

Asbestos Management Plan

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PURPOSE

This Plan supports the *Health and Safety Policy* and provides assistance on Asbestos Management at the University.

DEFINITIONS

AC	Means products consisting of sand aggregate and cement reinforced with asbestos fibres (e.g. asbestos cement pipes and flat or corrugated asbestos cement sheets).
ACM	Means any material or thing that as part of its design, contains asbestos. (Asbestos Containing Material).
Accredited Laboratories	means a testing laboratory accredited by the National Association of Testing Authorities, Australia (NATA) or a similar accreditation authority, or otherwise granted recognition by NATA, either solely or in conjunction with one or more other persons.
Airborne asbestos	Any fibres of asbestos small enough to be made airborne.
Air Lock	An area that separates the asbestos work area from other areas. Normally an airlock would consist of spring loaded doors or two or more overlapping sheets of plastic positioned so as to define the boundary between each segment of the decontamination facility, whilst allowing personnel access and airflow towards the removal area. To ensure a good airflow through the unit where doors are used to segment the decontamination unit, large openings with a hinged flap to operate as a one-way valve should be provided.
AMP	Asbestos Management Plan
AMR	Asbestos Materials Register
Approved Respirator	A respirator which complies with Australian Standard 1716-Respiratory Devices.
Asbestos Vacuum Cleaner	A vacuum cleaner that is fitted with a High Efficiency Particulate Air (HEPA) filter and complies with Australian Standard 3544 Industrial Vacuum Cleaners for particulates Hazardous to Health. A domestic vacuum cleaner is not suitable for use with asbestos.
Asbestos	The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysotile (white asbestos), crocidolite (blue asbestos), tremolite or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups.
Asbestos Register	A document that provides information on the location, type and condition of ACM's in the workplace.
Competent Person	A person possessing adequate qualifications, such as suitable training and sufficient knowledge, experience and skill, for the safe performance of the specific work.
Construction Work	Construction work is defined as any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, demolition, refurbishment, decommissioning or dismantling of a structure. (SWA. Construction Work Code of Practice).

Controls	<p>In the process of implementing asbestos materials management, it is fundamental that any identified asbestos situations have controls determined to prevent personnel from being place at risk.</p> <p>These controls include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> - Elimination/substitution - Engineering controls - Administrative controls - Personal protective equipment
Control Monitoring	<p>Air monitoring, using static or positional to measure the level of airborne asbestos fibres in an area during work on ACM. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures and should not be used for that purpose.</p>
Friable Asbestos	<p>Asbestos-containing material which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure.</p>
Glove Bags	<p>Are single use bags constructed from transparent, heavy-duty polyethylene, with built-in arms and access ports. Generally, glove bags are approximately 1 metre wide by 1.5 metres deep and are designed to completely isolate small removal jobs from the general work area.</p>
Hazard	<p>Any matter, thing, process or practice that may cause death, injury, illness or disease.</p>
HSEM	<p>Health, Safety and Emergency Management department</p>
HME	<p>Hazardous Materials Exposure</p>
In situ	<p>Means asbestos or ACM fixed or installed in a structure, equipment or plant but does not include naturally occurring asbestos.</p>
Inaccessible Areas	<p>Areas which are difficult to access, such as wall cavities and the interiors of plant and equipment.</p>
Membrane Filter Method	<p>The technique outlined in the NOHSC Guidance Note of the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC: 3003(2005)].</p>
NOHSC	<p>National Occupational Health and Safety Commission (now reformed as the Australian Safety and Compensation Council)</p>
Personal Protective Equipment (PPE)	<p>Equipment and clothing that is used or worn by an individual person to protect themselves against, or minimise their exposure to, workplace risks. It includes items such as facemasks and respirators, coveralls, goggles, helmets, gloves and footwear.</p>
Registered Removalist	<ul style="list-style-type: none"> (a) an employer whose business or undertaking includes asbestos removal work; or (b) a self-employed person whose work includes asbestos removal work.

Regulations	Include all provisions given force of law by the competent authority or authorities.
Relevant Authority	Refers to the appropriate local, territorial, state or commonwealth government agency.
Removal Area	An area where an asbestos removalist is doing, or proposes to do, asbestos removal work
Removal Site	An area immediately outside a containment barrier for an asbestos removal area.
Respirable Asbestos Fibre	A fibre of asbestos small enough to penetrate into the gas exchange regions of the lungs.
Responsible Officer	The person nominated to the contractor/consultant as the representative of the University.
Risk	The likelihood of a hazard causing harm to a person
Settled Dust Sampling	The sampling and analysis of settled surface dust to provide an indication of cleanliness following disturbance of ACM.
Structure	Any construction, whether temporary or permanent
Site	Curtin University Management surveys can involve a combination of sampling to confirm asbestos is present or presuming asbestos to be present.
Type 2 Survey	Management Survey – Can involve a combination of sampling to confirm asbestos is present or presuming asbestos to be present.
Type 3 Survey	Refurbishment and demolition surveys – Is fully intrusive and involves destructive inspection, as necessary.
University	Curtin University
Worker	A person who does work, whether or not for reward or recognition
Workplace	Any place where a person works.

1. Introduction

Asbestos is a hazardous material that poses a risk to health by inhalation if the asbestos fibres become airborne and people are exposed to these airborne fibres. Breathing in asbestos fibres can cause asbestosis, lung cancer and mesothelioma.

