WOHRC FACT SHEET

WOMEN"S OCCUPATIONAL HEALTH RESOURCE CENTER

ASBESTOS: What to Do; When to Act

Asbestos is an example of a good commercial material with bad health implications. Although some 5 million tons of asbestos are produced annually, and there are an estimated 3,000 ways to use it—asbestos is used in roofing and flooring products; reinforcing material in cement; pipes, sheets and coating materials; friction products, fireproofing textiles and thermal and acoustical insulations—a great body of research has shown that asbestos fibers can cause cancer and debilitating lung diseases. Historically, the danger to workers with high levels of exposure was the first to be defined. Today we know that long-term, low-level exposure presents a real hazard to other workers, particularly cigarette smokers. And, risk to the public is a growing concern.

Although the asbestos problem calls for attention, knowing when to act and just what to do is essential. Dealing with asbestos can be both dangerous and expensive. Fortunately, there are step-by-step ways to proceed.

Asbestos is a generic term covering a wide variety of naturally-occurring mineral silicates which are separable into fibers. The fibers of commercially valuable asbestos are nonflammable, strong, fairly resistent to chemicals, and have thermal and electrical insulating properties. Given these attributes, it's no surprise that the U.S. uses some 900,000 tons of asbestos annually, mostly in the construction industry.

But asbestos fibers have other properties as well—because of their fibrous form, small size and resistence to degradation, they can remain suspended invisibly in the air we breathe for long periods of time, posing a serious health hazard.

Asbestos fibers can be released into the air during mining, milling and processing. For commercial use, asbestos fibers are generally mixed with other materials. These mixtures are often friable, which means that they can be easily crumbled or damaged, releasing fibers into the air as the material ages or is disturbed. Friable asbestos material presents a hazard during installation and in the surrounding area thereafter. Even if asbestos fibers have settled, they can re-circulate if they are disturbed for example, by a janitor dusting or sweeping.

Last November, OSHA issued an Emergency Temporary Standard lowering the existing permissible exposure level by 75% to 0.5 fibers/cc. Also, EPA has ordered all schools to inspect their buildings for asbestos and report their findings to employees and parents.

The possibility of asbestos contamination is literally everywhere in our surroundings. To best address the problem, it is necessary to (1) assess whether or not

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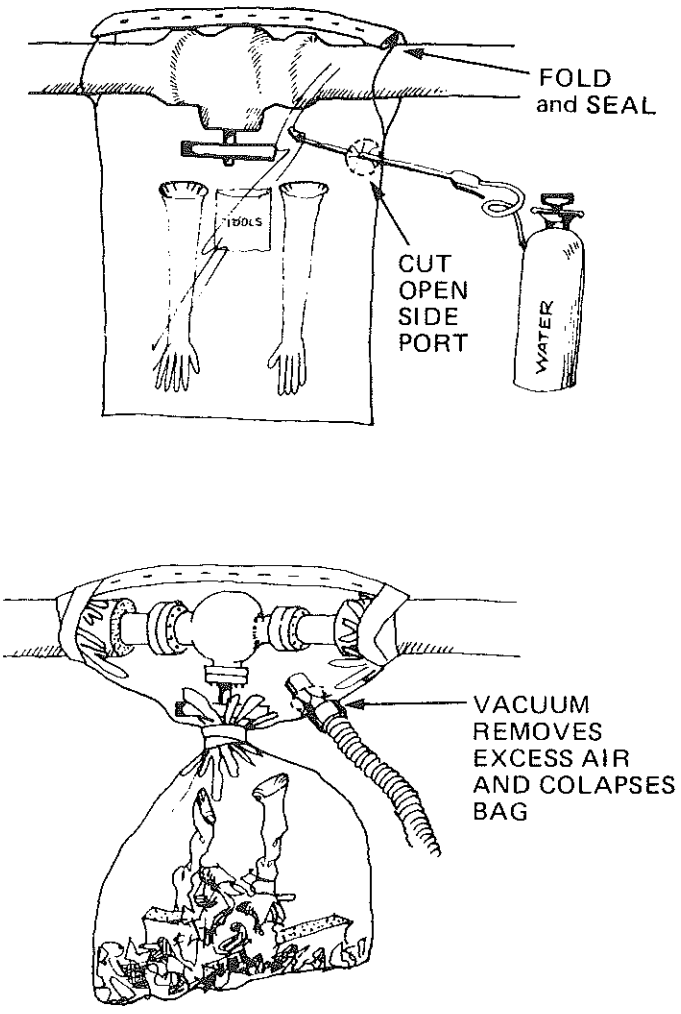

Asbestos Control Technology

The "Profo Bag," designed for encapsulated removal of asbestos pipe covering, is an example of the many commercial products available to make asbestos control easier and safer.

