of high pressure water sprays or compressed air on asbestos or Asbestos Containing Material (ACM) is **strictly prohibited** under the Work Health and Safety Regulation. Power tools, brooms or any other implements which could cause asbestos fibres to be released must only be used if the use of the equipment is strictly controlled to prevent the release of asbestos fibres.

Friable (Loosely Bound) Asbestos Containing Material (ACM)

Friable asbestos material is any asbestos material in a powder form or any asbestos material that can be crumbled, pulverized or reduced to a powder by hand pressure when dry.

In addition, non-friable asbestos material that has been subjected to weathering, severely damaged by hail, heat or fire, mechanically disturbed, or subject to water blasting is also considered as friable asbestos material.

Some examples of friable asbestos material include:

- Sprayed limpet
- Millboard
- Pipe and boiler lagging
- ‘Mr Fluffy’ ceiling insulation

Friable asbestos can be disturbed easily and therefore, the use of power tools or similar products should never be used on or around friable asbestos.

Loose-fill Asbestos Insulation - ‘Mr Fluffy’

From 1968 to 1979, pure loose-fill asbestos was sold predominantly by one local company (‘Mr Fluffy’) as ceiling insulation for residential and commercial premises in Canberra. This insulation is particularly problematical as it is raw amosite asbestos. In effect, it is mined asbestos (which is fibrous by nature) that

has been crushed into a fine state and installed as insulation. This means the asbestos can easily be disturbed resulting in fibres becoming airborne and easily inhaled or ingested.

While there is evidence to suggest that this form of insulation was used in other Australian jurisdictions (and parts of the world), the extent of its use as a form of residential home insulation in the ACT, and the subsequent removal program, is unique.

Between 1988 and 1993 the Commonwealth Government funded a remediation program to remove loose-fill asbestos from identified 'Mr Fluffy' houses. Over 1,000 houses were identified for inclusion in the program and a further half a dozen or so houses have come to light in the year since the program was completed.

In general, houses were cleaned to an extremely high standard. However, it is accepted, that because of the nature of the task and the material itself some residual asbestos fibres will still exist in locations which are inaccessible and/or not visible (for example, internal and external wall cavities). The inside roof and accessible wall cavities of these houses were sealed with a PVA spray designed to encapsulate the asbestos fibres to eliminate the risk it poses.

Refer to three (3) ACT Government Asbestos Fact Sheets including:

- Loose Asbestos Insulation in the ACT
- How do I know if my house had loose-fill Asbestos Insulation removed?
- The three (3) phases of the Loose Asbestos Insulation Removal Program

The ACT Government formed an Asbestos Response Taskforce whose role is to identify a lasting resolution to the risks posed by loose fill asbestos insulation installed in these properties. The ACT Government has determined that the only effective way of managing this risk is to demolish these houses and a government managed demolition program was agreed to in 2014. These houses will have further asbestos removal work conducted prior to the demolition of the property to ensure that the risks associated with any residual loose fill asbestos insulation during demolition are managed.

Naturally Occurring Asbestos (NOA)

Naturally Occurring Asbestos (NOA) means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock formations, sediment or soil. Naturally Occurring Asbestos (NOA) distinguishes these natural occurrences from manufactured products that contain asbestos, such as asbestos cement sheet or sprayed limpet.

Given that Naturally Occurring Asbestos (NOA) is asbestos in a pure form, there is a risk that if disturbed, it may pose a risk to a worker's health. If undisturbed, Naturally Occurring Asbestos (NOA) has a very low risk of causing asbestos related disease. However, should Naturally Occurring Asbestos (NOA) be disturbed there is a potential that asbestos fibres may be released into the air. Once these asbestos fibres become airborne, there is an increased risk to your health if you breathe the fibres in.

Breathing in asbestos fibres does not necessarily mean that you will develop health problems; however, it can increase risks to your health. There are a number of factors that increase the risk of you developing asbestos related diseases which are discussed further in this training course.

Some activities that may cause the disturbance of Naturally Occurring Asbestos (NOA) may include:

- Driving, riding, running or walking over unpaved roads, trails and soils;

- Excavation: digging, shovelling, using backhoes or other types of excavation plant.

In a workplace, if Naturally Occurring Asbestos (NOA) has been identified or is likely to be present at a workplace, the Person with Management or Control of the Workplace must ensure that a licensed asbestos assessor prepares an asbestos management plan for the workplace.

This asbestos management plan must be given to workers and other persons at the workplace, and must include information on the identification of Naturally Occurring Asbestos (NOA), information about the management of Naturally Occurring Asbestos (NOA) at the workplace, procedures for detailing incidents or emergencies involving Naturally Occurring Asbestos (NOA) at the workplace and information for workers carrying out work involving Naturally Occurring Asbestos (NOA). This plan must be available to any worker, health and safety representative or any person conducting a business or undertaking (PCBU) who may carry out work at the workplace.

Where is asbestos likely to be found / located?

Asbestos or Asbestos Containing Material (ACM) can be located in buildings and structures, plant and equipment, and also as debris above or below the ground.

Whilst most asbestos is located in residential and commercial buildings, asbestos is commonly found in other areas. These areas include:

- In brake linings, gaskets and clutch plates on plant machinery or vehicles
- Isolated fragments of Asbestos Containing Material (ACM) sheeting in public areas such as parks or nature reserves
- Debris or fragments within soil where the asbestos has been buried in the past.

To determine whether asbestos may be present in your workplace, there are a number of documents and tools that you may use to determine the presence of asbestos. These documents and tools include:

- Asbestos Registers
- Asbestos Management Plans
- Asbestos Assessment Reports
- Maps showing suburbs where asbestos was installed in buildings
- Maps showing locations of Naturally Occurring Asbestos (NOA)
- Work Health and Safety Notices
- Local, State and National Government Reference materials

Your employer is required to identify if asbestos is present or likely to be present in a workplace. The person with management or control of a workplace must provide a copy of any asbestos register, asbestos management plan or asbestos assessment reports which identify the presence and location of asbestos and Asbestos Containing Material (ACM). These documents must be located at the workplace and be available for inspection by any person at the workplace.

Asbestos Register

A person with management or control of a workplace must ensure asbestos at the workplace is identified and the location, type and condition of the asbestos clearly indicated and recorded on an asbestos register. The asbestos register must be maintained, kept up to date and made available to workers and other relevant people.

A workplace is not required to maintain an asbestos register if the building was constructed after 31 December 2003, if no asbestos has been identified and if asbestos is not likely to be present at the workplace.

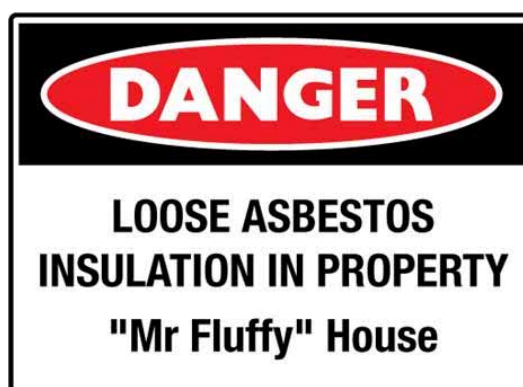
Asbestos Management Plan

If asbestos has been identified at the workplace, or is likely to be present, a person with management or control of the workplace must develop an asbestos management plan. The asbestos management plan must be maintained, kept up to date and made readily accessible to workers and other relevant people at the workplace. The plan includes information about:

- the workplace's register of asbestos
- decisions about the management of asbestos (and the reasons for them)
- procedures for dealing with incidents or emergencies
- details of maintenance or service work on the asbestos
- clearance certificates
- how people are informed about asbestos in the workplace, the risks they pose and the control measures in place
- monitoring arrangements
- the responsibilities of people involved in the plan
- training arrangements
- safe work methods
- procedures for reviewing and updating the management plan

Loose Fill Asbestos Insulated Properties "Mr Fluffy"

There are a number of houses in the ACT where loose fill asbestos insulation (more commonly known as Mr Fluffy) has been installed. These houses have residual loose fill asbestos insulation within the wall cavities, ceiling cavities and subfloor which may pose a significant risk to workers who disturb these areas. These houses are required to have an asbestos label affixed to the electrical meter of the house to inform any tradespeople of the presence of loose fill asbestos insulation.