Asbestos is extremely difficult to visually identify. The only recognised method is to utilise competent persons to sample the material and adopt special laboratory techniques to identify asbestos fibres. If an area is inaccessible and is likely to contain asbestos containing materials, then it should be presumed that asbestos is present.

Where the evaluation process reveals a likelihood of exposure to asbestos fibres, all practical steps will be taken to ensure that persons and workers are not exposed. This document addresses the management of asbestos containing materials, as identified in the Asbestos Materials Register (AMR), at the University and is compliant with the *NOHSC Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC:2018(2005)]* and *Code of Practice How to Manage and Control Asbestos in the Workplace [SWA:2011]*.

These requirements and controls extend to all building users including, University workers, students, visitors, consultants and contractors.

2. Asbestos Management Plan

This Asbestos Management Plan (AMP) applies to all University owned locations where asbestos containing materials are present and sets out the steps to be taken to eliminate or otherwise minimise the risk of exposure to airborne asbestos fibres, including the identification of asbestos-containing materials (ACM), risk assessments and the implementation of control measures.

The existence of a documented plan does not diminish the requirement to remove a particular asbestos situation, if removal is the most appropriate control option.

3. Preventing Health Risks from In-Situ Asbestos-Containing Materials

Management and control of all 'in situ' ACM is essential. The well-known adverse health consequences of exposure to airborne asbestos fibres can be prevented if precautions are taken and appropriate procedures are followed.

The risks posed by ACM depend on the nature and condition of the materials and the potential for exposure.

The main elements of managing the risks of ACM exposure in workplaces are to:

- identify and label all ACM in the workplace, as far as practicable;
- assess the risks associated with all identified ACM; and
- introduce control measures to prevent, as far as practicable, the generation of airborne asbestos fibres and exposure to airborne asbestos fibres.

4. Asbestos Materials Register (AMR)

The University's Health, Safety and Emergency Management (HSEM) department will maintain an accurate register of ACM. This register shall contain the following information:

- details on the locations, types (i.e. friable or non-friable) and condition (i.e. damaged or intact) of any ACM identified on the premises, including ACM in items of plant and equipment, and the type of asbestos involved (i.e. blue, brown or white), as well as details on any material presumed to contain asbestos, or any inaccessible areas that are likely to contain ACM;
- the date(s) on which any inspection/identification was made and details on the competent person(s) who carried out the inspection/identification;
- the results of any analysis that has confirmed a material in the workplace is or is not an ACM;
- the date when any risk assessment was made, and details on the competent person(s) who carried out the assessment;
- the findings and conclusions of any risk assessment, including any reviews or revisions of the risk assessment;
- the results of any air monitoring for airborne asbestos fibres and an assessment of these results;
- the control measures recommended and decided upon as a result of any risk assessment; and

- any removal, maintenance or service work on an ACM, including the company or persons involved, the date and scope of the work undertaken and details on clearance certificates.

HSEM shall ensure that the register is made available to University employees and Curtin Responsible Officers who will provide the register to consultants, contractors, and personnel involved in maintenance or modifications of the property (and fit outs if applicable).

5. Responsibilities

State legislation sets out specific requirements concerning ACM. Before commencing any work that may disturb ACM in the workplace, the relevant legislation should be checked to ensure there will be full compliance with these legal obligations.

5.1. Responsibilities of Key Personnel

Key personnel at the University are responsible for the implementation and maintenance of the AMP is detailed below. These responsibilities include but are not limited to the following.

5.1.1. Director Health, Safety and Emergency Management

The Director Health, Safety and Emergency Management will:

- Ensure the AMP is reviewed at least every 12 months or as a result of changes in legislation; work practices; or when the plan is no longer adequate for managing asbestos or ACM at the workplace.
- Ensure the AMP is accessible to relevant University staff, students, contractors and consultants.
- Ensure resources, human and financial, are allocated to enable implementation and maintenance of the AMP.
- Ensure designated HSEM personnel complete Restricted Asbestos Removal Licence and other relevant asbestos training.

5.1.2. Health and Safety Advisors

Designated and/or asbestos trained Health and Safety Advisors will:

- Ensure all incidents involving the actual or potential exposure to asbestos fibres are investigated and recommendations are closed out in a timely manner.
- Ensure the AMR is current and available to anyone entering the site to perform work; as well as providing a copy of this AMP with all AMR requests.
- Provide information and advice to relevant staff, students, Responsible Officers, contractors, consultants, other Health and Safety Advisors, Safety and Health Representatives and building occupants, on matters relating to asbestos management and ensure that concerns regarding asbestos are dealt with in a timely and satisfactory manner.
- Provide relevant information and advice in response to emergency situations involving asbestos.
- Review, maintain and update the AMR every 12 months or earlier where:
 - A risk assessment indicates the need for reassessment.
 - Any ACM has been identified, contained, disturbed or removed.
 (The review will include the results of the visual inspection undertaken).

- Coordinate annual type 2 – Management surveys across relevant campuses of known ACM locations.
- Implement recommendations made in the annual site survey reports.
- If requested by the Curtin Responsible Officer, review the Asbestos Removal Control plan, safe work method statements (SWMS) and other documents produced by the certified removalist.
- Survey and sample suspected asbestos containing materials, as part of a regular inspection campaign.
- Ensure that when management or control of the workplace is relinquished, a copy of the applicable AMR is given to the person assuming management or control of that workplace.

