

Best Management Practices for the Control of Asbestos at Construction and Demolition Materials Processing Facilities in Washington State

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Introduction

Asbestos is a generic term used to describe several naturally occurring minerals that can be separated into fibers and spun into cloth or added to products. It was used in many construction materials because of its excellent insulation, fire proofing and sound proofing qualities.

Asbestos is a known carcinogen and is thus a **regulated substance**. Asbestos must be removed by a licensed asbestos contractor if it is to be disturbed during renovation or demolition activities. Because asbestos has been used in more than 3000 building products, it may be present in a wide variety of building materials, as noted below:

Building Materials That May Contain Asbestos

(Note: This list is not all inclusive)

Cement Pipes	Elevator Brake Shoes
Cement Wallboard	HVAC Duct Insulation
Cement Siding	Boiler Insulation
Asphalt Floor Tile	Breaching Insulation
Vinyl Floor Tile	Ductwork Flexible Fabric Connections
Vinyl Sheet Flooring	Cooling Towers
Flooring Backing	Pipe Insulation
Construction Mastics (floor tile, carpet, ceiling tile, etc.)	Heating and Electrical Ducts
Acoustical Plaster	Electrical Panel Partitions
Decorative Plaster	Electrical Cloth
Textured Paints/Coatings	Electric Wiring Insulation
Ceiling Tiles and Lay-in Panels	Chalkboards
Spray-Applied Insulation	Roofing Shingles
Blown-in Insulation	Roofing Felt
Fireproofing Materials	Base Flashing
Taping Compounds (thermal)	Thermal Paper Products
Packing Materials (for wall/floor penetrations)	Fire Doors
High Temperature Gaskets	Caulking/Putties
Laboratory Hoods/Table Tops	Adhesives
Laboratory Gloves	Wallboard
Fire Blankets	Joint Compounds
Fire Curtains	Vinyl Wall Coverings
Elevator Equipment Panels	Spackling Compounds

Asbestos is dangerous when it is crushed, crumbled or disturbed because fibers can be released into the air. Released asbestos fibers are so tiny they can remain suspended in the air for long periods of time and can easily be inhaled. Remodeling and demolition activities can damage and release asbestos fibers from building materials, as can mechanical crushing and processing at C&D processing facilities. The degree to which asbestos-containing materials will release fibers is related to its **friability**. Certain asbestos-containing materials present a high risk for release of asbestos fibers. These are highly friable materials, and consist of:

- Thermal system insulation: insulation applied to pipes fittings, boilers, tanks and ducts, other than fiberglass.
- Surfacing materials: spray-on or towel-applied acoustical plaster, fire insulation, and 'popcorn' ceiling texture.
- Linoleum flooring that contains a fibrous backing material.

Materials such as joint compound, floor tiles and asbestos siding are less friable. However, asbestos-containing materials can become airborne during demolition activities and mechanical processing in a C&D facility. Exceptions may include some mastics (glues) and roofing tar, which generally remain non-friable when demolished provided the material is not rendered friable by the forces expected to act on the material during demolition /or processing.

Chronic asbestos exposure can lead to a lung disease termed **asbestosis**, scarring of the membranes around the lung, pulmonary hypertension, immunological effects, lung and other cancers. Symptoms of disease do not show up until many years after exposure began.

Because demolition and renovation projects involving asbestos are likely to put people at risk of exposure, both the Puget Sound Clean Air Agency and the Department of Labor and Industries (L&I) require that a survey of asbestos-containing material be conducted by a licensed inspector (AHERA). If a renovation or demolition project involves removal or damage of asbestos materials L&I and the Puget Sound Clean Air Agency (PSCAA) require notification and abatement by a licensed asbestos contractor. Further, all demolition projects require submission of a notification to PSCAA even if no asbestos is present. Finally, asbestos waste must be disposed of only at an authorized asbestos disposal facility.

Improper handling and disposal of asbestos can result in **significant fines**, and in instances of serious or knowing violations, can result in **criminal prosecution**. When regulations are properly followed, asbestos materials should not arrive at C&D processing facilities. However, if the regulations are not followed, violations will occur, particularly on residential remodel projects where owners and contractors tend to be less educated on the regulations. Therefore, C&D facilities need to implement best management practices to prevent, identify and control asbestos containing materials. The recommended controls in this guide are based on current technologies and practices that are believed to be cost-effective to implement and adequately protective of worker health in minimizing potential exposure to airborne asbestos fibers.

II. Waste Acceptance Procedures

Asbestos controls should be incorporated into the facility's overall Waste Acceptance Plan and Operations Plan, as appropriate. The following subsections include recommended elements that should be included as part of these plans to prevent and control asbestos hazards.

a. Acceptance Procedures and Documentation

The type of documentation that should be required varies by the type of construction activity, as follows:

i. Demolition Projects

Puget Sound Clean Air Agency (PSCAA) regulations require that all demolition projects (including residential) submit a demolition notice to the Agency using its web site at www.pscleanair.org. All demolition projects should provide a copy of the demolition notification printout, AHERA survey, and a copy of the clearance letter if asbestos was noted in the notification printout. The paperwork must match the address of the jobsite. There is no exception to the requirement for a PSCAA notification, so there should be no reason why this documentation cannot be readily provided to the C&D facility. There should be no exceptions.