A list of these properties can be found on the Asbestos Response Taskforce's website at www.asbestostaskforce.act.gov.au. The owners of these properties are legally required to notify any person who will be coming to the house that the house has contained Loose-fill Asbestos Insulation (LFAI).

Owners and occupants of these houses are required to have an asbestos management plan in place which must be made available to any visitor or worker who enters the house. The purpose of these particular asbestos management plans is to advise visitors or workers on whether there is any asbestos contamination within the living areas of the house, and what control measures must be taken if a worker needs to enter the house to undertake repairs or other work. For example, and plumber entering the house to fix a burst water pipe located within the wall cavity.

Asbestos Assessment Report

An asbestos assessment report, for residential premises, is a report prepared by a licensed asbestos assessor that:

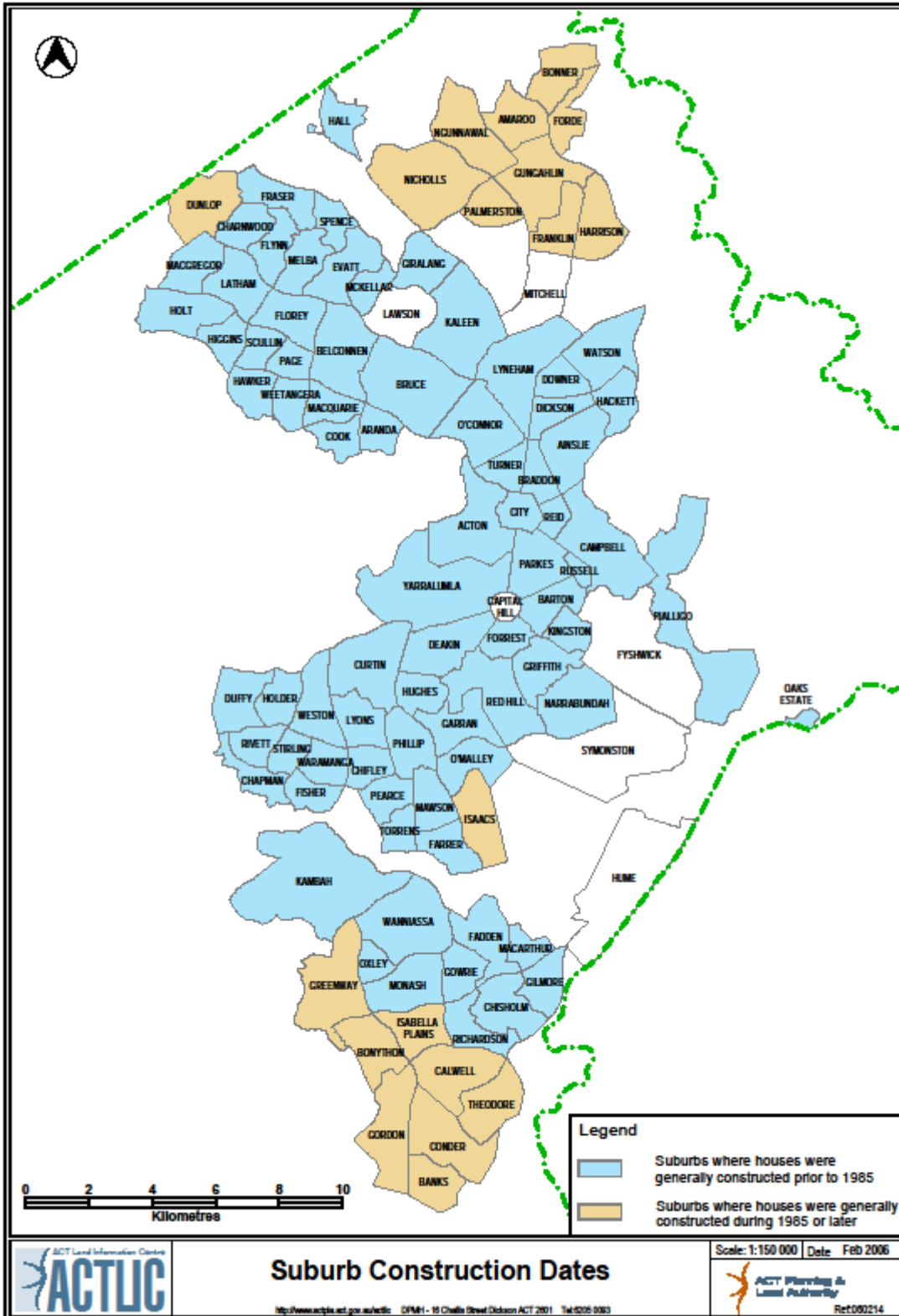
- identifies the location, type and condition of asbestos in relation to the premises
- assesses the risk resulting from the identified asbestos
- advises how the asbestos should be managed
- includes everything required by regulation to be included in the report

If they have one, home owners or the occupiers of the property must provide a copy of the current asbestos assessment report for the residential premise when they:

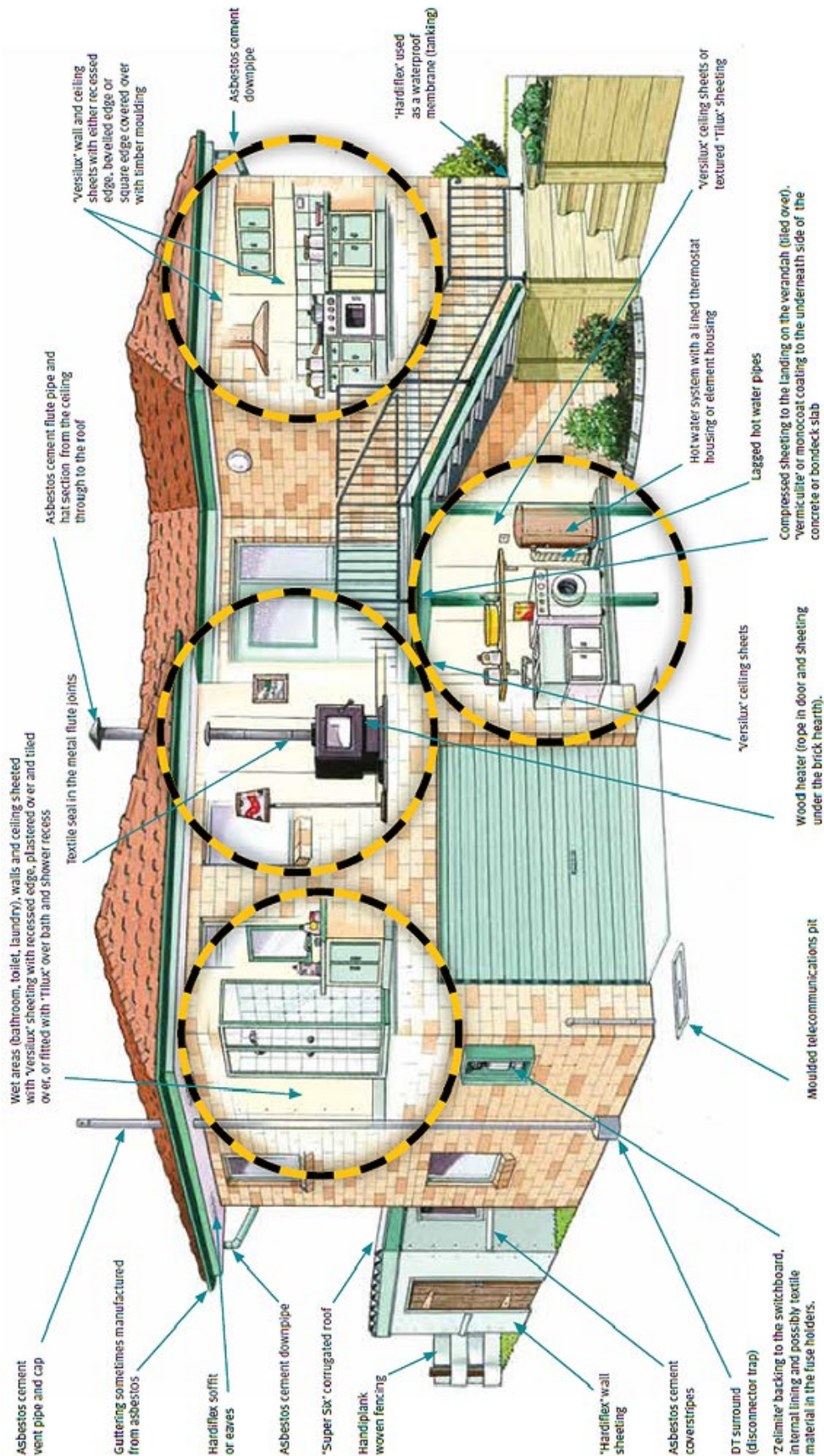
- engage someone to provide a construction service at the premises
- engage someone to undertake work involving asbestos
- engage someone to do other work prescribed by regulation

