WorkCover
NEW SOUTH WALES

YOUR GUIDE TO WORKING WITH

ASBESTOS

Safety guidelines and requirements for work involving asbestos

March 2003

- **Information regarding health hazards associated with asbestos**
- **Standards required to adequately and safely perform any asbestos work**
- **Guidelines and requirements - work involving asbestos in buildings and structures**
- **Legal obligations for asbestos removal work**

WorkCover. **Watching out for you.**

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SECTION 1

TYPES OF ASBESTOS

Asbestos is the generic term for a number of fibrous silicate minerals. There are two major groups of asbestos.

The **serpentine** group contains chrysotile, commonly known as white asbestos.

The **amphibole** group contains amosite (brown asbestos), crocidolite (blue asbestos) as well as some other less common types, which are tremolite, actinolite, and anthophyllite.

SECTION 2

USES

a) Serpentine group

Chrysotile is the only form of asbestos that has been used commercially from the serpentine group.

In the past, chrysotile has been used in the manufacture of:

- asbestos cloth, tapes, ropes and gaskets for packing and in thermal and chemical insulation
- asbestos cement sheets and pipes for construction, casing for water and electrical/telecommunication services
- rubber, plastics, thermosetting resins, adhesives, paints, coatings, caulking compounds and sealants for thermal, electrical and insulation applications
- fire-rated doors, equipment and structural beams of buildings
- fillers and filters.

Up until recently, chrysotile had been used almost exclusively in the manufacture of packing and friction material such as gaskets, brake and clutch linings.

b) Amphibole group

Amosite (brown asbestos) and crocidolite (blue asbestos) were used in many products until the early 1980s. The use of all types of asbestos in the amphibole group was banned in the mid 1980s. These products were mainly:

- asbestos cement sheets and pipes for construction, casing for water and electrical/telecommunication services
- thermal and chemical insulation ie, fire rated doors, limpet spray, lagging and gaskets.

SECTION 3

HEALTH
HAZARDS

a) Causes

Asbestos fibres are made up of many very fine fibrils, so that as asbestos is further processed or disturbed, the airborne fibres become progressively finer and more hazardous. The most dangerous fibres are the smallest ones which are invisible to the naked eye, but which penetrate the deepest part of the lungs.

Chrysotile fibres are curly and are less likely to become airborne to the same extent as the straight amphibole fibres such as amosite and crocidolite.

b) Effects

Breathing in the fibres brings a risk of asbestosis, lung cancer, and mesothelioma. There is evidence that asbestos causes gastrointestinal and laryngeal cancers in humans, but to a far lesser extent than lung cancer.

Asbestos-related diseases have a delay or lag period usually of the order of 20 to 40 years between first exposure and onset of symptoms and detection of the disease. Asbestos disease can appear or progress even after a person is no longer exposed.

Asbestosis is the scarring of lung tissue that can result from the inhalation over a period of years of substantial amounts of asbestos. This results in breathlessness, which may lead to disability, and in some cases early death. Minor changes in X-ray pictures may exist for many years without symptoms or progression.

Lung cancer risk is related to the amount of fibre inhaled and is also greatly increased in persons who also smoke cigarettes. No safe level of asbestos exposure for lung cancer has been identified.

Mesothelioma is a cancer of the pleura (outer lung lining) or of the peritoneum (the lining of the abdominal cavity). The risk of mesothelioma is less with chrysotile than with other types of asbestos. Both pleural and peritoneal mesothelioma can result from exposure to amosite and crocidolite. Exposure of humans to chrysotile alone has caused few pleural mesotheliomas, and has never produced peritoneal mesothelioma without exposure to either amosite or crocidolite. Mesothelioma rarely occurs in less than 15 years from first exposure, and most cases occur over 30 years after first exposure.

SECTION 4

HEALTH RISKS AND EXPOSURE
STANDARDS

The amount of asbestos fibre in the air people breathe is the important factor in determining the level of health risk. The highest risks involve breathing air which contains a high concentration of asbestos fibre.

The amount of fibre in the air can be measured by an occupational hygienist, who uses special equipment to capture a sample of the air. The number of asbestos fibres in a set volume of air can then be counted under a microscope, in a laboratory.

