

LDB approved method

Drilling holes up to 30mm in diameter into low density asbestos fibre board (LDB)

Work covered by this LDB approved method

All persons conducting a business or undertaking (PCBU) and their workers drilling into LDB, for example to attach fittings, or to pass through cables or pipework, must comply with this LDB approved method. Alternatively, they can follow a method that provides an equivalent or higher standard of work health and safety to the standard outlined in this LDB approved method.

Risks of working with LDB

LDB¹ is an asbestos containing material (ACM) with a high percentage of asbestos content loosely bound in a calcium silicate matrix. It was sometimes used as a sheeting for walls and ceilings in buildings constructed between 1950 and the early 1980s. Due to the softness of LDB and the high asbestos content, work on LDB must be performed carefully. If it is broken, removed or disturbed during maintenance and service work activities without adequate controls, there is a greater potential for asbestos fibres to be released into the living or working areas than there is for non-friable or bonded asbestos cement products. LDB is classed as a friable ACM and must only be removed by a class A licensed asbestos removalist.

Section 419(3)(c) of the Queensland Work Health and Safety Regulation 2011 (the Regulation) only allows for maintenance and service work to be performed on non-friable asbestos or ACM. To allow for restricted maintenance and service work to be performed on friable LDB, this LDB approved method has been approved by the regulator under section 419(4) of the Regulation.

This LDB approved method must only be used where:

- the work involves LDB that is in good condition and is undamaged
- the work involves drilling holes into LDB up to 30mm in diameter
- the maintenance and service work on LDB takes
 - less than one hour for one worker in a seven-day period; or
 - less than two hours for two or more workers in a seven-day period.

Note: These times exclude time to set up, dismantle and decontaminate items.

The use of sandpaper or other abrasive methods are not permitted on painted or unpainted LDB.

¹ LDB has very similar physical properties to asbestos insulating board (AIB).

Competency requirements

The work outlined in this LDB approved method is defined as asbestos-related work under the Regulation. The Regulation requires that workers carrying out asbestos-related work are trained in the identification and safe handling of, and suitable control measures for, asbestos and ACMs. Training in relation to asbestos control procedures outlined in this LDB approved method must include:

- identifying LDB
- donning and removing the relevant personal protective equipment
- decontaminating self, equipment and the work environment
- transport and disposal of asbestos waste.

Guidance on the minimum mandatory performance criteria for these training elements and training materials can be found at www.asbestos.qld.gov.au.

Workers can complete the training independently by accessing specified online training materials, or the content can be incorporated within other training programs or packages, and provided directly by an employer, a training provider engaged by an employer or a registered training organisation, as long as it meets the training elements and performance criteria.

Evidence of completing this training must be documented, kept and provided to Workplace Health and Safety Queensland inspectors on request. Workers must complete LDB training at least every five years and must be competent in each of the training elements, as well as competent to perform the trade related skills relevant to each of the approved methods.

Required equipment

Essential equipment for drilling holes in LDB

- 200 micrometre (μm) thick plastic drop sheets
- Duct or fabric tape
- A vacuum attachment to be used in conjunction with a H-Class vacuum cleaner to capture/extract dust at the point of the drill bit, such as a drill safe vacuum attachment or vacuum suction hole saw kit
- H-Class vacuum cleaner compliant with *AS/NZS 60335.2.69 Household and similar electrical appliances – safety particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use* and fitted with a HEPA filter compliant with *AS 4260-1997 High efficiency particulate air (HEPA) filters – classification, construction and performance*
- H-Class vacuum cleaner attachments, including a vacuum brush attachment that is used only for personal decontamination
- Breast drill, hand drill or battery powered drill set at the lowest speed (at or below 650rpm).
- Sharp metal cutting drill bit (not masonry) or a hole saw cutter for holes no greater than 30mm in diameter
- Large disposable multipurpose cleaning wipes (e.g. 23cm x 29cm)
- 200 μm thick plastic waste bags labelled 'asbestos'
- Glue or acrylic paint to seal the exposed edges
- Plastic or rubber/metal sleeve or paint to protect hole edges
- Spray bottle containing water and PVA glue mixed in a 5:1 ratio
- Spray bottle containing water
- Barrier tape, barricade mesh, temporary fencing etc.
- Asbestos warning signage.