Map of ACT Suburbs

A residential building in the ACT constructed or refurbished between 1950 and the early 1980's or a commercial building built prior to 31 December 2003 is likely to contain Asbestos Containing Material (ACM). The map below illustrates where asbestos or Asbestos Containing Material (ACM) is likely to be found across the ACT.



Where Asbestos Might Be Found In a Building



The following are some examples of where commonly used Asbestos Containing Material (ACM) is likely to be found in residential and commercial properties.

General

- Fibro cement sheeting used in walls, ceilings and floors.
- Vinyl floor tiles.
- Air conditioning and heating duct work.
- Sprayed asbestos and loose packing.
- Moulded cement water pipes.

Bathroom, toilet, laundry and kitchen

- Fibro cement sheeting.
- Vinyl floor tiles.
- Thermal insulation of pipes and boilers.

Living areas

- Insulation in and under wood heaters.
- Vinyl floor tiles.

Exterior

- Roof sheeting.
- Eaves.
- Electrical meter board.
- Garage/Shed.



Figure 1 Vinyl floor tiles



Figure 2 Insulation around wood heaters



Figure 3 Thermal insulation for pipes and boilers



Figure 4 Sprayed asbestos



Figure 5 Asbestos cloth duct vibration dampener

For items and materials where asbestos may be present refer to Appendix B – List of Asbestos Containing Material (ACM). Also refer to Handout 1 – Common Forms of Asbestos Containing Material (ACM) and their Use.

Construction Methods that indicate the probable or possible presence of asbestos

There are some ways that the presence of asbestos or Asbestos Containing Material (ACM) can be indicated in the way that the materials have been constructed.

For example, when asbestos cement sheet has been used as wall sheeting, the sheets are usually joined in the middle with a strip covering the join. These joiners may be aluminium, plastic or wooden battens. Additionally, fasteners used on asbestos cement sheets will be raised and will not sit level with the sheeting.

Some flooring materials such as vinyl tiles or linoleum have been affixed using an adhesive. A commonly used adhesive is black jack which is a bitumen based adhesive which commonly contains asbestos. Where you see a black substance underneath flooring material, you should stop work and ascertain whether the material contains asbestos.

These types of construction methods do not cover all methods used for different types of Asbestos Containing Material (ACM) but may provide workers with an understanding of what methods may indicate the presence of Asbestos Containing Material (ACM).

What if I Come Across a Material I Suspect to be Asbestos or Asbestos Containing Material (ACM)?

Unless labelled, the presence of asbestos or Asbestos Containing Material (ACM) can't be determined by just looking at the material. As a general rule, some building materials installed before the late 1980's may contain asbestos. If you suspect a material is asbestos or an Asbestos Containing Material (ACM) regard it as if it is and deal with it accordingly.

- **STOP** work
- Do **NOT** disturb or handle the material
- **REPORT** immediately to either your Supervisor, Site Manager, Manager or if you are a sole trader directly to WorkSafe ACT (BH: 6207 3000, AH: 0419 120 028)
- **ISOLATE/ENCLOSE**
- **ENGAGE** a Licensed Asbestos Assessor to undertake identification

You must advise your supervisor, site manager and any other workers or persons present at the workplace of the presence or suspected presence of asbestos or Asbestos Containing Material (ACM).

This can be done:

- In person
- By telephone
- In writing including by email or text message
- By putting up warning signs and labels
- By any other means that effectively advises other persons at the workplace of the presence of the asbestos or suspected asbestos

Disturbed or Damaged Asbestos or Asbestos Containing Material (ACM)

You must notify WorkSafe ACT immediately by telephone if the Asbestos Containing Material (ACM) has been disturbed or damaged. The damage may be caused by many different factors including:

- Accidental damage caused by work in the vicinity of the asbestos or Asbestos Containing Material (ACM)
- Exposure of the asbestos or Asbestos Containing Material (ACM) to weathering, including sun, storm or hail damage
- Fire damage
- Vibration of the asbestos or Asbestos Containing Material (ACM)

The area where the asbestos or Asbestos Containing Material (ACM) is located should be isolated and barricaded to restrict other persons or workers entering the area and warning signs should be erected to tell other people at the workplace of the hazard. A licensed asbestos assessor must be contacted to assess the material and a licensed asbestos removalist be engaged to remove the Asbestos Containing Material (ACM).

How do I know that a material does not contain asbestos?

The only way to know for sure that a material does not contain asbestos is to have the material sampled by a licensed asbestos assessor and the sample analysed at a National Association of Testing Authorities (NATA) Accredited Laboratory. This sampling will clearly advise if the material does or does not contain asbestos.

It is not safe to say absolutely that because a building has only been built recently that it will not contain asbestos. In the last couple of years, products have been identified to contain asbestos which have been imported into Australia to be used in new construction projects. The Asbestos Safety and Eradication Agency and Customs and Border Protection are currently working together to try to identify the importers who have brought these products into Australia and identify buildings where these products have been installed.

Material Sampling

Sampling and analysis of suspected Asbestos Containing Material (ACM) is the only way to accurately verify the presence of asbestos. If done incorrectly, sampling can be more hazardous than leaving the material undisturbed. As such a qualified and licensed asbestos assessor who knows what to look for and how to handle the Asbestos Containing Material (ACM) **MUST** take the sample.

Sampling and analysis of suspected Asbestos Containing Material (ACM) **MUST** only be conducted by a National Association of Testing Authorities (NATA) accredited laboratory, a laboratory approved by the regulator (WorkSafe ACT) or a laboratory operated by the regulator.

Air sampling is not an alternative to visual assessment in estimating asbestos contamination and exposure.

If the material at the workplace cannot be identified but the licensed asbestos assessor reasonably believes that the material is asbestos or Asbestos Containing Material (ACM) then assume that the material **IS** asbestos. Likewise, if part of the workplace is inaccessible to workers and likely to contain asbestos or Asbestos Containing Material (ACM) assume that asbestos **IS** present in that part of the workplace.

Risk of Exposure to Asbestos

Low levels of asbestos are present naturally in the water, soil and air. Although everyone is exposed to asbestos at some point in their life most people do not become ill from the exposure. The people who become ill from asbestos are usually those who are exposed to it on a regular basis, most often in a job where they work directly with the material, however, one off or lower level exposures can cause mesothelioma.