Exposure standards set out the airborne concentrations of asbestos, which should not damage the health of workers. The exposure standards for asbestos are:

Amosite (brown asbestos):	**0.1 fibres per millilitre of air**
Crocidolite (blue asbestos):	**0.1 fibres per millilitre of air**
Chrysotile (white asbestos):	**0.5 fibres per millilitre of air**

Note: The National Occupational Health and Safety Commission (NOHSC) publish the exposure standards in the document *Exposure Standards for Atmospheric Contaminants in the Occupational Environment*. The exposure standard for chrysotile is 1 fibre per millilitre in this document but in New South Wales it is 0.5 fibres per millilitre of air as set out in the *Occupational Health and Safety Regulation 2001.* The NOHSC exposure standard is currently under review.

SECTION 5

ASBESTOS CONTAINING MATERIAL

Under NSW legislation, material that contains asbestos is referred to as either friable or bonded. Below are definitions of these two forms and some examples.

a) Bonded asbestos material

Bonded asbestos material is any material that contains asbestos in a bonded matrix. It may consist of Portland cement or various resin/binders and cannot be crushed by hand when dry. Asbestos cement (AC) products and electrical metering boards in good condition are examples of bonded asbestos material.

A large number of products made from asbestos cement are still found in Australian buildings. These products include:

- flat (fibro), corrugated or compressed asbestos cement sheeting
- asbestos cement pipes such as electrical, water, drainage and flue pipes.

b) Friable asbestos material

Friable asbestos material is any material that contains asbestos and is in the form of a powder or can be crumbled, pulverized or reduced to powder by hand pressure when dry. Sprayed limpet, millboard, pipe and boiler lagging are examples of friable asbestos.

Asbestos inappropriately buried (i.e. not in accordance to any environmental legislative requirements) is considered friable asbestos material.

Any asbestos cement product, which has been subjected to weathering, severely damaged by hail, damaged by heat/fire or other mechanical action, or illegal water blasting is a friable asbestos product and an Asbestos Removal Contractor with an AS1 Licence for friable asbestos is required for its removal.

SECTION 6

SAFE
WORKING GUIDE

The *Occupational Health and Safety Regulation 2001* calls up the NOHSC *Asbestos Code of Practice and Guidance Notes* for any asbestos work. Below are specific precautions and procedures, which are based on the NOHSC publication, for commonly encountered asbestos work.

a) Working with bonded asbestos material including asbestos cement

If these products are maintained in good order they present no significant health risk. However, safety precautions must be taken when working on any product containing asbestos in a way that is likely to generate dust.

All work procedures should be devised to minimise the release of dust and fibres. When working with bonded asbestos products you should:

- use personal protective equipment including coveralls and a suitable respirator. If coveralls are not disposable, then the employer is responsible for laundering contaminated clothing. Coveralls with velcro type seals are not suitable for asbestos work
- use non-powered hand tools as these generate much less dust. Do not use power tools ie, abrasive cutters and sanders, on asbestos cement products
- use wet methods to dampen down material, or use suitable vacuum attachments fitted with High Efficiency Particulate Air (HEPA) filters to reduce the release of dust. Work in well-ventilated areas where possible
- use drop sheets to collect debris. Precautions should be taken to prevent slip and trip hazards
- use wet methods, or only use vacuums fitted with HEPA filters for cleaning. Caution - do not use household vacuum cleaners which are not fitted with HEPA filters
- dispose of waste and collected dust in plastic bags which are clearly labelled **asbestos waste**
- do not abrade or scrub surface. Pre-seal with polyvinyl acetate (PVA) sealant or use paint stripper to remove paint.

It is illegal to reuse or water-blast asbestos cement. You can be fined under the Occupational Health and Safety Act 2000 if you do.

b) Removal of asbestos cement products

Special work procedures should be followed when removing asbestos cement products (including sheeting, guttering and downpipes) from buildings and other structures:

- for external work, close all windows and doors on the building
- rope off the work areas below where the work is to be carried out if there is no ceiling to the building
- when working on roofs, appropriate precautions should be taken to prevent workers from falling off the roof, such as suitable fall restraint devices
- where practical, seal the asbestos cement with a PVA sealant or wet with water. This should be done well before removal, to ensure that workers do not slip on a wet roof
- wetting down may not be necessary on previously painted or sealed AC products
- coveralls and suitable respiratory protection is to be worn during the removal and clean up process
- gutters are to be wet cleaned and all contaminated waste material collected must be disposed of in an approved manner