Personal protective equipment (PPE)

- Disposable coveralls fitted with a hood (type 5/6).
- Consider using dedicated, non-porous boots without laces for asbestos work only.
- If not using dedicated boots, then use boot covers over the top of non-porous boots without laces.
- Respiratory protective equipment (RPE) that has been fit tested to the user, and at a minimum is a negative pressure P3 full face particulate respirator, compliant to *AS/NZS 1716 Respiratory protective devices*. Workers must be clean shaven, have been fit tested to the make and model respirator being used and must conduct a fit check to ensure correct fit and seal prior to the work commencing. A current fit-test record must be available.
- A full-face shield if work is being performed overhead.
- Gloves are optional (see further information in decontamination section).
- Other PPE as necessary e.g. hearing protection.

Before work begins

Step 1: Conduct a risk assessment

Prior to commencing work under this LDB approved method, a risk assessment that includes the following must be performed and documented by a competent person²:

- Condition of the LDB—whether in sound condition or likely to deteriorate or break up when drilling is performed.
- Likelihood of asbestos exposure to workers and workplace occupants and contamination of the workplace.
- Job-specific control measures as outlined in this LDB approved method.
- Other hazards that may impact the work (e.g. live electrical cables in wall cavities, working at height, confined spaces, heat stress etc).

Step 2: Planning your work

- If possible, perform the work outside the 'normal' facility operating hours and only when the room is unoccupied.
- Restrict access to the immediate area where work on the LDB is carried out, known as the asbestos work area (AWA) by erecting barriers (plastic hazard warning tape is an acceptable barrier in most cases). The AWA is where decontamination of equipment and first stage of personal decontamination also occurs.
- Establish a buffer zone to separate the public access areas and the AWA by erecting barriers. The buffer zone includes all entrance and exit points to the asbestos work area and is where final personal decontamination occurs.
- Prominently display appropriate asbestos warning signage at the boundaries of the AWA and the buffer zone e.g. 'Asbestos work in progress'.
- Restrict access behind the drilling area (e.g. room on other side of wall).
- Arrange with the person who engaged the PCBU to be available to perform a visual inspection of the work area after the work and area decontamination is completed.
- If air monitoring is being performed, arrange for an occupational hygienist or licensed asbestos assessor to commence the air monitoring. Air sampling filters must be counted by a laboratory with NATA accreditation for the method.

² A person who has acquired through training, qualification or experience the knowledge and skills to carry out the task.

Note: Air monitoring is not mandatory if this LDB approved method is followed, because air monitoring conducted during validation of the controls demonstrated airborne asbestos fibre concentrations were controlled to 0.01 fibres/mL or less³.

Conducting the work

Step 3: Set up work area

- Prepare the actual work area in the AWA. Under the area to be drilled, protect all surfaces in a three-metre radius with two single 200µm plastic sheets (one on top of the other) taped individually and securely to the floor.
- Prepare a dirty decontamination area inside the AWA near the exit point of the AWA (this will be adjacent to the clean decontamination area in the buffer zone). Use two single 200µm plastic sheets (one on top of the other) large enough to fit all tools and equipment and to allow adequate room for first stage of personal decontamination. Tape each sheet individually and secure to the floor. Ensure there is a waste bag and a clean vacuum brush attachment available in this area.
- Prepare a clean decontamination area in the buffer zone adjacent to the dirty decontamination area/exit point of the AWA. Use one 200µm plastic sheet (drop sheet) large enough to fit all decontaminated items and allow for second stage of personal decontamination. Tape the sheet securely to the floor.
- Protect nearby surfaces from contamination. Remove items from the area if possible and cover remaining items with 200µm thick plastic sheeting, and secure with duct tape to non-asbestos surfaces.
- Close doors and windows.
- Shut down air conditioning and ventilation systems, if safe to do so.
- Seal ducts and vents with 200µm plastic sheeting and tape.
- Identify other hazards e.g. electrical cabling in the wall cavity.
- Wear appropriate PPE and RPE.