5.1.3. Responsible Officers

- Assess at inception, planning and construction phase of a project, the requirements to implement the provisions of the AMP. This will address:
 - Access to the AMR noting that, the register records ‘accessible’ ACM only.
 - The requirement to undertake a Type 3 refurbishment and demolition survey is the default position, unless there is clear evidence that no ACM will be disturbed during works. (Please note: No assessment can be regarded as absolute).
- Ensure instructions and documentation is provided to consultants and/or contractors, including provision of the AMP requirements. This includes:
 - Notifying contractors and/or consultants of the requirements to complete the University’s contractor induction.
 - Providing the AMR and the AMP to contractors and/or consultants or workers requiring such information as part of their work.
 - Requiring on-site adherence to procedures in place for the control of contractors or personnel who may come into contact with ACM during the course of their work.
 - Ensuring that licensed contractors are engaged (as per State Regulations) for ‘friable’ asbestos work and for the maintenance or removal of other asbestos products.
 - Requiring that a risk assessment or job safety analysis is conducted for any operation that may disturb asbestos.
 - Taking reasonable steps to prevent asbestos being removed or disturbed without prior notification to the University’s HSEM department.
 - Liaising with site management and providing immediate response to emergency situations in conjunction with emergency services and HSEM when the emergency involves asbestos.
- Ensure that contractor records e.g.: meeting minutes and reports reflect requirements of contract documentation requirements.
- Review the Contractors ARCP, SWMS and/or Risk Assessments prior to work commencing.
- Notify the designated Health and Safety Advisor or Curtin HSEM when a building listed on the AMR has been disposed of.

- Remove, where practicable, any ACM within the demolition site or refurbishment area, during the project or treat the ACM in accordance with NOHSC 2018(2005).
- Ensure the requirements for Demolition and Refurbishment work is documented and instructed to contractors.
- Ensure all companies/contractors have completed the Curtin Contractor Pre-Qualification process prior to commencing work on campus.
- Stop work where an Asbestos Contractor does not perform to the required health, safety or environmental standards.
- Providing HSEM with all documentation relating to ACM received from contractors to the asbestos inbox (asbestos@curtin.edu.au). This information could include but not be limited to:
 - Air monitoring reports
 - Clearance Certificates
 - Asbestos removal control plans
 - Sample results
 - Risk Assessments

5.1.4. University Workers

- Comply with policies and procedures implemented by the University, including the Health and Safety Policy and the Physical Facilities and Services Policy.
- Report newly discovered asbestos related hazards to their supervisor and/or designated Safety and Health Representative. Inform Curtin HSEM immediately, via telephone – 9266 4900 (DO NOT LEAVE A MESSAGE) and then the [online incident reporting system](http://healthandsafety.curtin.edu.au) – healthandsafety.curtin.edu.au.
- Refrain from any act which could put them or any other occupant at risk of exposure to known asbestos fibres.

5.1.5. Contractors / Consultants undertaking asbestos removal

Licensed asbestos removalists, maintenance contractors and sub-contractors should consult with the designated University Responsible Officer to finalise the ARCP. All parties, as indicated above, should be provided with a copy of the completed plan.

The Contractor shall contact the relevant State OSH authority to determine whether the ARCP has to be submitted to this authority.

Contractor's responsibilities in relation to asbestos include the following:

- Read the University's AMP and sign off to acknowledge their duties and responsibilities in respect to asbestos management.
- Fully assess the risk of contact/disturbance of ACM, taking into account an assessment of the contract documents and the contents of the AMR.
- Ensure a Safety Management Plan as per current Western Australian legislation, has been developed and includes the requirement for a site specific induction to be completed by all employees and/or sub-contractors.

- Provide a written safe system of work for operations which may disturb asbestos, in the form of an Asbestos Removal Control Plan, if asbestos removal is to take place.
- If involved in demolition work, the contractor must provide an emergency procedure to the University Responsible Officer which will outline how to minimise the risk of exposure of workers and persons in the vicinity of the demolition site and ensure the exposure standard is not exceeded, so far as reasonably practicable.
- Ensure all plans, processes, and assessments meet legislative requirements and have been provided to the University Responsible Officer.
- Provide Safe Work Method Statements or Risk Assessments and Job Safety Analysis to their employees and/or sub-contractors and ensure that these employees and/or sub-contractors carry out their work in compliance with relevant legislation, NOHSC Guidance Notes and their company's safe work methods as well as demonstrating an acceptable level of safety performance.
- Attend meetings, including but not restricted to, pre-start, project progress and handover meetings;
- Ensure that the right person is employed for each job, taking into account the type of work to be performed, licences, training, certificates and qualifications required.
- must not use, or direct or allow a worker to use, certain equipment on asbestos that causes the release of airborne asbestos fibres, other than some types of equipment which may be used in controlled circumstances.
- Ensure all employees and/or sub-contractors complete the University online contractor induction.
- Consult with the University Responsible Officer to arrange access to the Site.
- Immediately report any incident, injury, or hazards and any incidents of non-compliance with the AMP that has or may have occurred to their Supervisor in accordance with the AMP.
- Report immediately to the Supervisor, Curtin Responsible Officer and/or Curtin HSEM any perceived asbestos risk or if there has been any exposure to Asbestos and participate in any investigation that may be instigated.
- Supervise and consult with workers on all asbestos removal works.
- Where site conditions alter, the contractor must engage licensed assessors who will adjust the level of testing and inspection as well as taking any measure necessary to ensure the continued health and safety of the Contractor and building occupants is obtained.
- Conduct asbestos removal work safety inspections regularly as per their Asbestos Removal Control Plan.
- Upon job completion ensure all products to be removed are labelled as "ASBESTOS FREE" or "CAUTION ASBESTOS – DO NOT OPEN OR DAMAGE BAG. DO NOT INHALE DUST".
- Ensure necessary approvals have been obtained from the regulatory authorities prior to asbestos work.
- Ensure no asbestos is removed or disturbed without prior notification to Curtin Health, Safety and Emergency Management.
- Complete the Contractor Checklist.

