

# **ALTERNATIVE ASBESTOS CONTROL METHOD**

**Developed by EPA Region 6 and EPA  
Office of Research and Development (ORD)**

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## **Background**

In response to Section 112 of the Clean Air Act which requires EPA to develop emission standards for hazardous air pollutants, EPA promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP). 40 CFR Part 61 Subpart M (Asbestos NESHAP) specifically addresses asbestos, including demolition activities.

Asbestos NESHAP regulations require that all regulated asbestos-containing materials (RACM) above a specified amount be removed from structures prior to demolition. Asbestos-containing materials (ACM) are defined as those materials containing more than one-percent asbestos as determined using the method specified in Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM). RACM includes friable ACM, Category I non-friable ACM that have become friable, Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, and Category II non-friable ACM that have a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected during demolition operations. Asbestos removal can account for a significant portion of the total demolition costs. In many cities, the cost of asbestos removal prohibits timely demolitions and results in substandard structures which become fire and safety hazards, attract criminal activity, and lower property values.

For structures that are structurally unsound and in imminent danger of collapse, the Asbestos NESHAP requires that the portion of the structure which contains RACM must be kept adequately wet during demolition and during handling and loading of debris for transport to a disposal site. No other engineering controls are required.

This Alternative Asbestos Control Method was developed by EPA as an alternative work practice to the Asbestos NESHAP, where certain RACM are removed prior to demolition and other RACM are left in place. The goal is to provide significant cost savings while achieving an equal or better standard of protection of human health and the environment. This method is much more restrictive than the Asbestos NESHAP requirements for buildings in imminent danger of collapse.

## **Applicability**

This Alternative Asbestos Control Method applies to any structure subject to the Asbestos NESHAP regulation (i.e., structures that meet the definition of facility under the Asbestos NESHAP), except as noted below.

The size of structures which can be demolished using this method is limited to three stories or less (maximum height of 35 feet). This allows adequate wetting of both the interior and exterior of the structures and is within the working reach of both the wetting and the demolition equipment.

## **Building Inspection /Asbestos Assessment**

A comprehensive inspection of the interiors and exteriors of structures to be demolished shall be conducted in accordance with EPA's Asbestos Hazard Emergency Response Act (AHERA, 40 CFR Part 763). Specific criteria for inspection, sampling, and assessment are in Subpart E (763.85, 763.86, and 763.88, respectively). The inspection shall be performed by an accredited asbestos building inspector.

## **Asbestos Removal**

Table A-1 summarizes the ACM that may be present in buildings and whether or not the ACM must be removed prior to demolition.

All TSI and spray-applied fireproofing shall be removed due to the inability to adequately wet these materials during demolition. Fire curtains may be removed if it is easier to do so than to adequately wet and handle this heavy material.

Vermiculite insulation, if present, shall be removed prior to demolition as an RACM, regardless of the measured asbestos concentration.

All asbestos removal operations shall be performed in accordance with state and federal law by a licensed asbestos abatement contractor.

**Table A-1. Asbestos Removal Requirements**

Asbestos-Containing Material	Removed Prior to Demolition?
<p><b><i>Thermal System Insulation (TSI)</i></b></p> <ul style="list-style-type: none"> <li>▪ tank insulation</li> <li>▪ pipe insulation</li> <li>▪ elbow/fitting/valve insulation</li> <li>▪ boiler insulation</li> <li>▪ duct insulation</li> <li>▪ cement and patching compound</li> </ul>	<p>Yes Yes Yes Yes Yes Yes</p>
<p><b><i>Surfacing Material</i></b></p> <ul style="list-style-type: none"> <li>▪ mastic for flooring</li> <li>▪ asbestos-impregnated plaster, stucco</li> <li>▪ spray-applied fireproofing</li> <li>▪ spray-applied surface coatings (popcorn ceiling, vermiculite treatments)</li> <li>▪ spray applied acoustical or decorative surfacing.</li> <li>▪ troweled-on crows foot texture, splatter texture, and joint compound.</li> <li>▪ spray-applied surface coatings crows foot texture, splatter texture, etc.</li> <li>▪ window caulking</li> </ul>	<p>No No Yes No No No No No</p>
<p><b><i>Miscellaneous Material</i></b></p> <ul style="list-style-type: none"> <li>• fire curtains in auditoriums</li> <li>• fire doors</li> <li>• vibration-dampening cloths</li> <li>• asbestos-cement tiles, sheets, roofing shingles, and transite</li> <li>• asbestos-impregnated roofing cement and asphalt roofing</li> <li>• shingles</li> <li>• linoleum or other floor tile</li> <li>• roll flooring</li> <li>• ceiling tile</li> <li>• asbestos-impregnated pipe</li> <li>• vermiculite insulation</li> </ul>	<p>Optional Optional No No No No No No No No No Yes</p>

## **Demolition Practices**

Several demolition work practice standards shall be employed to ensure that the method is protective of human health and the environment. These standards involve the equipment used, the wetting process, the demolition process, and visible emissions. Demolition contractors shall provide an Asbestos NESHAP-trained individual to oversee the demolition process.