The presence of non - friable asbestos in a building is generally **NOT** a health risk. Asbestos poses a risk to health when the Asbestos Containing Material (ACM) is damaged, deteriorated or disturbed due to fire, heat or work processes. When disturbed tiny friable asbestos fibres (less than 50 microns in length) are produced and released into the air. The fibres, usually invisible to the naked eye, can remain airborne for extended periods of time and may be inhaled even without a person's knowledge or awareness.

Therefore, while buildings may have been constructed using many different Asbestos Containing Material (ACM) their presence should not create a concern provided the material is in good condition and left undisturbed. In fact, in some situations it may be safer to leave the Asbestos Containing Material (ACM) in place rather than attempt to remove it.

There is **no 'safe'** level of exposure to asbestos nor is there any safe amount of time for work with asbestos, however, one off or lower level exposures can cause the cancer mesothelioma.

Asbestos Related Disease

Asbestos has been classified as a known human carcinogen (a substance that causes cancer). If Asbestos Containing Material (ACM) is disturbed, tiny asbestos fibres are released into the air. When asbestos fibres are breathed in, they may get trapped in the lungs. Over time, these fibres may accumulate and cause scarring and inflammation, which can affect breathing and lead to serious health problems.

Several factors determine how asbestos exposure affects an individual, including:

- Frequency of exposure
- Duration of exposure
- Size, shape, and chemical makeup of the asbestos fibres
- Source of the exposure

Research shows that short term, low level exposure to asbestos poses very low risk of a person developing asbestos related diseases. This does not totally remove the risks of developing asbestos related disease. The greater the frequency of exposure and duration of exposure will increase the risk of asbestos related diseases occurring. Persons who are exposed to asbestos where they may be working with asbestos, such as cutting, drilling or sanding Asbestos Containing Material (ACM) on a regular basis or for a prolonged period have a much higher risk of developing asbestos related disease because the amount of fibres which have the potential to be inhaled is much higher whilst performing these tasks.

Asbestos related diseases generally have a latency period of about 10-50 years. Therefore, the symptoms of asbestos-related diseases may not become apparent for many decades after the exposure. Due to the long latency period, the magnitude of health risks is only now becoming apparent. Experts believe the diagnosis of asbestos-related diseases will not peak until 2020.

The most common asbestos-related diseases are:

- Lung cancer
- Mesothelioma
- Asbestosis

Whether someone develops lung cancer, mesothelioma or asbestosis depends on their health, genetics, habits and the duration and concentration of exposure.

There is currently no cure for asbestos-related diseases. It has been estimated that 38,000 Australians have died from asbestos-related causes since 1980. This number is expected to rise to 56,000 between now and 2020 as more cases are diagnosed.

Lung Cancer

Asbestos-exposed people are about 5 times more likely to develop lung cancer than non-exposed people. Asbestos and cigarettes are a particularly deadly combination. If an asbestos-exposed person also smokes, their chance of developing lung cancer increases dramatically up to 50 times that of a non-smoking, non-asbestos exposed person.

Asbestos-related lung cancer is a rare type of lung cancer directly associated with workplace exposure to large amounts of toxic asbestos fibres. Researchers report the duration and concentration of asbestos exposure plays a role in the risk of developing lung cancer. The Helsinki Criteria states the risk for lung cancer increases as much as 4 percent with each year of exposure. The Occupational Safety and Health Administration (OSHA) has demonstrated a clear association between the concentration of asbestos exposure and the risk of lung cancer, finding the higher the concentration of asbestos fibres, the higher the risk of lung cancer.

When asbestos fibres are inhaled they may become lodged in the lining of the lungs. The fibres cause irritation and cellular damage which after many years results in the formation of malignant tumours.

From the time of initial exposure most asbestos-related lung cancers take between 15 and 35 years to develop. Due to the long latency period and slow onset of symptoms asbestos-related lung cancer is often diagnosed during the late stages of the disease when treatment options are limited. The main symptoms of lung cancer are:

- a new dry cough or change in a chronic cough
- chest pain or breathlessness
- repeated bouts of pneumonia or bronchitis
- coughing or spitting up blood

Mesothelioma

Mesothelioma is a rare but fatal cancer of the mesothelium; the membrane lining that protects vital organs in the body. Inhaled asbestos fibres cause changes that result in inflammation and scarring. This leads to the development of cancer in the damaged membrane lining. Mesothelioma can affect the membrane

lining of any organ throughout the body however the disease usually attacks the lungs, heart or abdominal cavity.

Exposure to asbestos fibres is the cause of mesothelioma. Exposure to tobacco smoke does not increase the risk of developing mesothelioma but can cause the severity of the cancer.

Recent Research

It is recommended that you look up the following links to ascertain a wide range of information and statistics that are provided by the Asbestos Safety and Eradication Agency. The links are:

<https://www.asbestossafety.gov.au/research-publications/future-projections-burden-mesothelioma-australia>

https://www.asbestossafety.gov.au/research-publications/asbestos_safety_research

Additionally research has found other causes of mesothelioma. In some parts of the world up to 20% of sufferers were proven to have no exposure to asbestos. For example, ERIONITE-a fibrous form of the zeolite group of minerals has emerged as the most important example of nonasbestos-mediated cause of Mesothelioma in regions such as Turkey.

Table 1. Malignant Mesothelioma: Putative Nonasbestos-Related Associations
Mineral fibers Erionite; fluoro-edenite; organic
Carbon nanotubes
Irradiation Diagnostic use of thorium dioxide (Thorotrast); atomic energy
work exposure
Viruses MC29 avian leukosis virus; SV40
Miscellaneous Metals; chronic serosal inflammation

Abbreviation: SV40, simian virus 40.

Similar information can be accessed on www.archivesofpathology.org.

Mesothelioma has the longest latency period of any asbestos-related disease, taking 20-50 years to develop. In its early stages mesothelioma may not cause many symptoms. It is only later when the cancer has spread and moved into the underlying tissues or caused fluid to leak into the cavity in the chest or abdomen that symptoms appear.

Symptoms of mesothelioma include:

- shortness of breath
- abdominal pain

- poor appetite
- nausea and vomiting
- fever
- bowel or urinary problems
- weight loss

The long latency period, rapid development of the cancer and late presentation of symptoms typically results in a diagnosis when the cancer is quite advanced.

There is no known cure for mesothelioma. Treatment attempts to reduce symptoms, improve quality of life and prolong the length of survival; which is commonly only 6 -18 months after diagnosis.

Asbestosis

Asbestosis is a serious chronic lung disease caused exclusively by heavy and prolonged exposure to asbestos. The disease is caused when inhaled asbestos fibres become lodged deep within the lung tissue. The scarred lung tissue hardens making it increasingly difficult for the lungs to expand and contract and breathing progressively more problematic.

Signs and symptoms of asbestosis can include:

- Shortness of breath
- A persistent and productive cough (a cough that expels mucus)
- Chest tightness
- Chest pain
- Loss of appetite
- A dry, crackling sound in the lungs when inhaling

Symptoms typically appear about 10 years or more after the initial exposure to the asbestos fibres. Diagnosis is difficult as the symptoms resemble those of less serious conditions such as asthma and pneumonia.

There is no cure for asbestosis. Sufferers require ongoing medical treatment to relieve symptoms, maintain quality of life and reduce the burden the disease places on the body's vital organs. Most asbestosis sufferers do not die because of the disease itself, but rather from serious conditions like respiratory or cardiac failure, triggered by the disease. In addition, asbestosis sufferers are at greater risk of developing lung cancer or mesothelioma than other asbestos-exposed people who do not have asbestosis.

