

مركز أبوظبي للصحة والسلامة المهنية
ABU DHABI OCCUPATIONAL SAFETY AND HEALTH CENTER

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Abu Dhabi Occupational Safety and Health System Framework

(OSHAD-SF)

OSHAD-SF Technical Guideline

Safe Removal of Asbestos Containing Materials

Version 3.0

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ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



Important Note:

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+971 56 231 2171

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1. Introduction

- (a) This technical guideline provides additional information to assist entities comply with the requirements of *OSHAD-SF – CoP 1.1 – Management of Asbestos Containing Materials*.
- (b) The content of this technical guide are not mandatory, however adopting the information within this guide will assist you in compliance to the *OSHAD-SF*.

2. General Guidance

- (a) The information set out within this technical guide is intended to provide advice on some of the removal methods for common asbestos containing materials. The advice within this document does not in any way reduce the need for a full plan of work to be developed, however should be used to provide assistance on the method of removal.
- (b) The specific removal requirements outlined in this Technical Guide supplement the requirements set out in the *OSHAD-SF - CoP 1.1 – Management of Asbestos containing materials*.
- (c) It should be noted that prior to any work being undertaken on asbestos containing materials, a registered Asbestos Supervising Consultant (ASC) must be engaged by the duty holder.
- (d) It should also be noted that in some cases, the safest option may be to leave the asbestos containing material in situ. This decision will depend on many factors, including:
 - (i) condition;
 - (ii) access; and
 - (iii) interaction.
- (e) The ASC will advise on the best action following the undertaking of an Asbestos survey and risk assessment.

2.1 Removal of Asbestos-Cement Products

- (a) Historically, a large number of asbestos-cement building products have been used in the building industry. These asbestos-cement products — about 15% asbestos fibers, by weight — include, but are not limited to,
 - (i) flat or corrugated wall and roof sheeting ('fibro');
 - (ii) floor sheeting;
 - (iii) water, drainage and flue pipes;
 - (iv) roofing shingles; and
 - (v) flexible building boards (e.g. Villaboard, Hardiflex, Wundaboard and Flexiboard).

2.1.1 Preparation and Enclosure

- (a) Asbestos-cement products would normally be assessed as non-friable, even though they can suffer significant weathering in outdoor environments. Provided these asbestos-containing building products are maintained in good order, they present a low health risk.
- (b) Precautions should be observed, however, during structural alterations or demolitions involving these products.
- (c) Storm and fire damaged asbestos-cement products can pose a high risk of asbestos exposure, and should be assessed to determine if they are friable.
- (d) Under normal removal conditions the removal of asbestos-cement products does not attract a recommendation for extraction ventilation.
- (e) The minimum suitable respiratory protection is a P3, FFP3 or a N100 particulate filter. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Material* provides further information on the selection, use and maintenance of appropriate Respiratory Protection Equipment and PPE.
- (f) The need for an enclosure and a decontamination facility should be determined by a risk assessment. The decontamination facilities should be located inside the asbestos work area.
- (g) Decontamination facilities, appropriate for the removal job, should be available throughout the entire removal process.

2.1.2 Removal

- (a) The work area should be kept clean, tidy and free from asbestos-cement debris, with the area being cleaned up on at least a daily basis. All the debris should be collected and disposed of as asbestos waste.
- (b) Wherever possible, the removal of asbestos-cement should use the wet spray method, unless this might create an electrical hazard.
- (c) The dropping of asbestos-cement and the use of ramps, chutes or similar gravity-dependent devices should not be allowed under any circumstances.

2.1.3 Removal of Asbestos-Cement Sheets

- (a) If the asbestos-cement is behind ceramic tiles, sufficient tiles should be removed to give access to the fixings of the asbestos-cement sheet, taking care to minimize any damage to the sheet.
- (b) Fixings holding the asbestos-cement sheet in place should be cut with a cold chisel under the edge of the sheet or cut around the head using a punch, again so as to minimize damage to the sheet. If necessary, nails should be punched through the sheeting to facilitate effective removal.

- (c) All nails and asbestos waste should be removed from the timber frame. The sheets should be removed with as little breakage as possible. Unnecessary breaking of asbestos-cement sheeting must not be permitted.
- (d) The asbestos-cement sheets should be wetted using a fiber suppressant such as polyvinyl acetate (PVA). Once they are removed, the backs of the sheets should be wetted using a fine water spray and the sheets should be placed into a waste skip that has been double lined with heavy duty plastic sheeting (200µm minimum thickness)", as stated within *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials*. Smaller pieces of sheeting and asbestos-cement debris should be placed in heavy-duty clear plastic bags.

