

A handbook for workplaces

Asbestos



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WorkSafe Victoria is a trading name of the Victorian WorkCover Authority.

The information presented in *A Handbook* for Workplaces Asbestos is intended for general use only. It should not be viewed as a definitive guide to the law, and should be read in conjunction with the *Occupational Health and Safety Act 2004* and the Occupational Health and Safety Regulations 2007.

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This handbook provides information about asbestos. It explains what it is, where it can be found in workplaces and the health risks for people exposed to airborne asbestos dust. It also outlines who has legal duties in workplaces and their main duties.

For detailed guidance about managing and removing asbestos, refer to WorkSafe's compliance codes *Managing asbestos in workplaces* and *Removing asbestos in workplaces*.

What is asbestos?

Asbestos is the name given to a group of fibrous silicate minerals that occur naturally in the environment. Asbestos was commonly used in a wide variety of industrial, manufacturing, building and construction applications in Australia between the 1940s and late 1980s. It has been used in the manufacture of more than 3000 products because of its durability, fire resistance and excellent insulating properties.

The three main types of asbestos are:

- chrysotile (often called white asbestos)
- crocidolite (often called **blue asbestos**)
- amosite (often called **brown asbestos**).

Other less common forms of asbestos include actinolite, anthophyllite and tremolite.

Under Victorian law, asbestos is defined as any material or object, whether natural or manufactured, that contains one or more of the mineral silicates listed above.

Where asbestos is affected by heat or chemicals or combined with other substances its colour and appearance can change. There is no simple test to identify asbestos – an approved laboratory analysis is the only certain method.

What is asbestos-containing material?

Asbestos-containing material (ACM) is any material or object that, as part of its design, contains one or more of the mineral silicates referred to above (other than plant in which asbestos is fixed or installed).

ACM can be friable or non-friable.

Friable ACM when dry:

- (a) may be crumbled, pulverised or reduced to powder by hand pressure, or
- (b) as a result of a work process, becomes such that it may be crumbled, pulverised or reduced to powder by hand pressure.

Examples of friable ACM include:

- pipe lagging
- boiler insulation
- fire retardant material on steel work
- sprayed insulation.

Non-friable ACM is usually bonded or mixed with cement or similar material and cannot be crumbled, pulverised or reduced to powder by hand pressure.

Examples of non-friable ACM include:

- asbestos cement sheet
- · asbestos cement moulded products
- · bitumen-based water proofing
- vinyl floor tiles in good condition.

Some examples of non-friable ACM that can become friable as a result of a work process include the handling of millboard in poor condition, asbestos cement sheeting that has been crushed and asbestos cement sheeting that has deteriorated from long-term exposure to a chemical mist.

How can asbestos affect you?

All types of asbestos can be damaging to health. Generally however, the presence of asbestos does not pose health risks unless it is broken, in poor or deteriorated condition, or disturbed during activities that produce dust containing asbestos fibres.

Inhalation of asbestos fibres is a serious health risk and can lead to diseases such as mesothelioma, lung cancer and asbestosis.

Mesothelioma is a type of cancer in which malignant cells are found in the lining of the chest or abdomen. The incidence of mesothelioma is increasing throughout the industrial world as a result of past exposure to asbestos.

Lung cancer forms in tissues of the lung, usually in the cells lining air passages.

Asbestosis is directly caused by breathing in fibres of asbestos leading to scarring and permanent damage to lung tissue. Asbestosis increases the risk of lung cancer and malignant mesothelioma.

There can be a delay of many years between first exposure to asbestos fibres and any symptoms of these diseases; for example, the latency period for mesothelioma is generally between 35–40 years. People would not be aware of any sudden change in health after being exposed. Asbestos-related diseases have a devastating health effect and are often fatal as treatments are largely ineffective.

Where can you find asbestos?

A large amount of ACM is still present in the community in both workplaces and non-workplaces, including domestic premises.

In the past, the asbestos cement manufacturing industry was the main consumer of asbestos fibres to produce products such as:

- asbestos cement roofing
- · external asbestos cement sheet walls, including brick cladding
- internal asbestos cement sheet walls and ceilings
- moulded products such as flues, downpipes, guttering, water and sewerage pipes.

Other common ACMs include:

- · textiles asbestos felts, ropes, fire blankets and woven asbestos cable sheathing
- flooring vinyl floor tiles and sheets
- sprayed insulation materials used for fire-proofing, thermal protection, insulation and soundproofing
- lagging and other loosely bound insulation materials used in a wide range of electrical, thermal and acoustic applications
- rubber, plastic and paint products (particularly industrial epoxy paints)
- sealants, gaskets, adhesives and filters
- brake pads and clutch mechanisms and other friction products.

