

**U.S. Department of the Interior
Safety & Health Guidance Document**

**Vermiculite Attic Insulation in Older Buildings
Guidance Document, OHS FY04 - 01**



Scope: The following information affects Bureaus with residents in government housing units containing vermiculite as attic insulation, facility maintenance employees performing work which may disturb vermiculite material in residential or other type of DOI facility, and employees working with vermiculite in greenhouses.

Issues: As a result of asbestos exposures found from vermiculite mining activities in Libby Montana, the Environmental Protection Agency (EPA) initiated a pilot study to estimate asbestos exposures from vermiculite in attic insulation commonly sold under the brand name Zonolite. The initial results confirm the position that the insulation material does not present a health risk as long as it's not disturbed. Various activities were evaluated such as performing wiring and small renovations in an attics containing vermiculite insulation, using an attic containing vermiculite insulation as a storage space, and living in a house where the vermiculite insulation in the attic was disturbed. The results of the pilot study show that disturbance of vermiculite attic insulation resulted in the release of asbestos fibers -- the more aggressive the disturbance, the more fibers detected. Conclusions of the study include the following:

- Disturbed vermiculite attic insulation can create a potential asbestos exposure risk.
- Bulk samples of vermiculite attic insulation that tested negative for asbestos contamination (or less than 1% asbestos) are not reliable for determining whether there are asbestos fibers elsewhere in the attic or whether a disturbance of the material would result in the release of asbestos fibers above exposure limits.
- Additional studies are needed to better understand any potential risks from asbestos contaminated vermiculite attic insulation and to develop more accurate analytical testing procedures.

The principal areas of concern within DOI are determining if the potential hazard exists, informing residents of the possible hazard, and not disturbing the vermiculite attic insulation. Employees that may be affected include:

- Residents in housing where vermiculite is present.
- Facility maintenance employees who may come across vermiculite either in residential buildings or in any other DOI structure.
- Horticulture employees who may work with vermiculite in bulk.

General Recommendations:

1. Consider taking inventory of existing facilities to determine the presence of vermiculite materials.

2. Include vermiculite in your facilities Asbestos Operations and Maintenance Plans. Like other forms of asbestos, it does not present a hazard unless it is disturbed; therefore, it can be managed in place. If removal is necessary, it must be performed following the OSHA requirements.

Recommendations for Facilities with Vermiculite Insulation Material:

1. Treat all vermiculite insulation material as being contaminated with asbestos, unless it can be documented as not coming from the Libby MT mine.
2. Do not disturb the vermiculite insulation material.
3. Inform residents of the presence of vermiculite and the possibility of asbestos contamination using the EPA fact sheet or similar handout. Reference: <http://www.epa.gov/asbestos/insulationbrochure2.pdf>
4. Consider engineering control measures such as sealing holes or areas where vermiculite can fall into occupied spaces, and prohibit the use of items that would disturb the vermiculite such as "whole-house" ventilation fans.
5. Inform contractors who may work around the vermiculite.
6. Post signs warning of the potential for asbestos in areas where vermiculite may be directly accessed.
7. If contact with vermiculite material cannot be avoided, consult with your local or regional safety and health manager to :
 - (a) evaluate the work being performed;
 - (b) develop work practices to minimize dust generation, (e.g. use wet methods by dampening area with water mist prior to work);
 - (c) train and educate employee(s);
 - (d) wear appropriate personal protective equipment (*will be dependent on the task, but in most cases which involve disturbing the insulation such as crawling through the material and clearing it from a wiring box, or a ventilation duct, etc would require n-100 negative pressure respirators, tyvec coveralls with hood and shoe covers. According to the exposure levels found in the study, this level of protection is necessary. Consult with your local or regional safety and health manager for PPE selection.*);
 - (e) ensure proper doffing, cleaning and disposal of PPE; and
 - (f) HEPA vacuum or clean (using wet methods) the area of donning and doffing PPE.

Recommendations for Using Vermiculite Material in Horticulture Work:

1. Use vermiculite alternatives, such as:
 - (a) soil additives other than vermiculite, including peat, sawdust, perlite, and bark (recognizing that soil and other soil additives may have their own safety risks that must be guarded against, such as allergens [e.g., sawdust, bark] and infectious agents [e.g., Clostridium botulinum, Clostridium tetani]); and
 - (b) premixed soils (which ordinarily contain more moisture and less vermiculite than pure vermiculite products, and are less likely to generate respirable dusts;
2. If vermiculite is used, it should be used only outdoors or in well-ventilated areas.
3. When possible, keep vermiculite and vermiculite-containing soils damp during use to avoid the production of dust.

4. Use a properly-fitted respirator with an n-100 filter when working with vermiculite if dust cannot be controlled;
5. Take measures to avoid bringing dust home on clothing, exposing family members and other personnel (e.g., use disposable coveralls; etc.)
6. Have Industrial Hygienists conduct assessments to look at working conditions, work practices, and potential types and levels of exposures.
7. Provide information to employees regarding the chance of asbestos contamination in the vermiculite, ways to limit their exposure, situations increasing the risk of exposure, and health risks of such exposures.

Consult OSHA asbestos standards for general industry and construction when work involves vermiculite presumed to be contaminated with asbestos.

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