- asbestos cement sheeting should have the bolts or screws removed and then the sheets removed with minimal breakage. Asbestos cement products are not to be thrown into bins or onto the ground, they are to be lowered in as whole sheets where possible
- the asbestos cement products are to be placed on 200µm (micro-metre) plastic sheeting, wrapped and transported to the waste facility as soon as possible to prevent further damage from being left on site
- if using a building skip or loading directly into trucks, the internal surfaces should be lined with 200µm plastic sheeting and the load securely covered before transporting to a waste facility
- clean any asbestos cement residues in the roof space and around the removal area with a vacuum cleaner fitted with a HEPA filter. Any residues of asbestos cement unable to be removed, such as those on timber beams, should be sealed with PVA.

c) Removal of friable asbestos

The procedures as described in the Code of Practice for the Safe Removal of Asbestos [NOHSC: 2002 (1988)] must be followed when removing friable asbestos from buildings and other structures. Only licensed asbestos removal contractors can remove friable asbestos. A permit must also be obtained from WorkCover before commencing any work.

SECTION 7

RESPIRATORY PROTECTIVE DEVICES FOR WORKING WITH ASBESTOS

a) High risk (friable asbestos removal work)

For asbestos stripping work, use:

- a positive pressure demand full face-piece airline respirator, **OR**
- a continuous flow airline respirator with a full face-piece or head covering.

For work in areas with poor accessibility where airline respirators cannot be used and/or supervisory work in general, use:

- a powered type particulate respirator fitted with a P3 filter which has a rated protection factor equal to or greater than 100.

b) Medium risk (friable asbestos removal work)

When removing pipe lagging, small jobs which take less than 4 hours, inspecting work in progress or supervisory work in areas where there is only minimal exposure, use:

- a powered type particulate respirator fitted with a P2 or P3 filter which has a rated protection factor equal to or greater than 50, **OR**
- a full face-piece respirator with high efficiency particulate filter (non- powered).

c) Low risk

When inspecting areas where work is not in progress, removal of asbestos cement (fibro), use:

- a half face-piece disposable or filter type particulate respirator Class P1 or P2.

SECTION 8

WASTE HANDLING & DISPOSAL

a) Collection and Storage

All waste containing asbestos must be:

- kept damp (you must prevent excess runoff water)
- collected, labelled and sealed using recommended plastic or leak proof containers
- stored in labelled lined bins or a leak-proof container, and covered
- stored in a secure area
- removed from the site as soon as practicable and/or
- collected and stored in a manner approved by the EPA or an appropriate disposal authority.

Note: EPA legislation requires friable asbestos waste to be collected into plastic bags.

b) Transportation

All asbestos waste must be transported:

- in a covered leak-proof vehicle and/or
- in a manner approved by the EPA.

Note: Only vehicles licensed by the EPA can transport friable asbestos waste.

c) Disposal

- Asbestos waste in any form must be disposed of in a manner – and at a site – approved by the EPA or an appropriate disposal authority.
- Vehicles and their containers must be cleaned before leaving the landfill site.
- Contact the Environment Protection Authority (EPA) and local council for transport requirements of asbestos waste and approved waste facilities. Most local councils and WorkCover NSW require tipping receipts for proof of proper disposal.

SECTION 9

RELEVANT LEGISLATION

Breaches to any part of the *Occupational Health and Safety Act 2000* and the *Occupational Health and Safety Regulation 2001* may result in penalty notices and possible prosecutions.

a) Occupational Health and Safety Act 2000

http://www.workcover.nsw.gov.au/html/reg_31aug2001.asp

The Act states that everyone is entitled to safe working conditions.

b) Occupational Health and Safety Regulation 2001

http://www.workcover.nsw.gov.au/pdf/occ_health&safety.pdf

This Regulation outlines requirements for:

- controller of premises in relation to asbestos containing product and exposure standards for asbestos (Chapter 4)
- employers in relation to hazardous substances (Chapter 6). All forms of asbestos are hazardous substances
- asbestos work on construction sites (Chapter 8)
- licensing of asbestos removalists (Chapter 10). Work with bonded asbestos material does not require a license if the total surface area is less than 200 square metres. However, operators are still required to comply with all relevant legislation
- permit for friable asbestos removal work (Chapter 11)
- notification for bonded asbestos removal work (Chapter 12).