2.1.4 Removal of Asbestos-Cement Roofing

- (a) Asbestos-cement roofing should be sprayed with PVA prior to the removal process. The PVA must be dry before sheet removal begins, to avoid a slip hazard.
- (b) Asbestos-cement can become brittle with age, so any removal work on roofs must address the risk of fall hazards.
- (c) Angle grinders should not be used, because of the potential for damage to the asbestos-cement and subsequent fiber release. Anchoring screws/bolts should be removed from the roofing sheets using an oxy torch or another suitable device that will not significantly damage the sheet.
- (d) If lichen is encountered on roof sheeting, caution should be exercised in the use of water and the choice of employees' footwear because lichen can be slippery, especially when it is wet. In these instances, the Asbestos Contractor should confer with the person in control, to determine appropriate controls, before commencing the work.
- (e) Roof sheeting should be lowered to the ground using slings and/or lifting equipment such as a crane or a forklift.

2.1.5 Decontamination of the Work Area

- (a) On completion of the removal, the asbestos contractor should clean up all dust and debris within the removal area, and in particular from the framework, ceiling spaces and exposed wall cavities, using the procedures outlined in *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials*.
- (b) If asbestos-contaminated nails are to be reused they must be decontaminated. Nails that cannot be decontaminated must be removed from the timber frame and disposed of as asbestos waste.
- (c) Rough-sawn timber cannot be effectively wet wiped or vacuum cleaned. If the timber frame is to remain in situ or be recycled, it should be sealed with pigmented PVA, using low-pressure spray equipment.

2.1.6 Personal Decontamination

- (a) PPE should be vacuumed and wet wiped, in conjunction with any other decontamination methods. Decontamination should be carried out in a designated area. Contaminated PPE should not be worn outside the asbestos work area under any circumstances.
- (b) There may be circumstances where a full decontamination unit should be used for personal decontamination. A risk assessment should be conducted to determine appropriate decontamination requirements.

2.2 Removal of Vinyl Floor Tiles and Sheet Vinyl Containing Asbestos

- (a) Vinyl floor tiles and vinyl floor sheets were commonly reinforced with asbestos in a bonded matrix. A visual inspection cannot determine whether vinyl floor tiles contain asbestos.

2.2.1 Preparation and Enclosure

- (a) All fittings and fixtures on top of the vinyl floor should be removed before the vinyl is taken up.
- (b) If the removal includes grinding or abrading (please see *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials. for information on the use of power tools*), the wet spray method should be used (*refer to OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials.*) and the removal undertaken within an enclosure.
- (c) The minimum respiratory protection for this operation is a P3, FFP3 or a N100 particulate filter. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* provides further information on the selection, use and maintenance of appropriate Respiratory Protective Equipment and PPE.
- (d) Decontamination facilities should be available throughout the entire removal process. A decontamination unit should be available when grinding or abrading is undertaken and otherwise as determined by a risk assessment. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* provides information for situations where the decontamination unit cannot be located immediately adjacent to the asbestos work area.

2.2.2 Removal

- (a) Wherever possible, removal methods such as scraping, chipping or the use of a wide bladed tool should be used. Grinding and abrading should only be used if there is no other suitable alternative. Care should be taken to minimize dust release from the activity. Where grinding or abrading is used, and the asbestos work area is not enclosed, the equipment should be fitted with or connected to an asbestos vacuum cleaner.
- (b) The vinyl can be cut into strips prior to its removal, to facilitate bagging, or it can be rolled into one roll and wrapped securely with plastic, making sure it is totally sealed.
- (c) If a heat source is used to soften the adhesive beneath a vinyl tile, care should be taken not to scorch or burn the tile. Burning or scorching vinyl tiles can result in the release of toxic decomposition products and generate a fire hazard. In some cases the adhesive may contain asbestos.

2.3 Removal of Asbestos-Backed Vinyl and Millboard from Beneath a Vinyl Floor

2.3.1 Preparation and Enclosure

- (a) All fittings and fixtures on top of the floor vinyl should be removed before the vinyl is taken up.
- (b) The minimum respiratory protection for this operation is a P3 full-face powered air-purifying particulate respirator. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* provides further information on the selection, use and maintenance of appropriate RPE and PPE.
- (c) Since asbestos millboard is typically 100% asbestos and very friable, a full enclosure, with negative air extraction units, must be used for this type of removal. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* of the CoP provides information on the use of enclosures for the removal of friable ACM.
- (d) A decontamination unit must be available at all times (refer *OSHAD-SF - CoP 1.1*).