Step 4: Drill the hole in the LDB

- If possible, use a breast or hand drill as these create less dust than a powered drill. A cordless drill may be used but must be set at its lowest speed and must be less than 650rpm. Do not use 240-volt power tools.
- Place duct tape over intended drilling point (and exit point if possible). Mark the proposed hole for drilling on the duct tape.
- Connect the drill safe vacuum attachment/vacuum suction hole saw kit to the H-Class HEPA filter vacuum cleaner and switch the vacuum on.
- Position the drill safe vacuum attachment/vacuum suction hole saw kit over the intended drilling point, insert the drill bit or hole cutter through the drilling slot in the vacuum attachment. Alternatively, a second worker, wearing same PPE as first worker, can perform shadow vacuuming while drilling is being performed. To perform shadow vacuuming, the nozzle of the vacuum cleaner must be no more than 30mm from the drilling location and under the drill bit. Hint: a spacer rod attached to the nozzle is a useful means of maintaining set distance.
- Drill the required hole/s up to a maximum of 30mm in diameter in the LDB sheeting.
- Vacuum the edges of the new hole with the H-Class HEPA filter vacuum cleaner and then use a wet wipe to wipe the area around the hole. Use the wet wipe only once and dispose of into a waste bag.

³ In the unlikely event that air monitoring results are > 0.01 fibres/mL of air, the person who performed the work related to this LDB approved method must immediately phone Workplace Health and Safety Queensland and seek advice regarding decontamination of the work area.

- Seal the drilled edge with sealant such as glue or acrylic paint and/or insert a sleeve to protect the hole's edges from cabling etc.



Photo: A vacuum attachment used for drilling in conjunction with a H-Class vacuum cleaner (Source: Health and Safety Executive)

Step 5: Decontamination of work area and equipment

Workers must wear PPE and a respirator during clean up and decontamination.

Decontaminating the asbestos work area:

- Do a preliminary clean of tools and equipment using a H-Class HEPA filter vacuum cleaner and then place them onto the upper layer plastic drop sheet of the dirty decontamination area in the AWA.
- Ensure all work is completed, and any debris on the upper layer drop sheet and plastic covering the furniture and surrounding items in the AWA is removed by vacuuming with a H-Class HEPA filter vacuum cleaner, followed by wet wiping.
- Remove the two layers of plastic drop sheets covering surfaces and furniture within the AWA
 - Spray the water/PVA glue mixture to wet down the upper layer drop sheet and fold the upper layer drop sheet in on itself a number of times and place into a waste bag.
 - Reinspect the work area to ensure it is free of debris. If not, vacuum with a H-Class HEPA filter vacuum cleaner and then wet wipe.
 - Spray the water/PVA glue mixture to wet down the lower layer drop sheet. Fold the lower layer drop sheet in on itself a number of times, standing on the clean face of the freshly folded drop sheet when each fold is completed and place into a waste bag.
- Transfer all waste bags to the dirty decontamination area in the AWA.

Decontaminating equipment:

- While standing on the upper layer of plastic of the dirty decontamination area
 - Complete the cleaning of the drill, the drill bit, hole cutter and drilling attachments by wet wiping and then place these onto the nearby clean decontamination drop sheet. Use the wet wipe only once and dispose of into a waste bag.
 - Wet wipe the exterior of the vacuum cleaner and the hosing.
 - Put the wet wipes into a waste bag.
 - Spray the water/PVA glue mixture to wet down the upper drop sheet. Fold the upper drop sheet in on itself a number of times and place into a waste bag.
- Then commence personal decontamination.

Step 6: Personal decontamination

- Personal decontamination is a two-stage process and must be performed each time a person leaves the AWA.
- A clean H-Class vacuum cleaner must be used for personal decontamination. This vacuum cleaner must have been decontaminated, as outlined above, before being used as part of personal decontamination.