5.1.6. Contractors completing refurbishment or demolition work

- Prior to undertaking any work, ensure that a copy of the AMR has been made available for your review.
- Ensure a Type 3 asbestos survey has been completed and the information provided to all stakeholders, if applicable; (The requirement to undertake a Type 3 refurbishment and demolition survey is the Universities default position, unless there is clear evidence that no ACM will be disturbed during works).
- Provide a copy of the AMR and survey of the area to employees undertaking the refurbishment or demolition.
- Ensure a site specific JSA or SWMS has been developed that includes a reference to asbestos (if applicable) and signed off by employees working in the designated area.
- Provide to the University and HSEM electronic copies of:
 - the Type 3 survey report;
 - the AMR (using the Curtin University template) in Microsoft Excel 2010 format, unprotected with appropriate remarks in the comments column;
 - applicable photos; and
 - any Certificates of Analysis.

All information for HSEM is to be emailed to the asbestos inbox (asbestos@curtin.edu.au)

6. Accidental Asbestos Disturbance

If you suspect that an asbestos containing material has been disturbed then you should take the following steps straight away:

- Inform Curtin HSEM immediately by telephone 9266 4900. (DO NOT LEAVE A MESSAGE).
- Report all incidents, no matter how small, on the University [online incident reporting system](http://healthandsafety.curtin.edu.au) – healthandsafety.curtin.edu.au, including details of all staff that may be affected.
- Curtin HSEM will check the AMR to find out if there is any asbestos in the affected area.
- The surrounding area should be evacuated as soon as possible without causing alarm, and then it should be sectioned off and preferably locked by the contractor and University Security.

7. Demolition and/or Refurbishment Work

The Contractor Project Manager and/or the University Responsible Officer will review the AMR and consider the following questions in relation to demolition or refurbishment work:

- Where is the asbestos located in relation to the proposed demolition or refurbishment?
- Are there any inaccessible areas that are likely to contain asbestos and that will be disturbed as a result of the demolition or refurbishment?
- What is the type and condition of the asbestos?

- What is the quantity of the asbestos?
- What is the method of demolition or refurbishment and how will it affect the ACM?
- If there is a likelihood that asbestos will be disturbed during the demolition or refurbishment, can it be removed safely before work commences and how can this be done?
- Is a procedure available to manage the risk of exposure to asbestos in the event of an emergency where a structure or plant is to be demolished? Note that the procedure must include notification to the regulator.

Prior to any work being undertaken, a Type 3 survey of the area to be refurbished or demolished should be completed by an external competent consultant.

8. General Asbestos Requirements

8.1. Legislative Requirements

In WA, asbestos is regulated under the following Acts and Regulations.

- Occupational Safety and Health Act 1984
- Occupational Safety and Health Regulations 1996
- Health (Asbestos) Regulations (1992)
- Environmental Protection (Controlled Waste) Regulations 2004

8.2. Duty of Care

The National Occupational Health and Safety Commission's "Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]", stipulates that:

Persons in control of premises have a duty of care to:

- develop, implement and maintain an AMP;
- investigate the premises for the presence or possible presence of asbestos-containing materials (ACM);
- develop and maintain a register of the identified or presumed ACM, including details on their locations, accessibility, condition, risk assessments and control measures;
- develop measures to remove the ACM or otherwise to minimise the risks and prevent exposure to asbestos; and
- ensure control measures are implemented as soon as possible and are maintained as long as the ACM remain in the workplace.

8.3. Asbestos Identification Competencies

Only competent persons may take a sample of suspected asbestos on the University Campus. Confirmation of ACM is required from a NATA accredited company. Persons who may be considered to be competent in the identification of asbestos include:

- occupational hygienist who have relevant experience with asbestos;

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

8.4. Health Monitoring

The University must ensure health monitoring is provided to a worker of they are carrying out on-going asbestos removal work or asbestos related work and are at risk of exposure to asbestos when carrying out the work. Health monitoring should also be provided to the employee at regular intervals after commencing the asbestos-related work but at least once every two years.

Contractors must ensure that if a worker is employed as a licensed asbestos removalist, then the health monitoring must be conducted prior to the worker commencing in his position. Confirmation of this monitoring must be provided to the University.

Workers must be informed of any health monitoring requirements before the worker carries out work that may expose them to asbestos. Exposure to Asbestos will be recorded in the HME register.

8.5. Training

All personnel who are involved in accessing or working in restricted areas or supervising asbestos removal contractors shall be competent. Certified training from a Registered Training Organisation should include education in:

Legislative Framework

- The legislative requirements of the Occupational Safety and Health Act 1984, supporting Regulations and associated Codes and Standards.
- Identification of types of asbestos, including friable and non-friable asbestos.
- The health effects relating to asbestos exposure.