The Regulation also prohibits:

- water-blasting of asbestos containing material (Chapter 8)
- reuse of asbestos containing products on construction sites (Chapter 8)
- use of asbestos in the form of crocidolite, amosite, fibrous anthophyllite, tremolite or actinolite except for the purpose of sampling or analysis, maintenance, removal, disposal, encapsulation or enclosure (Chapter 6).

SECTION 10

OTHER ASBESTOS INFORMATION ON THE WORKCOVER WEBSITE

a) The guidelines and procedures for asbestos and electrical work.

http://www.workcover.nsw.gov.au/html/asb_elect.asp

- guidelines to working on electrical meter panels identified as containing asbestos
- industry model procedure No.1 - Assessment of commercial and residential metering/electrical panel installations for potential asbestos containing materials
- industry model procedure No.2 - Minor works on asbestos-based electrical mounting boards for domestic and commercial metering/electrical installations.

These documents have been prepared by the NSW Electrical Industry Asbestos Awareness Committee (EIAAC). The Committee included representatives from employers, employees and WorkCover. These guidelines and procedures or similar should be adopted for any electrical upgrade work involving electrical equipment or installation containing asbestos.

Note: The EIAAC has been disbanded. The Industries Safety Steering Committee (ISSC) – Asbestos Working Group under the auspices of the Ministry of Energy and Utilities has been set up to provide information for the electrical industry.

b) The phase-out and prohibition of chrysotile

NSW, in conjunction with other Australian states, will ban all uses of chrysotile asbestos (except for bona fide research or analysis, when handled for storage awaiting disposal, for removal or disposal, or when encountered during non-asbestos mining) from 31 December 2003. For further information:

http://www.workcover.nsw.gov.au/pdf/wca45.pdf

http://www.workcover.nsw.gov.au/Publications/view.asp?ID=221

c) Guidelines for licensed asbestos removal contractors

The guidelines in this document set out WorkCover's requirements for the licensing of asbestos removalists. They are intended to ensure compliance with legal obligations for asbestos removal work in NSW and are based on the NOHSC Asbestos publication.

http://www.workcover.nsw.gov.au/Publications/pdf/asbestos_removal_guidelines.pdf

SECTION 11

FURTHER INFORMATION

a) *Asbestos: Code of practice and guidance notes* (NOHSC)

http://www.nohsc.gov.au/

Outlines the methods, procedures and work practices recommended for the identification, evaluation and control of hazards for in-situ asbestos in the working environment.

b) *Australian Standard AS1715 Selection,* use and maintenance of respiratory protective devices

http://www.standards.com.au/

Sets out the principles of respiratory protection and provides information on the correct selection, use and maintenance of respirators. Available from the Standards Association of Australia (fee involved). Phone: **1300 654 646**.

c) Protection of the Environment Operations (Waste) Regulation 1996 (EPA)

http://www.epa.nsw.gov.au/publications/waste_guide.pdf

This Regulation (in PDF format – Acrobat Reader required) outlines the storage, transport and disposal requirements relating to asbestos waste (Part 7 – Clause 29).

SECTION 12

USEFUL CONTACTS

a) Asbestos removal licences and list of asbestos removalists (only when available)

WorkCover NSW	(02) 8260 5885

b) Legislative requirements/health and safety

Local WorkCover Office	http://www.workcover.nsw.gov.au/about/contacts.asp
WorkCover Information Centre	13 10 50

c) Types of respirators required for particular jobs

WorkCover Personal Protective Equipment Unit at Londonderry	(02) 4724 4970

d) Asbestos removal training courses

Miller College of TAFE	(02) 9607 1404 or (02) 9607 1440
TAFE Wollongong Campus	(02) 4229 0553
TAFE Newcastle Campus	(02) 4923 7301
Comet Training Pty Ltd	(02) 9649 5000
Peter Becker, MBA	(02) 9281-3511

e) Asbestos disposal approved tip

Environment Protection Authority	(02) 9795 5000
Waste Service NSW	(02) 9934 7000
	1300 651 116
Relevant Local Council	