See Appendix A for a detailed list of ACM examples.

It is important for a person who manages or controls a workplace and employers or self-employed persons to be aware of the typical uses and applications of ACMs, particularly in any building constructed or renovated prior to the late 1980s.

Figure 1 on page 4 shows some typical locations for the most common asbestos materials.





Figure 1: Typical locations for the most common asbestos materials.

Note: This diagram does not show all possible uses and locations of asbestos materials.

A detailed survey will be required to identify all asbestos materials in a building.

Source: Health and Safety Executive Asbestos kills: Protect yourself! Reproduced under the terms of the Click-Use Licence.

Which occupations and trades are likely to come across asbestos?

ACM was widely used in building and construction projects up to the late1980s. Many materials remain in place and, as a result, risk to workers is most likely to arise during asbestos removal or during renovation or maintenance work that disturbs asbestos.

Occupations and trades that may come into contact with or work near asbestos include:1

- demolition, roofing and construction contractors
- engineers (heating and ventilation or telecommunication)
- electricians
- · painters and decorators
- joiners
- plumbers and gas fitters
- plasterers
- builders and building surveyors
- shop fitters
- fire and burglar alarm installers
- maintenance workers
- automotive repair workers.

Asbestos exposure standard

Asbestos poses a health risk whenever asbestos fibres become airborne and people are exposed, regardless of whether they are in a workplace or not. Accordingly, exposure should be prevented wherever possible.

In workplaces, the national exposure standard of 0.1 fibres/mL must never be exceeded. Control measures should be reassessed whenever air monitoring indicates that levels above 0.01 fibres/mL (10 per cent of the exposure standard) have been reached.

Health surveillance (asbestos medicals)

Health surveillance is an important part of the monitoring of workplace exposure to hazardous substances, including asbestos. Employers must arrange appropriate medical examinations for workers conducting asbestos removal or engaged in ongoing asbestos-related activities to identify any health changes resulting from their exposure to asbestos.

More information on these requirements is provided in WorkSafe's compliance codes *Removing asbestos in workplaces* and *Managing asbestos in workplaces*.

1 These occupations and trades provide an indication only. They are in no particular order and are not exhaustive.

Asbestos in the home

Asbestos in domestic premises poses the same risks to health as asbestos in workplaces.

Where a house is not a workplace the *Occupational Health and Safety Act 2004* (the OHS Act) and Occupational Health and Safety Regulations 2007 (the Regulations) do not apply. However, nuisance provisions in the *Victorian Health Act 1958* do apply. There are requirements that homeowners do not create a nuisance, which includes engaging in activities that result in the generation of airborne asbestos fibres. Also check with your local council about any other requirements that apply to your municipality.

The Department of Human Services (DHS) booklet *Asbestos in the home* provides information about asbestos for householders and advice about how to work with or remove asbestos in a safe and responsible manner. This booklet is available from **health.vic.gov.au**. Householders can also contact the DHS Environmental Health (Public Health Branch) on 1300 761 874 for more information and advice about asbestos in the home.

If you want to engage a licensed removalist, see WorkSafe's service provider directory at **worksafe.vic.gov.au**.

The Occupational Health and Safety Regulations 2007 (the Regulations) have duties and prohibitions relating to asbestos. However, as some parts of the Regulations only apply to workplaces with fixed or installed ACM, it is important to understand and identify the difference between asbestos that is fixed or installed and asbestos that is not.

Fixed or installed asbestos-containing material

ACM is regarded as being fixed where it has been attached or secured in position; for example, asbestos cement sheet screwed or nailed. It is considered installed where it has been specifically placed for a purpose; for example, asbestos-containing refractory bricks placed on top of each other to form a wall or loose asbestos-containing insulation blown into a ceiling space.

ACM that has been fixed or installed is often referred to as 'in situ'. In most cases, this would have occurred many years ago around the time the building, structure, ship or plant was designed and built or refurbished.

The use of ACM in buildings was phased out in the 1980s. However, there is no specific date on which its use or installation ceased. Existing buildings may contain ACM, regardless of whether it was installed at the time of building or introduced later.

Any building constructed after the late 1980s is less likely to have fixed or installed ACM. However, building management staff and records should be consulted to clarify any uncertainty. If uncertainty remains, asbestos must be assumed to be present or a laboratory analysis of samples must be undertaken to prove otherwise.