Risk Management

- Identification of hazards in the work area.
- Conducting a risk assessment.
- Identification of the controls required.
- Identification and select of PPE and clothing.
- Preparation of a Safe Work Method Statement/Job Safety Analysis.

Removal and disposal of non-friable (bonded) asbestos

- Planning the removal of asbestos.
- Procedures for the removal of asbestos.
- Procedures for clean-up and decontamination of worksite, tools and workers.

- Identification of the methods of transporting and disposing of asbestos containing materials.

And if required:

- decontamination procedures.
- emergency evacuation procedures.
- waste disposal requirements.

8.6. Licencing

A licence is required in Western Australia for the removal of materials that contain asbestos. Only a licence holder or an employee of a licence holder may carry out this type of work.

There are two types of licence:

Unrestricted: allows people to remove all forms of asbestos (friable and non-friable) and replaces the current asbestos removal licence.

Restricted: allows people to remove amounts exceeding 10 square metres of bonded (non-friable) asbestos.

8.7. Material Sampling and Analysis

When materials suspected of containing asbestos are identified, a sample shall be taken only by a competent person and analysed only by a NATA accredited laboratories.

8.8. Removal of ACM

The removal of ACM poses additional hazards. When required, the University shall employ a licensed removalist/competent contractors for the removal of asbestos on University occupied facilities. University staff will not remove ACM. Samples for examination purposes and small quantities of suspected non-friable ACM may be removed by trained and competent University staff.

It is important to note that the most appropriate action in some instances, derived from the risk management process, will not be for the materials immediate removal. In some circumstances, the removal process may prove more hazardous than other options, such as sealing or enclosure. The removal of stable ACM would then occur as part of the renovation process at a later date. Refer to section 12.1 for ACM Management and Control measures.

9. EXEMPTIONS

These guidelines apply to all areas of the University.

10. RELEVANT DOCUMENTS/LINKS

Western Australian Occupational Safety and Health Act, (1984)

Western Australian Occupational Safety and Health Regulations, (1996)

Western Australian Health (Asbestos) Regulations (1992)

National Occupational Health and Safety Commission (2005) Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]. Australian Government Publishing Service. Canberra

National Occupational Health and Safety Commission (2005) Code of Practice for the Removal of Asbestos 2nd Edition [NOHSC: 2002 (2005)]. Australian Government Publishing Service. Canberra

Australian Standards - AS 1319 Safety Signs for the Occupational Environment

Applicable forms are available on the [HSEM Website](#)

Example Safe Work Method Statements are available on the [Safe Work Australia Website](#)

11. APPENDICES

11.1. Appendix 1 – Management and Control Measures

Following the identification and assessment of the risks associated with ACM's, it is important to determine the best method of control by applying the Hierarchy of Control. The Hierarchy of Control refers to the preferred order of control measures for addressing occupational health and safety risks with elimination of the ACM's being the first choice and PPE the least preferred option.

The hierarchy of controls generally includes one or more of the following:

- Elimination/substitution and process modification - controlling the hazard at source or replacing one substance or activity with a less hazardous one.
- Engineering controls – isolation, enclosure or sealing.
- Administrative controls - responsibilities, site inductions and policies, awareness and training, control procedures, procedures for safe work practices, reporting and record keeping.
- Personal protective equipment (PPE) for residual risk which cannot be adequately controlled as above; or when the risk is difficult to quantify.

It is essential to minimise the number of people in the area and have the correct tools, personal protective equipment, decontamination materials, barricades, warning signs etc, ready at the workplace before any work commences.

Control measures will be implemented based on the level of risk of exposure to ACM's materials at the University. Control measure must be aimed at eliminating risk arising from ACM and prevent exposure to airborne asbestos fibres. After elimination, the methods adopted should follow the remaining levels within the Hierarchy of Control. The following information should be used as a guide when determining the correct control method for effective ACM management.

1. If the ACM is friable and not in a stable condition and there is a risk to health, it must be removed by a certified asbestos removalist as soon as practicable.
2. If the ACM is friable but is in a stable condition and is accessible, consideration should be given to its removal. If removal is not immediately practicable, short term control measures, such as sealing and enclosure may be used until removal is possible. Most friable ACM would be risk assessed as high and therefor action rated at A1 (as per the University AMR).
3. If the ACM is not friable and is in a good stable condition, minimising disturbance and encapsulation may be appropriate controls. Refer to the AMR action ratings.
4. Any remaining ACM is to be clearly labelled, and regularly inspected to ensure it is not deteriorating or otherwise contributing to an unacceptable health risk.

ACM needs to be removed in accordance with the NOHSC Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC: 2002 (2005)] prior to demolition, partial demolition, renovation or refurbishment if it is likely to be disturbed by those works.

Risk Assessment

If ACM are identified in a workplace, the University Responsible Officer must ensure the associated risks are assessed in consultation with workers and / or their representatives. Only competent person/s should perform risk assessments or any subsequent reviews or revisions of risk assessments. The risk assessments should take account of the identification information in the register of ACM including:

- The condition of the ACM (e.g. whether they are friable or bonded and stable and whether they are liable to damage or deterioration).
- The likelihood of exposure.
- Where the nature or location of any work to be carried out is likely to disturb the ACM.