ii. Renovation Projects

For renovation projects, it can be more difficult to document that the load is asbestos-free. Few residential renovations include an asbestos AHERA survey. Surveys are required for renovations when suspect asbestos containing materials, such as surfacing material, thermal insulation, roofing material (excluding asphalt shingles), flooring material and cement products are in the work area. If these types of products are visible in a load, a survey would have been required. While compliance in commercial buildings is better, it may be difficult to match up the debris with the survey. For example, floor tiles on one floor could contain asbestos and on other floors be asbestos-free. The best way to ensure a load is clean is if the building owner can provide an AHERA asbestos survey matching the building address where the materials originated, showing that materials tested asbestos-free throughout the structure. Otherwise, the building owner should be able to provide a recent asbestos clearance report matching the building address where the materials originated. These documentation procedures should be incorporated into customer contracts. Documentation should also be requested for smaller jobs, but in practice may not be always available. In such cases it is important to implement 100% visual load checking procedures, as discussed under Section C, Visual Monitoring.

iii. New Construction

Friable asbestos materials have been banned in most new construction. If asbestos materials are present, they most likely would be in a form that prevents release of airborne fibers, such as roofing sealant. Therefore, the need to implement documentation procedures for loads containing only newer building materials is discretionary.

b. Signage

A summary of the materials that are banned from the facility, including asbestos, should be posted at the entrance to the facility.

c. Visual Monitoring

Because of the difficulty in documenting asbestos materials in smaller renovation projects, each incoming load from a renovation project where documents are not available should be visually inspected for suspect asbestos containing materials. Particular emphasis should be given to thermal system insulation, and surfacing materials, and vinyl flooring, as discussed in the introduction section. In addition, even when documentation is provided, loads should be randomly inspected to ensure compliance with regulations and facility acceptance rules. This would include inspection for other items that are not accepted by the facility, such as hazardous wastes.

Loads subject to inspection should be untarped at the incoming scale station so that the contents can be examined. Mirrors or surveillance cameras can be positioned above the height of the trailers to facilitate inspection.

If suspect materials are noted and the driver cannot provide adequate documentation as described above the load should be refused and turned away.

Asbestos-containing materials may still be hidden within a load and cannot always be identified during initial load screening. It is therefore important that the operators in the unloading area conduct initial visual inspections of the materials before loading into the processing equipment. If undocumented suspect asbestos-containing materials are identified at this point the facility should immediately implement containment and control measures discussed below.

d. Handling Suspect Loads

Suspect materials should not be moved until tested or otherwise confirmed to be asbestos-free. Traffic cones and hazard tape should be erected around the suspect load. Next, the load should be wetted and covered with a tarp. An employee or contractor trained in proper sampling and personal protection procedures should be used to sample the contents. A minimum of three samples is recommended for each type of suspect asbestos material. Samples should be sent to a laboratory accredited by the

National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis.

If the materials are found to contain asbestos, a contractor licensed by the State of Washington to perform asbestos abatement must be used to remove and dispose of the asbestos-containing materials and any comingled debris that may be contaminated with asbestos fibers.

e. Employee Training

All employees who work the incoming scales/acceptance area and the unloading areas should, at a minimum, be trained to the 'Awareness' level, per WISHA regulations. Per WISHA, this training shall, at a minimum, include health effects of asbestos, types of asbestos-containing materials found in building materials, visual identification of these materials, and proper response when materials are identified. The training should be customized for C&D facilities to include identification of asbestos materials that may be found in demolition loads and procedures to control release of asbestos fibers from suspect materials.

The facility should consider having at least one employee trained in the proper sampling of suspect asbestos materials. This training should include sampling protocol and personal protective equipment requirements. Accreditation as a building inspector under the Asbestos Hazard Emergency Response Act (AHERA) may be substituted if a more customized training is not available. Contact an Industrial Hygiene consulting firm for information on training classes.

f. Facility Engineering controls

Facilities should be designed to minimize employee exposure to dust. This will help prevent adverse health effects from both 'nuisance' and hazardous types of dust, including asbestos. Misters should be located in the unloading areas and other locations prone to dust emissions.

Equipment used to crush or grind C&D should be ventilated using local exhaust ventilation. The ventilation system should be designed by a professional experienced in industrial ventilation. Where feasible, employee work

stations should be located away from areas where dust emissions may occur.

The transfer of fines can also generate significant amounts of dust. Enclosing conveyor belts, providing local exhaust ventilation and minimizing the open area of the containers used to collect fines can help to reduce dust emissions.

Ventilated cabs with dust filtration should be provided on excavators, backhoes and other heavy equipment. Finally, the general workspace should be supplied with sufficient ventilation or open sides to prevent buildup of dusts in the work environment.

g. References

Authorized Asbestos Disposal Facilities

<http://www.pscleanair.org/regulated/asbestos/disposal.aspx>

Puget Sound Clean Air Agency. *Asbestos & Demolition*,

<http://www.pscleanair.org/regulated/asbestos/default.aspx>.

Washington State Department of Labor & Industries. *Asbestos Regulations*

http://www.lni.wa.gov/WISHA/Rules/generaloccupationalhealth/HTML/62I-1_1.htm

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<http://www.lni.wa.gov/WISHA/hazalerts/AsbestosAndCarpetNov2008.pdf>

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Approved Asbestos Training Course Sponsors,

<http://www.lni.wa.gov/wisha/p-ts/Asbestos/AsbestosCourseSponsors.pdf>

Washington State Department of Labor & Industries,
Industrial Ventilation Guidelines,

<http://www.lni.wa.gov/Safety/Topics/AtoZ/Ventilation/default.asp>

Washington State Department of Ecology, *State Asbestos Regulations and Guidance*,

www.ecy.wa.gov/programs/hwtr/.../pages2/asbregsstate.html

National Institute of Standards and Technology, List of NVLAP accredited asbestos analytical laboratories

<http://ts.nist.gov/standards/scopes/plmtm.htm>