Health Monitoring

A person conducting a business or undertaking (PCBU) must ensure that workers' exposure to airborne asbestos is eliminated or minimised as far as is reasonably practicable. Additionally, a Person Conducting a Business or Undertaking (PCBU) must ensure that the exposure standard for airborne asbestos is not exceeded at the workplace. The current standard is 0.1 asbestos fibres/mL (Work Health and Safety Regulation 2011). The control level of airborne asbestos fibres for asbestos removal work and asbestos related work is much lower and is set at less than 0.01 fibres/mL.

A Person Conducting a Business or Undertaking (PCBU) also has an obligation to pay the health monitoring expenses for workers who are at risk of exposure to asbestos when undertaking ongoing licensed asbestos

removal work or other asbestos related work. A Person Conducting a Business or Undertaking (PCBU) must provide a copy of the health monitoring report to the worker and WorkSafe ACT.

Risk Management

It is essential to undertake a thorough risk management process prior to commencing all work. Risk management involves:

- identifying hazards that have the potential to cause harm such as heights, noise, manual handling etc
- identifying the associated risks. (The actual harm or adverse health effects of exposure to the hazard ie a risk of being exposed to excessive noise may be hearing loss)
- assessing the risk
- eliminating or controlling the risk

Particular consideration to risk management is required where Asbestos Containing Material (ACM) may be present. Risk management should be undertaken:

- Prior to site entry
- For all work performed on-site
- Prior to leaving a work site

Prior to Site Entry

The first step in managing the risk of exposure to asbestos in the workplace is being aware of its presence. Consideration of the following factors is useful when identifying or assuming the presence of asbestos in the workplace.

The building

- Date of construction.
- Refurbishments or additions made to the building prior to 31 December 2003.
- The type of material used to construct the building.
- Refer to design plans, asbestos labels and warning signs.

Consultation

- Consult with designers, manufacturers, suppliers of plant and workers who have worked at the workplace for a long time. These people may be able to provide information about the history of the building, its age and any construction, renovation or repairs.
- Consult with all persons who may have management and control or who may be aware of asbestos or Asbestos Containing Material (ACM). There may be more than one person responsible for identifying asbestos or Asbestos Containing Material (ACM) in the workplace. For example, the building owner has management and control over the workplace and is responsible for asbestos identification and management. The building owner has engaged three contractors to carry out renovation work. Before and during the renovations the building owner, other tenants and contractors must all consult, co-operate and co-ordinate their knowledge and activities to protect any persons from potential exposure to asbestos.
- If unsure as to the presence of asbestos or Asbestos Containing Material (ACM), consult with a licensed asbestos assessor who is able to identify asbestos or Asbestos Containing

Material (ACM) and then advise on the risks associated with the asbestos and Asbestos Containing Material (ACM) and then what steps can be taken to manage and control the risks posed by the asbestos or Asbestos Containing Material (ACM).

Workplace Risk Assessment

If friable asbestos has been identified or has been assumed to be present, the person with management or control must ensure that a risk assessment has been made of the risks associated with the asbestos at the workplace. The risk assessment must be included in the workplace asbestos register and asbestos management plan.

The risk assessment, developed by a licensed asbestos assessor includes information regarding:

- the condition of the asbestos
- the likelihood of anyone being exposed to the asbestos
- whether the nature or location of any work to be carried out is likely to disturb the asbestos
- the result of any air monitoring at the workplace
- the control measures considered, or used, for control of the risks associated with the asbestos

Assessing the Risk

When assessing the risks associated with the hazard consider:


- who may be affected
- how they may be affected
- the duration of exposure
- the frequency of exposure
- how serious the injury/illness will be
- how likely it is that an illness will result

Risk Matrix

Consequences	Likelihood				
	Rare	Unlikely	Possible	Likely	Critical
Major	moderate	moderate	high	critical	critical
Moderate	low	moderate	moderate	high	critical
Minor	low	moderate	moderate	moderate	high
Insignificant	Very low	low	moderate	moderate	moderate
	Very low	Very low	low	low	moderate

After weighing up the consequences of the risk and the likelihood of the risk causing harm the next step is to consider the best course of action. Although the ultimate goal is to eliminate asbestos from the workplace removal may not always be the best option. A combination of control methods may be applied to control the hazard effectively. It should be noted that only a licensed asbestos assessor can advise on how to manage and control risks associated with asbestos and Asbestos Containing Material (ACM).

Hierarchy of Controls and Control Measures

<p>Most Effective</p>  <p>Least Effective</p>	ELIMINATION	Eliminate the risk by not conducting the work. Removal.
	SUBSTITUTION	Replace the process, equipment or substance with a safer alternative.
	ISOLATION	Isolate the hazard. Enclosure or encapsulation.
	ENGINEERING	Redesign or modify the equipment or process. Use appropriate tools.
	ADMINISTRATIVE	<ul style="list-style-type: none"> Consult with workers. Change the work method, routine or schedule. Provide training. Document the work procedure. Change the supervision arrangements. Provide clear instructions. Provide signs.
	PERSONAL PROTECTIVE EQUIPMENT	Utilise appropriate protective equipment.

Duty of Care of Workers

Every worker at a workplace has a duty of care under the Act. A worker must ensure that they follow any reasonable safety instruction given by their employer. They must also ensure that when performing their work, they are not putting their own health and safety or any other person's health and safety at risk.

This means that a worker must consider the results of their actions at work or failure to take action. For example, if a worker knew that a material they were working on was asbestos or Asbestos Containing Material (ACM), and they decided to drill into it without taking any precautions, they may be breaching their worker safety duty by putting themselves and other persons at the workplace at risk of being exposed to asbestos. If a worker reasonably believes that a material contains asbestos, they must notify their supervisor, the person with management or control of the workplace and any other worker at the workplace of their concerns.

Rights of Workers

A worker has the right to refuse or cease to do work if they believe that performing that work will expose them to an immediate risk of exposure to a hazard. If you do exercise this right, you must still make yourself available to perform other duties.

If you believe that the work you have been directed to carry out would expose you to asbestos or Asbestos Containing Material (ACM), you are within your rights to refuse to do the work until you are provided information from The Person Conducting a Business or Undertaking (PCBU) that the work is safe to perform. This might include the Person Conducting a Business or Undertaking (PCBU) having a licensed asbestos assessor take a sample of the material and have the sample analysed at a National Association of

Testing Authorities (NATA) accredited laboratory to verify that the work will not expose you to a risk of exposure to asbestos.

License Holders

Only persons who are licensed as an asbestos assessor or asbestos removalist are able to perform certain kinds of work in relation to asbestos. In order to find out if a person is licensed to perform asbestos removal work or asbestos assessment work, you should contact the regulator in the state or territory where you are working.

In the ACT, the regulator is WorkSafe ACT who can be contacted on 02 6207 3000. You can also check the list of licensed asbestos removalist or licensed asbestos assessors at www.accesscanberra.act.gov.au.

Licensed Asbestos Assessor

Only a person who is licensed as an asbestos assessor may perform the following duties in the ACT:

- a. air monitoring during asbestos removal work
- b. clearance inspections for asbestos removal work
- c. issuing clearance certificates in relation to asbestos removal work
- d. identifying the location, type and condition of asbestos or Asbestos Containing Material (ACM), including by taking samples
- e. assessing the risk resulting from the identified asbestos or Asbestos Containing Material (ACM)
- f. advising on how the asbestos or Asbestos Containing Material (ACM) should be managed
- g. reporting about the work mentioned in paragraphs (a) to (e).