Barriers

The asbestos work area should be clearly defined to ensure non-essential people do not enter and warn persons that asbestos work is being carried out. The contractors and /or the Curtin Responsible Officer shall arrange for all barriers and warning signs to remain in place until a clearance to re-occupy has been granted. Potential entry points to the asbestos work area should be sign posted or labelled in accordance with AS1319. In determining the distance between barriers and the asbestos work area the risk assessment should take account of:

- whether the ACM are friable or non-friable.
- activity around the asbestos work area.
- the work methods used.
- any existing barriers.
- the amount of work to be done.
- the type of barrier used.

Waste Removal, Transport and Disposal

Asbestos waste, including contaminated PPE and cleaning materials shall be removed and disposed of by a competent person, in accordance with relevant legislation and guidelines for the transport and disposal of asbestos waste. Controlled wetting of asbestos should be used to reduce the possibility of dust emissions during bagging or containment of the waste.

Prior to any maintenance, service or removal works with the potential to disturb asbestos; an ARCP must be developed and implemented by the contractor. The ARCP must be reviewed and approved by the University Properties department.

The ARCP must be site-specific and should be based on the specification for asbestos removal works or any other remediation requirements relevant to the job.

The ARCP should include the following:

Details of the asbestos containing material to be removed including:

- type;
- condition;
- friability; and
- quantity

Preparation including:

- consultation and communication;
- responsibilities;
- emergency plans;
- PPE requirements;
- program (commencement & completion dates);
- public access restrictions including signage, barriers etc;
- decontamination facilities;
- hazard isolation requirements (e.g. electrical);
- service installation requirements (e.g. lighting, water);
- air monitoring requirements (locations depicted on plans, frequency of monitoring);
- clearance requirements;
- waste storage and disposal requirements; and
- safety inspection frequency.

Removal requirements including:

- work methods, (E.g. plans specifying removal routes and wet wipe methods, manually remove screws after wetting material);
- equipment; and
- details on required enclosures.

Decontamination requirements:

- workplace;
- personal;
- re-useable PPE; and
- tools and equipment.

Waste disposal requirements:

- collection methods and materials;
- waste storage facilities on-site (if required);
- transportation and location of the disposal site; and
- approvals from the local disposal authority (if required).

Transport requirements

A separate National Code of Practice for the Safe Removal of Asbestos [NOHSC: 2002 (2005)] has been developed by NOHSC to supplement and support the Code of Practice for the Management and Control of Asbestos in Workplaces.

The transport and disposal of removed ACM are controlled by Australian Government, State legislation and a range of authorities. All relevant authorities should be consulted before transporting and disposing of ACM wastes. University workers will not transport or dispose of ACM. Disposal notice(s) shall be produced/provided for the University. These notices shall be distributed to the University Responsible Officer and Curtin HSEM for filing.

Decontamination Methods

Wet decontamination, or wet wiping, involves the use of damp rags to wipe down contaminated areas. Cleaning rags should only be used once, although they may be re-folded to expose a clean surface. The rags should be used flat and should not be wadded. If a bucket of water is used, the rags should not be re-wetted in the bucket, as this will contaminate the water. Care should be taken to avoid any potential electrical hazards when using this procedure.

Dry decontamination should be only used where wet methods are not suitable or pose a risk because of other hazards such as electricity or slipping. Dry decontamination procedures include carefully rolling or folding up and sealing plastic sheeting and/or vacuuming the asbestos work area with an HEPA and approved and filtered asbestos vacuum cleaner. Large pieces of asbestos debris should be wetted and picked up by hand rather than vacuumed.

Equipment

Asbestos Vacuum Cleaners

The removal of small pieces of asbestos debris and dust by the use of fixed, transportable and or portable local exhaust equipment (vacuum cleaners) fitted with a High Efficiency Particulate Aerosol (HEPA) Filter. These vacuum cleaners should comply with relevant Australian Standards.

Only vacuum cleaners specifically assigned for asbestos works shall be used. On completion of the works, the asbestos vacuum cleaner should be decontaminated as per the manufactures instructions with the bag and filter removed and disposed of as asbestos waste and the vacuum cleaner wet wiped internally and externally. PPE should be worn during decontamination procedures.

Tools should be selected with the prevention of generating and dispersing of dust in mind. All equipment used should be regularly inspected and maintained. All tools, equipment and reusable respirators used during the maintenance or service task should be dismantled (where appropriate) and decontaminated, using either the wet or dry decontamination procedures described above, before they are removed from the asbestos work area. The method chosen should depend on its practicality and the presence of any electrical hazards.

If tools and equipment cannot be decontaminated in the asbestos work area, or are to be reused at another asbestos work area, they should be tagged to indicate asbestos contamination and double bagged in asbestos waste bags before being removed from the asbestos work area. This equipment and tools must remain sealed until decontamination or the commencement of the next asbestos maintenance or service task where the equipment can be taken into the work area and reused under full control conditions.

Tools

Manually operated hand tools are preferred option in relation to asbestos removal and maintenance works. Low-speed battery powered tools used in conjunction with wet methods or shadow-vacuuming techniques (approved vacuum only with HEPA filtration), or ideally fitted with a, local exhaust ventilation (approved for asbestos control), (LEV) dust control hood may be used with approval from the University Properties department.

Spray Equipment

A constant low-pressure water supply is required for wetting down asbestos and can be achieved by the use of a mains-supplied garden hose fitted with a manually operated spray attachment or a portable pump-up garden sprayer. High-pressure spray equipment is prohibited.