2.3.2 Removal

- (a) The asbestos millboard should be wetted down as the vinyl is peeled from the floor, preferably with the millboard attached.
- (b) The vinyl can be cut into strips prior to its removal, to facilitate bagging, or it can be rolled into one roll and wrapped securely with plastic, making sure it is totally sealed.
- (c) If the vinyl sheeting cannot be removed without leaving some of the asbestos millboard on the floor surface, the remaining asbestos millboard should be wetted down and, when thoroughly soaked, scraped off the floor surface.
- (d) Sufficient water should be used to dampen the asbestos millboard, but not so much that run-off or pools of contaminated water will occur.
- (e) If a heat source is used to soften the adhesive beneath a vinyl tile, care should be taken not to scorch or burn the tile. Burning or scorching vinyl tiles can result in the release of toxic decomposition products and generate a fire hazard.
- (f) Alternative removal methods should only be used if they do not result in excessive fiber release from the asbestos millboard and do not result in any additional hazard.

2.4 Removal of Asbestos Gaskets and Rope from Plant and Equipment

- (a) Gaskets reinforced with asbestos were once used extensively in plant and equipment exposed to high temperatures and/or pressures. These gaskets were typically used between the flanges of pipes.
- (b) Asbestos rope was often used for lagging pipes and valves and for sealing hatches.
- (c) It is likely that the ACM in gaskets and rope from plant and equipment will be friable.

2.4.1 Preparation

- (a) Ensure the plant or equipment is shut down and isolated.
- (b) The minimum respiratory protection suitable for this operation is a P1 or P2 filter with a half-face piece respirator.

2.4.2 Removal

- (a) Dismantle the equipment carefully. Protect any other components with plastic sheeting.
- (b) Thoroughly dampen the gasket or rope with water. Use a hand scraper to slowly remove the gasket or rope. Continue to dampen as drier material is exposed.
- (c) Collect the removed ACM in a container directly beneath the scraper.
- (d) All of the asbestos gasket or rope should be removed.

2.5 Removal of Asbestos Switchboards or Meter Boards

- (a) Historically, ACM were used in and around switchboards and meter boards to provide electrical insulation and to prevent fire spreading from the boards.
- (b) ACM were used in the front panels and also in materials that covered the inside and back of the switchboard boxes. Small electrical load centers (with a main switch plus a few fuses) have also been known to have ACM backings.
- (c) A competent person must isolate the relevant switchboard or meter board before any work occurs.
- (d) When removing an asbestos switchboard or meter board any other ACM, such as fire proofing on the switchboard box sides and base, should also be removed.

2.5.1 Preparation

- (a) Electricity must be disconnected from the switchboard or meter panel by a licensed electrician. Once this is tested and confirmed the removal process can begin.
- (b) All wiring at the back of the switchboard or meter board should be disconnected or isolated by a competent person. If this is not practical, the wiring should be suitably terminated and labeled to indicate that it is live, and the wiring should be protected against mechanical damage or otherwise rendered safe. The switchboard or meter panel and surrounding area should be cleaned before removal work is started.
- (c) The minimum suitable respiratory protection is a P3, FFP3 or a N100 particulate filter. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials Section 3.25* provides further information on the selection, use and maintenance of appropriate RPE and PPE.

2.5.2 Removal

- (a) Lay out a 200 µm thick plastic sheet to catch any debris that may fall.
- (b) Remove the mounting screws from the board without damaging the board. Vacuum the front surface of the board using an asbestos vacuum cleaner. Tilt the board forward and disconnect the cabling from the board. Wrap the board in a double layer of heavy duty, 200µm thick plastic sheeting (refer to *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials*).

2.5.3 Decontamination

- (a) Vacuum the area where the board was located and the surrounding area. Wet wipe with a rag to remove minor amounts of debris that may be attached to the wall or cabling. Dispose of this rag as asbestos waste. Vacuum the sheet of plastic laid out to catch any debris and dispose of it as asbestos waste.

2.6 Removal of Asbestos Mastics and Bitumen

- (a) Mastics and bitumen are usually soft, so they were often reinforced with asbestos to give them strength while retaining their flexibility.

2.6.1 Preparation

- (a) The minimum respiratory protection suitable for this operation is a P3, FFP3 or a N100 particulate filter. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* provides further information on the selection, use and maintenance of appropriate RPE and PPE.

2.6.2 Removal

- (a) These ACM are flexible and they need to be removed using scraping and chipping tools. The pieces removed should be kept as intact as possible.
- (b) If heating is used to soften the material, to enable the material to be peeled, it is important not to burn the material, as this can release airborne asbestos fibres. Excessive heating is also likely to generate toxic fumes and gases and generate a fire hazard.

2.7 Removal and Cleaning of Ceiling Tiles

- (a) False ceiling tiles or suspended ceilings sometimes need to be removed so maintenance work can be performed.
- (b) If ACM have been used on structural materials above a false ceiling there could be contamination on the upper surface of the tiles.