Licensed Class A Asbestos Removalist

A person conducting a business or undertaking (PCBU) who holds a Class A Asbestos Removal licence may remove, or employ people to remove:

- friable asbestos
- asbestos contaminated dust or debris (ACD) associated with the removal of friable asbestos
- non-friable asbestos or Asbestos Containing Material (ACM)
- asbestos contaminated dust or debris (ACD) associated with the removal of non-friable asbestos or Asbestos Containing Material (ACM)

Licensed Class B Asbestos Removalist

A person conducting a business or undertaking (PCBU) who holds a Class B Asbestos Removal license may remove, or employ people to remove:

- non-friable asbestos or Asbestos Containing Material (ACM)
- asbestos contaminated dust or debris (ACD) associated with the removal of non-friable asbestos or Asbestos Containing Material (ACM)

Asbestos Removal (Abatement)

Removal of asbestos and Asbestos Containing Material (ACM) from the workplace prior to entry removes the risk of exposure to construction workers. However major asbestos removal programs are often complex, expensive and substantially disrupt occupancy. If not strictly controlled, removal may also result in increased asbestos fibre counts in other areas.

From 1 January 2015, the removal of asbestos and Asbestos Containing Material (ACM from a premise (i.e. both workplace and non - workplaces) is **NOT** permitted unless it is undertaken by an appropriately licensed asbestos removalist. An exception is if the removal is incidental to minor routine maintenance work, or other minor work which is work which can only be performed by an unlicensed person under certain circumstances.

A licensed asbestos removalist must give notice of the asbestos removal work. Written notice must be given to WorkSafe ACT, at least 5 days prior to the removal. The removalist must also notify the person with management or control of the workplace that licensed asbestos removal work is to be carried out and when the work will be carried out. This notification must be given prior to commencement of the asbestos removal work.

The person with management or control of the workplace is responsible for ensuring advice of the commencement and carrying out of asbestos removal work is provided before the work commences. They must provide advice to:

- 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 immediate vicinity of, the workplace
- anyone occupying premises in the immediate vicinity of the workplace

A licensed asbestos removalist must complete asbestos removal work in accordance with Regulations and Codes of Practices ensuring:

- signs alerting persons to the presence of asbestos are placed to indicate where the asbestos removal work is being carried out
- barricades are erected to delineate the asbestos removal area and the asbestos removal site
- site security
- the risk of an electrical injury is addressed
- a nominated asbestos removal supervisor for asbestos removal work is present at the asbestos removal area whenever the removal work is being carried out
- techniques that prevent the generation of airborne asbestos fibres are used
- air monitoring is conducted by a competent person when required
- decontamination facilities are available
- nothing contaminated with asbestos is removed from the asbestos removal area unless it is decontaminated before being removed or sealed and labelled
- asbestos waste is contained and labelled before it is removed from an asbestos removal area
- asbestos waste is disposed of as soon as practicable at an authorised site
- a clearance inspection of the asbestos removal area is carried out and a clearance certificate is issued.

If stable and inaccessible, Asbestos Containing Material (ACM) may be left in situ until demolition, partial demolition, renovation or refurbishment. However, Asbestos Containing Material (ACM must be removed before demolition, partial demolition, renovation and refurbishment.

In Situ Asbestos

Removal of asbestos or Asbestos Containing Material (ACM) at a workplace is not always practicable, necessary or the best option in the circumstances. In many cases if the material is in good condition the safest option is to leave it undisturbed. For example, internal asbestos cement sheet walls that are in good condition and coated with paint do not pose a risk to health if left undisturbed.

The 10 Square Metre Rule

Since 1 January 2015, the so-called '10 square metre rule' does **NOT** apply in the ACT (it still applies in NSW).

Workers are permitted to remove non-friable asbestos and Asbestos Containing Material (ACM) **IF** the removal is incidental to **minor routine work, or other minor work** and carried out in strict accordance with the Regulations and Codes of Practice. The removal of asbestos or Asbestos Containing Material (ACM) from a premise is **NOT** otherwise permitted in the ACT unless it is undertaken by an appropriately licensed asbestos removalist.

All friable asbestos must be removed by a licensed Class A asbestos removalist

Minor Routine Maintenance Work

As per the Code of Practice How to Manage and Control Asbestos in the Workplace:

'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 Asbestos Containing Material (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.'

Additional examples of minor routine maintenance work would include the following tasks, and like activities, relating to non-friable asbestos or Asbestos Containing Material (ACM):

- Sealing, painting and coating for the purpose of maintaining the condition of the non-friable asbestos or non-friable Asbestos Containing Material (ACM)
- Cleaning leaf litter from gutters of asbestos cement roofs
- Removing and disposing of small, isolated pieces of Asbestos Containing Material (ACM) found at a premise

The following activities, and any other like activities, would **NOT** be considered minor routine maintenance work:

- Disturbing loose fill asbestos insulation (e.g. in 'Mr Fluffy' homes)
- Cleaning a medium to large premises which has surfaces covered in asbestos-contaminated dust (i.e. clean-up will take at least 4 hours) – Class A licensed removalist required
- Cleaning any Asbestos Containing Material (ACM) with high pressure air or water devices
- Unless otherwise prescribed in legislation, undertaking any maintenance work on friable asbestos or Asbestos Containing Material (ACM).

Minor Work

As per the Code of Practice How to Manage and Control Asbestos in the Workplace and How to Safely Remove Asbestos:

‘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 asbestos cement 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 asbestos cement sheet to attach a fitting.’

The disturbance of asbestos or Asbestos Containing Material (ACM) with regards to minor work will generally be the result of small incidental tasks wherein the sole focus of the activity is the installation, reconfiguration or repair of a service unrelated to asbestos removal. Examples of minor work would include undertaking the following tasks, and like activities, relating to non-friable asbestos or Asbestos Containing Material (ACM):

- Replacing cabling in asbestos cement conduits or boxes
- Working on electrical mounting boards containing asbestos
- Inspection of asbestos friction materials
- Installing down lights, light switches or power points
- Cleaning and disposing of asbestos contaminated dust resulting from the above minor work - this is to be undertaken in accordance with the regulations

In contrast to the above, if one of the objectives of an activity is the removal of asbestos or Asbestos Containing Material (ACM) from a premise (i.e. not an incidental activity) it would **NOT** be considered minor work; this broadly includes:

- Any demolition or refurbishment of a premises which involves the removal, or partial removal of a bathroom, kitchen, eaves, roof, garage, internal walls, external walls, fences etc – which contain asbestos or Asbestos Containing Material (ACM)
- Unless otherwise prescribed in legislation, undertaking any work on friable asbestos or Asbestos Containing Material (ACM)

General Requirements for Minor Routine Maintenance Work or Other Minor Work

Minor routine maintenance work and other minor works in relation to non – friable asbestos or non – friable Asbestos Containing Material (ACM) may only be done in accordance with the Regulations and Codes of Practice which set out how the work may be performed safely. In order to perform this work the following requirements must be met:

- Workers have received appropriate training to perform the work (This course does not provide sufficient knowledge to perform this type of work)
- Workers have received appropriate training, information, instruction and supervision to perform the work
- Site specific induction
- Conduct work using established safe work procedures

WORKSAFE **ACT**

- Use the correct equipment. NO high-pressure water sprays, compressed air or power tools
- Correctly use the appropriate personal protective equipment
- Utilise the correct decontamination processes
- Dispose of the material properly

Appendix A: Definitions

ACD	Asbestos Contained Dust
ACM	Any material, object or product that contains asbestos
Asbestos	Collective term given to a group of naturally occurring fibrous silicate minerals
Chrysotile	Commonly known as white asbestos
Crocidolite	Commonly known as blue asbestos
Friable	Is material containing asbestos, that when dry, is in powder form or could be crushed or pulverised into powder form by hand pressure.
Hazard	A source of potential harm or a situation with the potential to cause loss
Hazard identification	The process of identifying hazards that have the potential to cause harm
Latency period	The period of time which passes between initially being exposed to airborne asbestos fibres and the disease being diagnosed. Depending upon the asbestos type and magnitude of exposure, the latency period can range from between 10 and 50 years or more
LFAI	Loose-fill Asbestos Insulation
Naturally Occurring Asbestos (NOA)	Means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock formations, sediment or soil.
Non-friable	Any material that contains asbestos in a non-friable matrix. It cannot be crushed by hand when dry
Removal	Removal of asbestos containing materials
Risk	The actual harm or adverse health effects of exposure to the hazard. Risk is measured in terms of a combination of the seriousness of harm, or consequence and the probability of the harm occurring