Personal Decontamination (Removal Works)

Where a decontamination unit is not required or available for personal decontamination, asbestos fibres should be vacuumed from clothing or coveralls using an appropriate vacuum cleaner fitted with a HEPA filter before leaving the asbestos removal area. Asbestos contaminated PPE should not be transported outside the asbestos work area except for disposal purposes which must be double bagged.

Respiratory protection should remain in-place until the contaminated disposable coveralls or clothing have been either vacuumed clean or removed and bagged, and personal washing has been completed.

Regardless of whether gloves are used, workers handling asbestos should wash their hands and fingernails thoroughly in warm soapy water when leaving the work area and before eating, drinking, smoking or using toilet facilities.

Personal Protective Equipment

Personal protective equipment (PPE) may need to be used, in combination with other effective control measures, when working with ACM's.

The selection and use of PPE should be based on risk assessments and determined by a competent person.

The ease of decontamination should be one of the factors considered when choosing PPE. Where possible, disposable equipment should be used. All disposable PPE should be disposed of as asbestos waste.

If work with asbestos requires the use of other chemicals that are themselves hazardous substances, a further risk assessment must be performed by the Contractor. The relevant Safety Data Sheets (SDS) must be referred to for information on the PPE to be used and any other precautions to be taken when using the chemicals (the manufacturer can supply the SDS).

Coveralls

Protective clothing should be made from material capable of providing adequate protection against fibre penetration.

When selecting protective clothing, factors such as the possibilities of heat stress, fire and electrical hazards should also be considered.

Disposable coveralls with fitted hoods and cuffs should be worn. Coveralls with open pockets and/or Velcro fastenings should not be used, because these features can be easily contaminated and are difficult to decontaminate. Fitted hoods should always be worn over the straps of respirators, and loose cuffs should be sealed with tape.

Asbestos fibres should be prevented from being transported outside the workplace by thoroughly vacuuming asbestos fibres from work clothes using an approved and HEPA filtered asbestos vacuum cleaner. Disposable coveralls should be disposed of as asbestos waste at the completion of the task.

Footwear and gloves

Laced boots are prohibited, as they can be difficult to clean and asbestos dust can gather in the laces and eyelets. Lace-less boots, such as gumboots, are preferred where practicable, and boot covers should be worn where necessary.

Safety footwear must be decontaminated before leaving the asbestos work area for any reason, or sealed in double bags for use only on the next asbestos maintenance task. Alternatively, work boots

that cannot be effectively decontaminated must be disposed of as asbestos waste at the end of the job.

The use of protective gloves should be determined by a risk assessment. If significant amounts of asbestos fibres may be present, disposable gloves should be worn. Protective gloves can be unsuitable if dexterity is required. Any gloves used must be disposed of as asbestos waste.

Respirators

In general, the selection of suitable respiratory protection equipment depends on the nature of the asbestos work, the probable maximum concentrations of asbestos fibres that would be encountered in this work and any personal characteristics of the wearer that may affect the facial fit of the respirator (e.g. facial hair and glasses).

A competent person should determine the most efficient respirator for the task.

Respirators should comply with AS/NZS 1716-2003 Respiratory Protective Devices and be selected, used and maintained in accordance with AS/NZS 1715-1994 Selection, Use and Maintenance of Respiratory Protective Devices.

They should always be worn under fitted hoods. Face pieces should be cleaned and disinfected according to the manufacturer's instructions.

State legislation imposes minimum requirements for respiratory equipment, and relevant laws should be checked before selecting an appropriate respirator.

Respiratory protective equipment should be used until all contaminated disposable coveralls and clothing has been vacuum cleaned and/or removed and bagged for disposal, and personal washing has been completed. Respirators should be properly stored when not in use.

Signage and Labelling

All warning signs and labels should comply with Australian Standard 1319 Safety Signs for the Occupational Environment.

Any areas of a workplace which contain ACM, including plant, equipment and components, should be signposted with warning signs/labels to ensure that the asbestos is not unknowingly disturbed without the correct precautions being taken. The location of the warning signs/labels should be consistent with the location listed in the AMR.

These signs should be placed at all of the main entrances to the work areas where asbestos is present.

All identified or presumed ACM — or their enclosures if the ACM are inaccessible — should be clearly labelled.

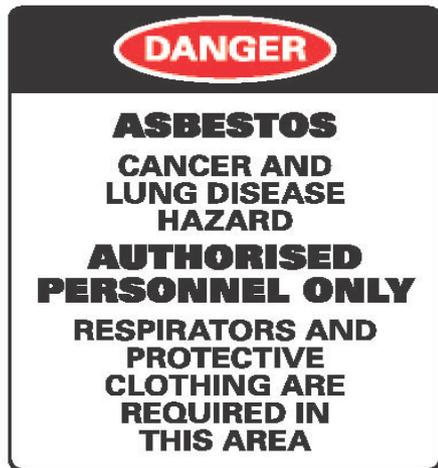
The labels or signs are to remain in place until the asbestos containing material has been removed and the area/works declared complete and the clearance certificate issued.

Figure 1 - Curtin Internal/External Asbestos Signage



Figure 1

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Airborne Asbestos Fibre Monitoring

Asbestos monitoring must be carried out by a NATA registered or government accredited laboratory in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC:3003 (2005)].