2.7.1 Preparation

- (a) The minimum respiratory protection suitable for this operation is a P3, FFP3 or a N100 particulate filter. If considerable amounts of asbestos dust or debris are likely to be involved, full-face air-purifying positive pressure respirators should be worn. *OSHAD-SF - CoP 1.1 –*

Management of Asbestos Containing Materials provides further information on the selection, use and maintenance of appropriate RPE and PPE.

2.7.2 Method

- (a) Any surface below the tiles that might be contaminated should be covered with plastic sheeting.
- (b) The first tile should be lifted carefully to minimize the disturbance of any asbestos fibers. The top of each tile should be thoroughly vacuumed and wet wiped, where possible, prior to removing subsequent tiles.
- (c) Where non-asbestos ceiling tiles are to be reused, they should be covered with plastic as they are removed from the ceiling, to prevent further dust settling on them.
- (d) Asbestos-ceiling tiles must not be reused. Under the asbestos prohibition it is illegal to reuse and reinstall asbestos products. Wrap the asbestos-ceiling tiles in a double layer of heavy duty, 200µm thick plastic sheeting (refer to *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials*).
- (e) Ceiling tiles should not be placed in the ceiling until the areas of the ceiling space affected by the maintenance work have been cleaned.

2.8 Removal of Asbestos Friction Products

2.8.1 Preparation and Enclosure

- (a) Asbestos friction products can be removed outside an enclosure using a low-pressure wet spray method. Asbestos vacuum cleaners should be used for the dry removal method.
- (b) The removal of asbestos friction products should be performed in an area that is not affected by wind.
- (c) The minimum respiratory protection suitable for this operation is a P1 or P2 respirator. *OSHAD-SF - CoP 1.1 – Management of Asbestos Containing Materials* provides further information on the selection, use and maintenance of appropriate RPE and PPE.

2.8.2 Removal

- (a) The preferred method for removal is using a combination of vacuuming and the wet method. Either method can be used in isolation, however, providing all precautions are taken.
- (b) Compressed air must not be used to remove dust or debris from wheels or other parts of a vehicle.
- (c) Power tools should not be used. Hand tools should be used, to reduce the risk of airborne fibers.

2.8.3 Wet Method

- (a) Use a suitable collection device (i.e. tray or container) below the location where the work will be carried out, to collect any dust or run-off. Wet the wheel and brake area with a fine water spray. Wipe down the wheel or automobile part using the wet method before removal.
- (b) A misting spray bottle should be used to wet down any dust. If the use of spray equipment to wet the asbestos is likely to disturb asbestos fibers, alternative wetting agents, such as a water-miscible degreaser or a water and detergent mixture, should be used.
- (c) Partially open the housing and softly spray the inside with water using the misting spray bottle. Any spillage of dust, debris or water must be controlled (e.g. through the use of containers to capture runoff) and either filtered or disposed of as asbestos waste.
- (d) Fully open the housing and remove the component.

2.8.4 Dry Method

- (a) A collection tray should be placed under the components to capture any dust spilling from the brake drum etc, during removal.
- (b) Use an asbestos vacuum cleaner to remove asbestos fibers from the brakes and rims or other ACM.

3. References

- OSHAD-SF – CoP 1.1 – *Management of Asbestos Containing Materials*
- AS 3544-1988 *Industrial Vacuum Cleaners for Particulates Hazardous to Health*
- AS 4260-1997 *High Efficiency Particulate Air Filters (HEPA) – Classification, Construction and Performance.*
- *CODE OF PRACTICE FOR THE SAFE REMOVAL OF ASBESTOS 2ND Edition [NOHSC:2002(2005)]*
- *NFDC (UK) – ALG Memo 06/08 – plan of work*
- *BS 8520: Equipment used in the controlled removal of asbestos-containing materials.*
- *ILO – C162 Asbestos Convention 1986*
- *ILO – R172 Asbestos Recommendation 1986*
- *Approved Code of Practice The Management of Asbestos in Non-Domestic Premises, L127, ISBN 9780 7176 6209 8*
- *Approved Code of Practice Work with Materials containing Asbestos, L143, ISBN 978 0 7176 6206 7*
- *Asbestos: the Licensed Contractors Guide, HSG247, ISBN 978 0 7176 2874 2*
- *Asbestos: The analysts' guide for sampling, analysis and clearance procedures, HSG248, ISBN 978 0 7176 2875 9*
- *Asbestos Essentials, HSG 210, ISBN 978 0 7176 6263 0*

4. Document Amendment Record

| Version | Revision Date | Description of Amendment | Page/s Affected |
|---------|---------------------------|---|-----------------|
| 3.0 | 1 st July 2016 | Change of Logo | All |
| | | Change from AD EHS Center to OSHAD | throughout |
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