Examples of fixed or installed ACM include:

In a building

- · fire retardant material that contains asbestos sprayed around structural beams
- lagging in penetrations in fireproofed walls
- asbestos cement sheets that form walls and roofs
- vinyl floor tiles that contain asbestos
- refractory bricks containing asbestos that form part of a kiln
- · electrical switchboards that contain asbestos
- sealant or mastic on windows
- airconditioning ducting joints.

In a structure

- · telecommunication pits and pipes that contain asbestos
- asbestos cement water pipes and sewerage pipes.

In a ship

asbestos-containing lagging wrapped around steam pipes for insulation.

In plant

- asbestos-containing brakes in various plant, such as press machines
- asbestos-containing gaskets in refinery pipework
- boilers that have (slabs of) insulation that contains asbestos.

The images on pages 9–11 demonstrate a range of ACMs that may be fixed or installed in workplaces:



Figure 2: Saw-tooth design roof with corrugated asbestos cement roof sheets.



Figure 3: Corrugated asbestos cement roof sheets.



Figure 4: Corrugated asbestos cement roof sheets.



Figure 5: Underside of an asbestos cement sheet roof.



Figure 6: Vinyl tiles containing asbestos.



Figure 7: Asbestos-containing gasket.



Figure 8: Damaged and exposed pipe wrapped with asbestos lagging.



Figure 9: Labelled pipe wrapped in asbestos lagging.



Figure 10: Exposed asbestos lagging on pipe.



Figure 11: Sprayed asbestos.



Figure 12: Deteriorated asbestos-containing mastic between window frame and bricks.



Figure 13: Fire-rated door containing asbestos.



Figure 14: Asbestos rope seal in duct join with close-up inset.



Figure 15: Detached asbestos rope seal and remnant debris on duct.



Figure 16: Asbestos-containing zelemite electrical switchboard panel.



Figure 17: Friable asbestos insulation in an electrical fuse housing.

Asbestos that is not fixed or installed

Sometimes ACM is not fixed or installed to anything. However, it can still pose a health risk if an individual is exposed to airborne asbestos fibres from this material.

Examples include:

- loose sheets of asbestos cement
- broken (non-attached) pieces of asbestos cement products
- · surfaces contaminated with asbestos fibres/dust
- material containing asbestos debris
- products such as asbestos fire blankets, asbestos gaskets or asbestos brakes stored and awaiting use.



Figure 18: Unfixed asbestos lagging from a pipe.



Figure 19: These pieces of broken asbestos cement sheet are not fixed or installed.

Dangerous Goods Order for asbestos that is not fixed or installed

To ensure the clean up and removal of asbestos that is not fixed or installed is conducted in a controlled and safe manner, a Dangerous Goods Order under Victoria's *Dangerous Goods Act 1985* regulates who can remove asbestos that is not fixed or installed. Refer to WorkSafe's compliance code *Removing asbestos in workplaces* for more information.



The asbestos part of the Regulations imposes strict requirements on how people with management or control, employers and self-employed persons identify and control exposure to airborne asbestos fibres in workplaces. WorkSafe's compliance code *Managing asbestos in workplaces* has more detailed information on these duties.

The Regulations also impose strict requirements for removing asbestos from the workplace, who is able to remove it and in what circumstances. See WorkSafe's compliance code *Removing asbestos in workplaces* for more detailed information.

Consulting employees

Victoria's health and safety laws require employers to consult with employees (and their health and safety representatives) who are, or are likely to be, directly affected by any health and safety matter. For more information about this duty, read WorkSafe's *Consultation on health and safety – A handbook for workplaces*.

Management or control of the workplace

Who is a person with management or control?

A person with management or control has the power to make decisions and changes to the structure and use of the workplace. Usually this person is the owner of the workplace or a representative of the owner.

The person with management or control can be a person who:

- owns and works or has employees at the workplace
- owns the workplace but leases it to an employer or self-employed person, or
- has legally been assigned management or control duties over a workplace (such as a management group or agent that may or may not be located at the workplace).

Who is an employer?

An employer is a person who employs one or more other persons under employment or training contracts. An employer may have employees working for them in one or various locations that may or may not be owned by the employer.

Legal duties

What is the extent of the employer's management or control?

The extent to which an employer has management and control of the workplace, and any structure or plant within it, can vary.

Generally, a person who leases a building and runs a business from that building is not the person with management or control of the workplace. This is because they often cannot make changes to the structure of that workplace. So in many cases the regulatory duties that apply to the person with management or control do not apply to the employer (subject to contractual leasing arrangements).

For example, where the employer does not own the workplace, the employer would not be able to make physical changes to the workplace structure, such as replacing the roof, unless the employer has signed a leasing contract that allows such works. However, if the workplace is owned by the employer, they would almost certainly be the person with management or control of the workplace and would be able to make changes.