Risk management	The overall process of hazard and risk identification, risk assessment and evaluation and elimination or control of the risks
Risk control	The part of risk management, which involves the implementation of controls to eliminate or minimise risks
Risk identification	Identification of the risks associated with the hazard. ie The hazard is exposure to asbestos fibres and the risk is development of asbestos related diseases
Sprayed insulation	Sprayed asbestos insulation was used for fire protection, thermal insulation, condensation control and acoustic insulation. Various trade names for sprayed asbestos insulation included Limpet, Asbestos spray, Cafco, Silbestos and Monokote

Appendix B: List of Asbestos Containing Material

A

Air conditioning duct – exterior or interior acoustic and thermal insulation

Arc shield in lift motor rooms or large electrical cabinets

Asbestos based plastics products – as electrical insulates and acid resistance compositions

Asbestos ceiling tiles

Asbestos containing laminates (e.g. formica) used where heat resistance is required e.g. ships

Asbestos containing pegboard/perforated sheeting

Asbestos felts

Asbestos marine board e.g. marinate

Asbestos mattresses used for hot equipment in power stations

Asbestos paper used variously for insulation, filtering and production of fire resistant laminates

Asbestos textile gussets in air-conditioning ducting systems

Asbestos textiles

Asbestos yarn

Asbestos-cement conduit

Asbestos-cement electrical fuse boards

Asbestos-cement external roofs and walls

Asbestos-cement internal flues and downpipes

Asbestos-cement moulded products such as gutters and ridge capping

Asbestos-cement pits – traffic control wiring

Asbestos-cement sheet

Asbestos-cement sheet behind ceramic tiles

Asbestos-cement sheet internal over exhaust canopies such as ovens, fume cupboards etc

Asbestos-cement sheet internal walls and ceilings

Asbestos-cement sheets underlay for vinyl

Asbestos-cement storm drain pipes

Asbestos-cement water pipes (usually underground)

Autoclave/steriliser insulation

B

Bitumen-based water proofing such as malthoid, typically on roofs and floors and also in brickwork

Bitumous adhesives and sealants
Boiler insulation, slabs and wet mix
Brake disc pads
Brake linings

C

Cable penetration insulation bags (typically telecom)
Calorifer insulation
Caulking compounds, sealant and adhesives
Clutch faces
Compressed asbestos cement panels for flooring, typically verandas

D

Door seals on ovens

E

Electric heat banks – block insulation
Electric hot water services – normally not asbestos but may be some millboard present
Electric light fittings, high wattage, insulation around fitting (and bitumised)

F

Filter in acetylene gas cylinders
Filters – beverage, wine filtration
Fire blankets
Fire curtains
Fire dust 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
Fuse blankets and ceramic fuses in switchboard

G

Gaskets – chemical, refineries
Gaskets – general

Gauze mats in laboratories/chemical refineries

Gloves – asbestos

H

Hairdryers – insulation around heating elements

Headers (manifold) insulation

I

Insulation blocks

Insulation in electric reheat units for air-conditioner systems

L

Laboratory bench tops

Laboratory fume cupboard panels

Laboratory ovens – wall insulation

Lagged exhaust pipes on emergency power generators

Lagging in penetrations in fireproof walls

Lift shafts – asbestos packing around penetrations

Lift shafts – asbestos-cement panels lining the shafts at the opening of each floor

Limpet asbestos spray insulation

Locomotives – steam, lagging on boilers, steam lines, steam dome and gaskets

M

Millboard between heating unit and wall

Millboard lining of switchboxes

P

Packing materials for gauges, valves etc., may be square packing, rope or loose fibre

Paint, typically industrial epoxy paints

Penetrations through concrete slabs in high rise buildings

Pipe insulation including moulded sections, water-mix type, rope braid and sheet

Pitch-based (e.g. zelemite, ausbestos, lebah) electrical switchboard

Plastic cornice adhesives

R

Refractory linings

Refractory tiles

Rubber articles – extent of usage unknown

S

Sealant between floor slab and wall, usually in boiler rooms, risers or lift shafts

Sealant or mastik on windows

Sealants and mastiks in air-conditioning ducting joints

Spackle or plasterboard wall jointing compounds

Sprayed insulation – acoustic wall and ceiling

Sprayed insulation – beams and ceiling slabs

Sprayed insulation – fire retardant sprayed on nut internally, for bolts holding external building wall panels

T

Tape and rope – lagging and jointing

Tapered ends of pipe lagging, where lagging is not necessarily asbestos

Telecom asbestos-cement pits

Tilux sheeting in place of ceramic tiles in bathrooms

Training cable under lift cabins

Trains – country – guard vans – millboard between heater and wall

Trains – Harris cars – sprayed asbestos between steel shell and laminex

V

Valve, pump, etc insulation

W

Welding rods

Woven asbestos cable sheath

Source: NOHSC, Asbestos Inquiry Report (Note: This is not an exhaustive list)

Appendix C: Examples



Asbestos Roof Tiles [an example of non-friable asbestos]



Asbestos fibre as ceiling insulation [an example of 'Mr Fluffy' friable asbestos]



Chrysotile or 'White Asbestos'



Amosite or 'Brown Asbestos'



Crocidolite or 'Blue Asbestos'



ACM or Asbestos Sheeting



'Super 6' Asbestos Sheeting as a roofing material



Asbestos used as insulation on pipes – lagging



PPE for asbestos inspections



Asbestos Containing Material (ACM) in a telecommunications pit



Damaged floor tiles containing asbestos



'Super 6' used as fencing material

Handout 1 - Common Forms of ACM and their Use.

Product	Use/Location	Approximate percentage of Asbestos	Deterioration Rate / Health Hazards
Loose-fill asbestos	Acoustic and thermal insulation within residential and commercial buildings ceilings, wall and subfloor cavities. Mattresses and Quilts often used as thermal insulation of industrial boilers.	100% in most cases except for lining/bags.	Pure crushed asbestos fibres. Highly friable. Easily disturbed and fibres become airborne easily. High risks of inhalation of asbestos fibres.
Sprayed coatings	Thermal and anti-condensation insulation usually found in commercial buildings. Acoustic insulation in theatres and halls. Fire protection on steel and reinforcement concrete beams/columns. The underside of floors.	Anywhere from 55% – 85%	High percentage of asbestos. Classed as friable and easily disturbed when working with or around this product. Deteriorates considerably over time. High risks of inhalation of asbestos fibres
Thermal insulation	Thermal insulation of pipes, boilers and pressure vessels in both residential and commercial settings.	Anywhere from 6% - 85%	Has a high probability of being friable when disturbed. Deteriorates considerably over time. High risks of inhalation of asbestos fibres.
Asbestos boards			
<i>Millboard</i>	General heat insulation and fire protection also used for insulation of electrical and plant equipment.	Anywhere from 37% to 97%.	High percentage of asbestos content. Classed as friable and can be easily disturbed when working with or around this product. Deteriorates considerably over time. High risks of inhalation of asbestos fibres