- Conduct the first stage of personal decontamination while standing on the lower layer drop sheet of the dirty decontamination area:
 - Remove all visible dust from protective clothing (coveralls, boot covers and gumboots etc.) using a H-Class vacuum cleaner with a clean and previously unused brush attachment.
 - Wet wipe the exterior of the vacuum cleaner and the hosing, screw in the caps to the vacuum cleaner inlet/outlet, seal each end of the flexible hosing and extension pipe using duct tape and place all into 200µm plastic bag/s labelled for use on asbestos work only.
 - Dispose of the vacuum brush attachment into a waste bag, or bag and retain for use for **non-personal** decontamination.
 - Remove the lower layer drop sheet by folding the drop sheet in on itself and put it into a waste bag.
 - Remove boot covers and dispose of in a waste bag
 - If you did not use boot covers, then remove your boots, wipe down with wet wipes (place used wet wipes into the waste bag) and place boots in a 200µm plastic bag to be dedicated for use when working with asbestos materials only. Goose neck bag and tape closed with duct tape.
 - Seal the waste bags containing the drop sheets and other waste by gathering the top of the waste bags shut to ensure that air from the bag is not expelled into your breathing zone. Duct tape the waste bag closed by goose necking the bag.
 - Then step onto the clean decontamination area in the adjacent buffer zone prior to commencing the second stage of personal decontamination.
- Conduct the second stage of personal decontamination while standing on the drop sheet in the clean decontamination area:
 - Where there are two workers, they can help to decontaminate each other.
 - Remove gloves (if used).
 - Use spray bottle with water to lightly spray over the disposable coveralls. Peel off disposable coveralls by rolling them outwards down to the ankles. They should be inside out when they have been removed. Put them in the waste bag.
 - If you used boot covers over your boots, then also clean your boots with wet wipes and place wet wipes in waste bag.

Step 7: Cleaning and storage of respirator

- Clean your hands with wet wipes paying attention to under the fingernails if gloves were not used and put wet wipes into waste bag.
- Wipe the outside of the respirator down, including the outside of the filter, with wet wipes while still wearing it. Use the wet wipe only once and place wet wipes into the waste bag.
- Spray the water/PVA glue mixture to wet down the clean decontamination area drop sheet. Fold the final drop sheet in on itself a number of times and place the folded final drop sheet into a waste bag.
- Clean your hands with wet wipes again and place the wet wipes in the waste bag.
- Remove the respirator.
- Separate and dispose of the prefilter pad.
- Clean the inside of the respirator with wet wipes.
- Remove the filter and finish cleaning the respirator.
- Place the respirator in a dedicated storage container.
- Check filter disposal date and place expired filters in waste bag.
- If filter cartridge is in date, wet wipe the inner and outer faces of the filter and store in a dedicated storage container.
- Clean your hands with wet wipes again and place the wet wipes in the waste bag.

- Seal the waste bag containing drop sheets and other waste by gathering the top of the waste bag/s shut to ensure that air from the bag is not expelled into your breathing zone. Duct tape the waste bag closed by goose necking the bag.
- Double bag all the asbestos waste bags placing each into an outer waste bag labelled 'asbestos waste' and seal by goose necking.
- Dispose of double bagged asbestos waste as regulated waste in accordance with the *Queensland Environmental Protection Act 1994*.

Step 8: Clearance and checking off

- The person who performed the work must visually inspect the area to make sure that it has been cleaned properly.
- Clearance air sampling is not normally required. However, if air monitoring is being performed, it should only be conducted by an occupational hygienist or licensed asbestos assessor.
Note: Air monitoring is not mandatory if this LDB approved method is followed because air monitoring conducted during validation of the controls demonstrates airborne asbestos fibre concentrations were controlled to 0.01 fibres/mL or less.
- If a person has been engaged to perform the work, the person or PCBU engaged to do the work and the person who engaged the PCBU must both visually inspect the area to make sure it has been cleaned properly.

Other hazards to consider

- Work at height—take precautions to avoid falls.
- Electrical hazards—get a licensed electrician to isolate and reconnect electricity supply if necessary.
- There may be other hazards—you need to consider them all.



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