Many employers introduce plant and structures into workplaces for the purpose of their business. If the employer has introduced plant or structures that contain asbestos to the workplace, it is the employer who has management or control of that plant.

For example, an employer who brings a press machine with asbestos-containing brakes into the workplace is the person with management or control of that plant.

Managing and removing asbestos

Controlling risk

People who manage or control a workplace and any employer who has management or control, must control asbestos risks. Any risk associated with the presence of asbestos must be eliminated by removing the asbestos. If the ACM can't be removed and any risk remains, it must be enclosed. If the ACM has been enclosed but there is still a health risk, the material must be sealed.

It's important to review these risk controls regularly to ensure they remain effective.

Identifying asbestos

In workplaces where asbestos is fixed or installed, all asbestos must be identified so far as is reasonably practicable. If there is any uncertainty about the presence of asbestos, it must be assumed that it is asbestos or a sample of the suspected material should be analysed for confirmation.

Asbestos in workplaces must be clearly identified and, if reasonably practicable, labelled.

An asbestos register must be produced and kept up to date with all relevant information about the identified ACM. The register must include a record of:

- the location of the asbestos
- the type of ACM
- the nature of the ACM (friable or non-friable)
- the condition of the ACM
- any work activities that may affect or cause damage or deterioration to the ACM.

The asbestos register must be reviewed whenever there is a change to the condition of any asbestos or if it is removed, enclosed or sealed. Regardless of any changes, the register must be reviewed every five years and revised if necessary to keep it current.

Legal duties

Demolition and refurbishment work

The asbestos register must also be reviewed before undertaking any demolition or refurbishment work. If a register is not available, the person performing the work must first determine if any asbestos is fixed or installed before starting work.²

If asbestos is present and is likely to be disturbed by the demolition or refurbishment work, it must be removed. In the case of demolition, the asbestos must be removed before work starts.

Asbestos removal

Asbestos removal work must be performed by an asbestos removal licence holder and/or their employees who are appropriately trained and instructed to perform the removal work safely. Unlicensed removal of limited amounts of asbestos is permitted in certain circumstances only.

Asbestos removal work must comply with strict safety requirements. Some of these are the use of protective clothing and equipment, decontamination facilities, waste disposal procedures, employee medical examinations, the use of signs and barricades and the preparation of an asbestos control plan. For more information on these and other requirements, see WorkSafe's compliance code *Removing asbestos in workplaces*.

Other asbestos-related work

Employers also have duties for specific asbestos-related activities that might be carried out in the workplace, such as:

- hand drilling and cutting ACM
- enclosing or sealing of asbestos
- transport of asbestos for disposal
- · maintenance of dust extraction equipment contaminated with asbestos
- laundering of clothing contaminated with asbestos
- research involving asbestos
- sampling or analysis of suspected asbestos
- work on a site licensed by EPA Victoria to accept asbestos waste.

These duties include identifying asbestos under the employer's management or control, eliminating airborne asbestos fibres, controlling risk from the activity and providing medical examinations for employees who conduct any ongoing asbestos-related activity.

2 This does not include minor or routine maintenance work or other work of a minor nature. For definitions of these and related terms, see WorkSafe's compliance code *Managing asbestos in workplaces*.

Legal duties

Prohibited activity

Due to the danger that it poses, the manufacture, supply, storage, transport, sale, use, re-use, installation and replacement of asbestos is banned across Australia.

The law also prohibits the following in relation to asbestos in workplaces:

- an employer, self-employed person or a person who manages or controls the workplace must not perform asbestos removal work, or arrange for it to be performed, unless the person doing the removal work is an approved licence holder (or an employee of a licence holder) or the work is permitted to be performed without a licence under strict conditions
- protective clothing contaminated with asbestos must not be removed from a workplace unless it is disposed of appropriately as soon as reasonably practicable or it is contained to be commercially laundered
- brooms, brushes, high pressure water jets, power tools and similar instruments must not be used unless their use is controlled (in a manner specified by the Regulations) to ensure exposure to asbestos fibres is below half the exposure standard.

Domestic premises as a workplace

The asbestos part of the Regulations only applies to workplaces. However, if paid employees are carrying out work in domestic premises, these become temporary workplaces while the work is being done and the Regulations do apply. In this case, the legal duties are placed on the employer or self-employed person doing the work, not the homeowner.

More information

WorkSafe's compliance codes, *Removing asbestos in workplaces* and *Managing asbestos in workplaces*, help duty holders to comply with the *Occupational Health and Safety Act 2004* and the Occupational Health and Safety Regulations 2007.

The compliance codes are available from worksafe.vic.gov.au.