<i>Insulating board</i>	Used for thermal and acoustic insulation and fire protection. Insulating board is resistant to moisture movement and used as general building board. Found in service ducts, fire breaks, in-fill panels, partitions and ceilings, roof underlay, wall linings, soffits, external canopies and porch linings.	Usually anywhere from 15% - 25% however some older boards may contain up to 40%.	Medium to high percentage of asbestos content. Classed as friable and can be easily disturbed when working with or around this product. Deteriorates considerably over time. High risks of inhalation of asbestos fibres
<i>Insulating board in cores and linings of composite products</i>	Used for thermal insulation. Found in fire doors, cladding in-fill panels, domestic boiler casings, partition and ceiling panels, oven linings and suspended floor systems.	Anywhere between 16% and 40%.	Medium to high percentage of asbestos content. Classed as friable and can be easily disturbed when working with or around this product. Deteriorates considerably over time. High risks of inhalation of asbestos fibres
Paper, felt and cardboard	Used for electrical/heat insulation of electrical equipment. Used in air conditioning systems as insulation and acoustic lining. To reinforce bitumen and other products and as a facing to flooring products.	Anywhere up to 100%.	High percentage of asbestos content. Highly friable and is easily disturbed when working with or around this product. Deteriorates easily over time. High risks of inhalation of asbestos fibres.
Textiles			
<i>Ropes and yarns</i>	Lagging on pipes. Jointing and packing materials. Used as heat/fire resistant boiler, oven and flue sealing. Caulking in brickwork. Plaited asbestos tubing in electrical cable.	Most commonly 100%.	High percentage of asbestos content. Highly friable and is easily disturbed when working with or around this product. Deteriorates easily over time. High risks of inhalation of asbestos fibres.
<i>Cloth</i>	Thermal insulation and lagging including fire resistant blankets, mattresses, protective curtains, gloves, aprons and overalls.	Most commonly 100%.	High percentage of asbestos content. Highly friable and is easily disturbed when working with or around this product. Deteriorates easily over time. High risks of inhalation of asbestos fibres.
<i>Gaskets and washers</i>	Used in domestic and industrial plant and pipe systems ranging from hot water boilers to industrial power and chemical plant.	Usually around 90%.	High percentage of asbestos content. Highly friable and is easily disturbed when working with or around this product. Deteriorates easily over time. High risks of inhalation of asbestos fibres.

<i>Strings</i>	Used for sealing hot water radiators.	Most commonly 100%.	High percentage of asbestos content. Highly friable and is easily disturbed when working with or around this product. Deteriorates easily over time. High risks of inhalation of asbestos fibres.
Friction products			
<i>Resin based materials</i>	Transport machinery and lifts. Used for brakes and clutch plates.	Anywhere between 30% and 70%.	High percentage of asbestos content. Non friable. May deteriorate over time and use, can become friable if split open when performing maintenance work. Low risk of inhalation of asbestos fibres.
Cement products			
<i>Profiled sheets</i>	Used in roofing, wall cladding, permanent shuttering and cooling tower elements.	Anywhere between 10% to 15%	Medium percentage of asbestos content. Non friable. Deteriorates over time due to exposure to weather, fire damage and vibration. Low risk of inhalation of asbestos fibres if encapsulated and undamaged.
<i>Semi-compressed flat sheet and partition board</i>	Used in partitioning in farm buildings and in-fill panels for housing. Shuttering in an industrial building. Decorative panels for facings. Bath panels. Soffits. Linings to walls and ceilings. Portable buildings. Propagation beds in horticulture. Domestic structural uses. Fire surrounds. Composite panels for fire protection.	Anywhere between 10% to 25%	Medium to high percentage of asbestos content. Non friable. Deteriorates over time due to exposure to weather, fire damage and vibration. Low risk of inhalation of asbestos fibres if encapsulated and undamaged.
<i>Fully compressed flat sheet used for tiles, slate and board.</i>	As above but where stronger materials are required and as slates, board cladding, decking and roof slates.	Up to 50%.	High percentage of asbestos content. Non friable. Deteriorates over time due to exposure to weather, fire damage and vibration. Low risk of inhalation of asbestos fibres if encapsulated and undamaged.
<i>Preformed moulded products and extruded products.</i>	Cable troughs and conduits. Cisterns and tanks. Drains and sewer pressure pipes. Fencing. Flue pipes. Rainwater goods. Roofing components e.g. soffits, eaves and fascias.	10% to 15%.	Medium percentage of asbestos content. Non friable. Deteriorates over time due to exposure to weather, fire damage and vibration. Low risk

	Ventilators and ducts. Weather boarding. Window sills and boxes. Bath panels. Draining boards. Extraction hoods. Copings. Promenade tiles.		of inhalation of asbestos fibres if encapsulated and undamaged.
Other encapsulated materials			
<i>Textured coatings</i>	Decorative/flexible coatings on walls and ceilings.	Up to 3%	Low percentage of asbestos content. Non friable. May deteriorate over time if damaged. Very low risk of inhalation of asbestos fibres.
<i>Bitumen products</i>	Roofing felts and shingles. Semi-rigid asbestos bitumen roofing. Gutter lining and flashings. Bitumen damp roof courses. Asbestos bitumen coatings on metals e.g. car body underseals. Bitumen mastics and adhesives used for floor tiles and wall covering.	Up to 8%	Low percentage of asbestos content. Non friable. Not easily disturbed unless destructive methods are used, such as sanding or powered tools are used. May deteriorate over time if damaged. Very low risk of inhalation of asbestos fibres.
<i>Flooring</i>	Thermo plastic floor tiles. PVC vinyl floor tiles and unbacked PVC flooring. Asbestos paper-backed PVC floors. Magnesium oxychloride flooring used in water closets, staircase and industrial flooring.	Anywhere between 7% and 25%	Medium percentage of asbestos content. Non friable. Not easily disturbed unless destructive methods are used, such as sanding or powered tools are used. May deteriorate over time if damaged. Very low risk of inhalation of asbestos fibres.
<i>Reinforced PVC</i>	Panels and cladding.	Up to 10%.	Low percentage of asbestos content. Non friable. Not easily disturbed unless destructive methods are used, such as sanding or powered tools are used. May deteriorate over time if damaged. Very low risk of inhalation of asbestos fibres.
<i>Reinforced plastic and resin composites.</i>	Used for toilet cisterns, seats, banisters, window sills and lab bench tops.	Up to 10%.	Low percentage of asbestos content. Non friable. Not easily disturbed unless destructive methods are used, such as sanding or powered tools are used. May deteriorate over time if damaged. Very low risk of inhalation of asbestos fibres.

Source – HSG 264 – Asbestos: The Survey Guide, Second Edition. UK Health and Safety Executive



CONTACT INFORMATION

Training Centre

395 Guildford Road
GUILDFORD NSW 2161

T (02) 9892 3370

F (02) 9892 3662

bookings@sydneysafety.com.au



Online bookings at www.sydneysafety.com.au



RTO Safety Training is a Nationally Registered Training Organisation

RTO Code 40992 ABN 89 164 524 994

T (02) 9892 3370 F (02) 9892 3662 bookings@sydneysafety.com.au www.sydneysafety.com.au



Training courses at your site or ours

- ◇ **Confined Space Entry - 1 Day**
- ◇ **Confined Space Gas/Standby - 2 Day**
- ◇ **Confined Space BA/Rescue - 3 Day**
- ◇ **Gas Test Atmospheres - 6 hours**
- ◇ **Operate Breathing Apparatus - 6 hours**
- ◇ **Issue Permits - 1 Day**
- ◇ **Safe Work at Height - 1 Day**
- ◇ **Height Rescue Operator - 1 Day**
- ◇ **Pole Top Rescue - 6 hours**
- ◇ **Use of Portable Fire Extinguishers - 4 hours**
- ◇ **Lock out Tag Out - 3 hours**
- ◇ **Asbestos Awareness (ACT)**
- ◇ **Remove Non-friable Asbestos - 2 Day**
- ◇ **Remove Friable Asbestos - 2 Day**
- ◇ **Supervise Asbestos Removal - 1 Day**
- ◇ **Manual Handling - 3 hours**



www.sydneyssafety.com.au

RTO Safety Training is a Nationally Registered Training Organisation

RTO Code 40992 ABN 89 164 524 994

T (02) 9892 3370 F (02) 9892 3662 bookings@sydneyssafety.com.au www.sydneyssafety.com.au