### Equipment Used

Track hoes and end loaders or equivalent shall be used during demolition to minimize the generation of dust. No bulldozers, explosives, or burning will be permitted.

### Wetting Process

Structures to be demolished will be thoroughly and adequately wetted with amended water (water to which surfactant chemicals have been added) prior to demolition, during demolition, and during debris handling and loading. Surfactants reduce the surface tension of the water, increasing its ability to penetrate the ACM.

For this method, the Asbestos NESHAP definition for “adequately wet” will be used. That is, “sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from the asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emission is not sufficient evidence of being adequately wet.” The demolition contractor’s Asbestos NESHAP-trained individual will verify that ACM are adequately wetted.

Amended water shall be applied with a minimum of two hoses. The water shall be delivered as a mist. Direct high-pressure water impact of RACM is prohibited.

The wetting process consists of three stages. In each stage, both interior and exterior wetting of the structure shall be performed. To the extent feasible, cavity areas and interstitial wall spaces shall be wetted during each of the wetting stages. On the day before the demolition, access openings shall be made into the attic spaces from the exterior. The structure shall be first pre-wet (until adequately wet) from the interior and then from the constructed exterior attic access openings to enhance water retention and maximize wetting effectiveness. This pre-wetting shall prohibit further access into the structure, because of safety concerns. The structure shall be re-wet (until adequately wet) from the exterior through the windows, doors, and attic access openings on the day of demolition prior to demolition. Finally, wetting (until adequately wet) shall be done during the demolition and during loading of debris into lined disposal containers.

## Demolition Process

The demolition contractor shall minimize breakage of asbestos-containing materials. All demolition shall be completed in a timely manner that will allow the debris generated during that day to be completely removed from the demolition site for disposal.

## Visible Emissions

The Asbestos NESHAP standard of “no visible emissions” shall be employed. Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing material. This does not include condensed, uncombined water vapor. The demolition contractor’s NESHAP-trained individual shall verify the absence of visible emissions and has the authority to stop work if visible emissions are observed. During a demolition, it is often not possible to distinguish visible emissions from ACM and those from construction debris; therefore, should a visible emission be observed, the demolition effort shall pause until the deficiencies in the application of the wetting controls eliminate the visible emission.

## **Weather Restrictions**

Demolition activities shall be delayed/halted in the case of any inclement weather that will impede the demolition contractor’s ability to adequately wet the structure (e.g., freezing temperatures).

In addition, if visible dusting is observed in the vicinity of the demolition site, the demolition shall be delayed/halted.

## **Monitoring Requirements**

Demolition contractors are required to comply with all applicable OSHA (29 CFR 1926) regulations for worker protection during asbestos removal and demolition activities. This includes the use of personal protective equipment (PPE) such as Tyvek suits or equivalent, respirators (as necessary), and gloves (as necessary); and personal monitoring.

Because, like the Asbestos NESHAP, this method is designed to be a work practice standard, monitoring of air (other than that mandated by OSHA statute), soil, and other media is not required.

## **Waste Handling**

Several wastes are generated during demolition activities, including demolition debris, disposable PPE, and potentially contaminated water and soil, and must be properly disposed. All wastes generated must be removed from the site at the end of the day and transported to an appropriate disposal facility. Transport and disposal shall be in accordance with all federal, state, and local requirements. All waste haulers shall be leak-proof. Double-lining of the haulers with 4-mil or thicker polyethylene film and then sealing the top seams of the film is a suggested

mechanism, but the contractor must do what is required to prevent leaks from the transport vehicles. Vehicles shall be decontaminated within the bermed area before leaving the demolition area.

### Demolition Debris

Segregation of portions of a structure that may contain RACM from portions of a structure that clearly do not contain RACM shall be done when practical in an effort to minimize RACM debris. For example, segregation may be used if a large warehouse is being demolished and only a small portion (e.g., office space) contains RACM.

When segregation is not practical, all demolition debris shall be disposed as RACM in a licensed asbestos disposal facility. Debris shall be kept adequately wet during loading into containers. Containers shall be covered during transport.

### PPE

All disposable PPE shall be disposed as RACM.

### Potentially Contaminated Water and Impervious Surfaces

No potentially contaminated water runoff is permitted from the site during the demolition period. All impervious surfaces will be thoroughly washed with amended water before site closure. Construction site best management practices shall be used to prevent water runoff. Drains and sewer connections must be capped or plugged prior to wetting. Berms must be created as necessary to prevent runoff of water from the demolition site. The berm must be sufficiently spaced from the building to permit the movement of the demolition equipment and to allow the truck loading to occur within the enclosed space. If large water volume use or impermeable conditions surrounding the building create excessive water volume and simple containment and percolation is not feasible, the water must be pumped and either disposed as ACM or filtered through a series of filters ultimately removing all fibers equal to or larger than five microns before discharge to the neighboring environment.

### Potentially Contaminated Soil

Following the removal of demolition debris, bare soil within the bermed area shall be excavated to a minimum depth of two inches or until no debris is found. Berms created shall also be removed and disposed as potentially asbestos-contaminated. All removed soil shall be disposed as RACM.

### **Site Closure**

Following demolition and waste disposal, all waste and debris must be gone from the site and the site must be secured so as not to create a safety hazard.