Air monitoring for asbestos fibre shall be conducted prior to the start, during or at the completion of any asbestos control or removal procedure, or when there is an asbestos condition that may pose a potential risk to the occupants, visitors, construction, and maintenance personnel within the building.

Static samples are collected as an indicator of the effectiveness of process control techniques and are also used to assist in the risk assessment process but should not be used as the only criteria. Airborne fibre monitoring requirements should be assessed by a competent person approved by the University Properties department.

Where small suspected non-friable ACM has been removed by trained and competent University staff and/or contractor, the requirement for airborne fibre monitoring shall be determined through the use of a risk assessment and submitted to Curtin HSEM for approval.

Drilling of Asbestos-Containing Materials

The drilling of asbestos cement sheeting can release asbestos fibres into the atmosphere, so precautions must be taken to protect the drill operator and other persons from exposure to these fibres.

The University requires all drilling work to be completed by a competent person who has reviewed the AMR and who has implemented all safety requirements prior to commencing work.

A hand drill is the preferred option at the University as the quantity of fibres produced is drastically reduced if a hand drill is used. For further information on requirements for drilling ACM please refer to the Code of Practice for the Management and Control of Asbestos in Workplaces.

Clearance Inspections

Following asbestos removal, remediation work or clean-up, visual inspections of the removal site should be undertaken by a competent person, independent of the removal contractor, to ensure that the required removal and clean-up standards have been met and waste management systems are effective and in compliance with relevant regulations. Clearance Inspections certificates shall be produced/provided for the University. The "Required Components of the Contractor Site Clearance Certificate" contains information about what is required to be included in the certificate. These certificates shall be distributed to the University Responsible Officer and Curtin HSEM for filing.

Where small suspected non-friable ACM has been removed by trained and competent University staff and/or contractor, the requirement for a clearance certificate shall be determined through the use of a risk assessment and submitted to Curtin HSEM for approval. In all instances, a visual inspection of the

area by competent and trained personnel shall be conducted to ensure the area of removal has been left in a clean condition.

All clearance certificates are to be provided to HSEM via the asbestos inbox (asbestos@curtin.edu.au).

Prohibited Practices

Work practices that are prohibited include:

- Work practices in the vicinity of asbestos materials that may disturb or, damage the material, cladding, enclosure, sealant or containment barrier;
- Workers using a high pressure water process to clean an asbestos product or to clean up debris from an asbestos product;
- Workers using compressed air to clean an asbestos product or a surface where debris from an asbestos product is present

11.2. Appendix 2 – Health Risks and Health Effects Associated with Exposure to Asbestos

About Asbestos

Asbestos was commonly used in:

- cement sheeting (fibro)
- drainage and flue pipes
- roofing, guttering and flexible building boards (e.g. Villaboard, Hardiflex, etc). Similar cement sheeting products are used today, but are 'asbestos free'
- brakes, clutches and gaskets.

How can asbestos affect my health?

Breathing in asbestos fibres can cause asbestosis, lung cancer and mesothelioma. The risk of contracting these diseases increases with the number of fibres inhaled and the risk of lung cancer from inhaling asbestos fibres is also greater if you smoke. People who get health problems from inhaling asbestos have usually been exposed to high levels of asbestos for a long time. The symptoms of these diseases do not usually appear until about 20 to 30 years after the first exposure to asbestos.

When does asbestos pose a risk to health?

Asbestos fibres can pose a risk to health if airborne, as inhalation is the main way that asbestos enters the body. Small quantities of asbestos fibres are present in the air at all times, and are being breathed by everyone without any ill effects. Most people are exposed to very small amounts of asbestos as they go about their daily lives and do not develop asbestos-related health problems. Finding that your home or workplace is made from fibro products does not mean your health is at risk. Studies have shown that these products, if in sound condition and left undisturbed, are not a significant health risk. If the asbestos fibres remain firmly bound in cement, generally you do not need to remove the fibro. People who have suffered health effects from exposure to asbestos have generally worked in either the asbestos mining or milling industry, worked in industries involved in making or installing asbestos products, or are from the immediate families of these people. In all of these situations there was exposure to high levels of airborne dust, from either the processes involved or from the clothes of the workers.

Different forms of asbestos material, different risk levels

If asbestos fibres are in a stable material such as bonded in asbestos-cement sheeting such as fibro and in good condition they pose little health risk. However where fibro or other bonded asbestos sheeting is broken, damaged or mishandled fibres can become loose and airborne posing a risk to health. Disturbing or removing it unsafely can create a hazard.

In materials such as pipe lagging and sprayed roof insulation asbestos fibres are not bound in a matrix. High concentrations of fibres are much more likely to be released into the atmosphere when these materials are disturbed or removed.

(Source: NSW Health 2007)

DOCUMENT CONTROL

CONTACT DETAILS	
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Approval Authority	Director, Health, Safety and Emergency Management

REVISION HISTORY		
Revision #	Date	Amendment Description
1	06/08/2013	New Plan
2	11/06/2014	<ul style="list-style-type: none"> Change to Clearance Certificate and Air Monitoring requirements Change title from Health and Safety to Health, Safety and Emergency Management
3	9/7/2014	Updated plan to include Contractors completing refurbishment or demolition work responsibilities
4	2/9/2014	Addition of the definition of Type 3 Survey
5	16/6/2014	Updated sections 6.1.4 and 6.1.7
6	17/02/2015	Updated section 4 and annual review
7	30/11/ 2016	Annual review