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it exists and the extent of exposure and (2) to decide the most effective, safest and economically feasible way to correct the situation.

Assessment should be done in this order: inspection; sampling; analysis, exposure analysis.

Assessing the Problem

• **Inspection**—Asbestos was used in cement products, plaster, fireproof textiles, thermal and accoustical insulation, wall or ceiling decoration.

Friable materials are usually found on overhead surfaces, steel beams, ceilings and occasionally on walls and pipes. As soft or loosely bound asbestos material ages or is damaged, asbestos fibers are likely to be released. It is therefore most productive to inspect areas where water damage might occur, such as ceilings; areas where there is a lot of maintenance activity or other activity such as ball throwing in a gymnasium where direct contact can occur; areas where vandalism —scraping or gouging walls—has occurred; areas where vibration from sources within or without the building might loosen softly-bound asbestos.

• **Sampling**—Friable material should always be sampled and this can be done fairly simply. Sampling should be done when the area in question is not in use with as few people around as possible. Sampling can be done by using a dry clean container such as a film canister or a small wide-mouth jar to gently bore into the material with a twisting motion. The jar should be tightly sealed and labelled. It should always be held away from the face. The area being sampled can be misted with water to prevent fiber release. If any material breaks off and falls on the floor, wet mop. These "bulk samples" should be taken for about every 5,000 feet of material of the same color and texture. If many samples are to be taken, a NIOSH approved respirator should be worn. The air in a suspect area can also be sampled by means of a special pump. However this does not reveal the source of the fibers.

• **Analysis**—The State Asbestos Program Agency or the EPA Regional Asbestos Coordinator should be contacted for their assistance and advice in finding a laboratory competent in bulk sample analysis. The laboratory should be able to do polarized light microscopy and x-ray diffraction, if necessary, and to provide a complete report.

• **Exposure Assessment**—If the lab does confirm the presence of asbestos, the degree of exposure can be assessed by checking the following factors: condition of the friable material; how big an area is of concern; the possibility of water damage; how much the area is used and the likelihood of damage; how friable the bound material is and if it is exposed. Friable asbestos in a direct air stream or air plenum may or may not represent a danger depending on the potential for human contact.

Controlling Exposure

If there is no evidence of asbestos in the air, no action save for follow-up inspection is necessary. If action must be taken, temporary safeguards such as: substituting wet cleaning methods for dry ones (e.g. mopping instead of dusting); re-scheduling to reduce bystander or building user exposure, and filtered respirators for maintenance workers should be employed.

Depending on many factors—the characteristics of the material; structure use and configuration; user activity; cost—asbestos control can be achieved in two ways: (1) Containment or (2) Removal.

Containment

It is possible to isolate friable asbestos material to reduce or prevent fiber release by either enclosing or encapsulating it.

Enclosure places a barrier such as a suspended ceiling or attached lath system between the friable asbestos and the surrounding area. Fiber fallout continues but it occurs behind the barrier. While it can reduce exposure, this method has some drawbacks: long-term effectiveness is uncertain and continued air monitoring is necessary.

Friable asbestos can also be contained by the application of a sealant to envelope or coat the fiber matrix to eliminate fallout and protect against contact damage. For example, latex paint can be sprayed over the area. While sealants can be highly effective, they are not a total solution. They must be carefully chosen and a sealed-off surface is not forever immune to damage. Also, the fiber release problem will reappear when renovation or demolition must be done.

Removal

Sometimes building characteristics, the inability to eliminate exposure or questions about the health impact of any continued exposure may point to only one solution: removal. The EPA has many regulations about asbestos stripping and removal. Dry removal of untreated friable asbestos material is not recommended. Specific EPA approval is required if it must be used because workers, the rest of the structure and the surrounding community can be affected. The construction of barriers and rapid vacuum techniques are employed in dry removal.

Friable materials can more safely be dealt with using a "wet" technique. Water makes the material less friable. The release of fibers is lessened and the fibers that are released into the air will fall rapidly making their removal easier. Plain water is not an ideal substance to use in removal because it tends to penetrate slowly and incompletely and to cause a runoff which can carry fibers to other areas, fibers that can re-enter the air following evaporation. For this reason a "wetting" agent or surfacant is used which greatly reduces the amount of water needed for saturation and results in a better job. While wet removal reduces the asbestos exposure level by 75%, "wet" water reduces the exposure level by 90% as compared to dry removal.

Asbestos control is a complicated job but one made easier by the kind of step-by-step approach that we have outlined, the use of EPA guidelines, and the variety of commercial services and protective devices and tools available. □

This fact sheet reflects information in EPA Guidance Document #450, "Asbestos-Containing Materials in School Buildings" and Document #560, "Guidance for Controlling Friable Asbestos-Containing Material in Buildings."

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