Appendices

Appendix A – Examples of asbestos-containing materials

A

Airconditioning ducts – exterior or interior acoustic and thermal insulation

Arc shields in lift motor rooms or large electrical cabinets

Asbestos-based plastics products – electrical insulates, acid-resistant compositions or aircraft seats

Asbestos ceiling tiles

Asbestos cement conduits

Asbestos cement electrical fuse boards

Asbestos cement external roofs and walls

Asbestos cement in the use of form work when pouring concrete

Asbestos cement internal flues and downpipes

Asbestos cement moulded products, such as gutters, ridge cappings, gas meter covers, cable troughs and covers

Asbestos cement pieces for packing spaces between floor joists and piers

Asbestos cement underground pits, as used for traffic control wiring and telecommunications cabling

Asbestos cement render, plaster, mortar and coursework

Asbestos cement sheet

Asbestos cement sheet behind ceramic tiles

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

Asbestos cement sheet internal walls and ceilings

Asbestos cement sheet underlays for vinyl

Asbestos cement storm drain pipes

Asbestos cement water pipes (usually underground)

Asbestos-containing laminates (eg Formica) used where heat resistance is required (eg ships)

Asbestos-containing pegboard

Asbestos felts

Asbestos marine board (eg marinate)

Asbestos mattresses used for covering hot equipment in power stations

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

Asbestos roof tiles

Asbestos textiles

Asbestos textile gussets in airconditioning ducting systems

Asbestos yarn

Autoclave/steriliser insulation

В

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

Bituminous adhesives and sealants

Boiler gaskets

Boiler insulation, slabs and wet mix

Brake disc pads

Brake linings

Appendices

С

Cable penetration insulation bags

Calorifier insulation

Car body filters (not common)

Caulking compounds, sealant and adhesives

Cement render

Chrysotile wicks in kerosene heaters

Clutch faces

Compressed asbestos cement panels for flooring, verandas, bathrooms and steps for demountable buildings

Compressed asbestos fibres (CAF) used in brakes and gaskets for plant and vehicles

D

Door seals on ovens

Е

Electric heat banks - block insulation

Electric hot water services (normally not asbestos, but some millboard could be present)

Electric light fittings, high wattage, insulation around fitting (and bituminised)

Electrical switchboards (see pitch-based)

Exhausts on vehicles

F

Filler in acetylene gas cylinders

Filters - beverage, wine filtration

Fire blankets

Fire curtains

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 Flexible hoses

Floor vinyl sheets

Floor vinyl tiles

Fuse blankets and ceramic fuses in switchboards

G

Galbestos™ roofing materials (decorative coating on metal roofs for sound proofing)

Gaskets - chemicals, refineries

Gaskets – general

Gauze mats in laboratories/ chemical refineries

Gloves – for insulation against heat

Н

Hairdryers – insulation around heating elements

Header (manifold) insulation

I

Insulation blocks

Insulation in electric reheat units for airconditioner 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

Lifts shafts – asbestos cement panels lining the shaft at the opening of each floor and asbestos packing around penetrations

Limpet asbestos spray insulation

Locomotives (steam) lagging on boilers, steam lines, steam dome and gaskets

Appendices

Μ

Mastics

Millboard between heating units and walls

Millboard lining of switchboxes

Mortar

Ρ

Packing materials for gauges, valves, etc – can be square packing, rope or loose fibre

Packing material on window anchorage points in high-rise buildings

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 (eg Zelemite, Ausbestos, Lebah) electrical switchboards

Plaster and plaster cornice adhesives

Pump insulation

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 mastics 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

Stoves – old domestic type, wall insulation

Т

Tape and rope - lagging and jointing

Tapered ends of pipe lagging (where lagging is not necessarily asbestos)

Tilux sheeting in place of ceramic tiles in bathrooms

Trailing cable under lift cabins

Trains, guards vans, millboard between heater and wall

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

V

Valve insulation

W

Welding rods

Woven asbestos cable sheath





WorkSafe Victoria

Advisory Service

222 Exhibition Street Melbourne 3000

Phone......03 9641 1444 Toll-free......1800 136 089 Email......info@worksafe.vic.gov.au

Head Office

222 Exhibition Street Melbourne 3000

Phone	03 9641 1555
Toll-free	1800 136 089
Website	worksafe.vic.gov.au

Local Offices

Ballarat			
Bendigo	03	5443	8866
Dandenong	03	8792	9000
Geelong			
Melbourne			
(628 Bourke S	Street)03	9941	0558
Mildura	03	5021	4001
Mulgrave	03	9565	9444
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Traralgon	03	5174	8900
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