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Asbestos In The Building

Facility managers can protect occupant health by requiring proper management of this material.

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Asbestos remains a major concern for facility managers responsible for the safety and health of those who work in and around their buildings. While security and emergency preparedness issues have taken center stage, asbestos has received increased media coverage as a result of the push by Congress to enact legal reforms involving asbestos class action lawsuits ("Fairness in Asbestos Injury Resolution Act of 2005," Congressional Record, February 7, 2005, page S1009; Senate Bill 852).

As a result, facility managers should consider the implementation of an asbestos management program. The principal objective would be to minimize the potential for exposure of all facility occupants to asbestos fibers.

The Risks Of Asbestos

The primary health hazard associated with asbestos is breathing harmful dust. The routes of exposure are limited to inhalation or ingestion of fibers. The diseases linked with exposure are: asbestosis (or the scarring of the lung tissue); lung cancer; mesothelioma (cancer of the lining of the lungs or abdomen); and pleural plaques (calcification on the lining of the lungs).

The health risks of breathing asbestos in high amounts are clear. What is less certain is the relationship between the amount breathed and the resulting disease. There is no evidence to support the belief that there is a threshold level below which there are no adverse effects.



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A recent report from the National Institute for Occupational Safety and Health (NIOSH) showed that asbestosis deaths increased from fewer than 100 in 1968 to more than 1,250 in 1999, with no apparent leveling off of this trend (Work-Related Lung Disease Surveillance Report, 2002). The same report documented nearly 2,500 deaths from mesothelioma in 1999.

Moreover, the construction trades had the highest number of asbestosis and mesothelioma deaths. An effective asbestos management program is needed to protect facility occupants, custodial and maintenance personnel, and service contractors.

Regulatory Requirements

Contrary to popular belief, asbestos is not banned and can still be found in many construction and facility related products. According to the U.S. Geological Surveys' Mineral Commodity Summary for Asbestos, consumption in the U.S. during 2004 was estimated to be 3,000 metric tons, with 60% for roofing products, 25% for coatings and compounds, and 15% for other applications. When purchasing building materials or equipment for use in maintenance or renovation activities, facility managers should specify asbestos-free materials, and they should request manufacturer's certifications, or material safety data sheets (MSDS).

Furthermore, there are several federal regulations that affect operations and maintenance (O&M) programs. State and local regulations, which may be more stringent than the federal regulations, may also apply.

Federal regulations include:

- Occupational Safety and Health Administration's (OSHA) asbestos general industry, construction, and shipyard standards (29CFR1910.1001, 1926.1101, 1915.1001);
- OSHA's personal protective equipment, respiratory protection, and hazard communication standards (29CFR1910.132, 1910.134, 1910.1200);
- Department of Transportation's hazardous waste transportation standards (49CFR 171,172);
- EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP, 40CFR61 Subpart M);
- EPA's Asbestos Hazard Emergency Response Act (AHERA, 40CFR763 Subpart E) and Asbestos School Hazard Abatement Reauthorization Act (ASHARA, 40 CFR763 Subpart E, Appendix C);
- EPA's Asbestos Worker Protection Rule, which extends the OSHA standards to state and local employees who perform asbestos work and who are not covered by the OSHA Asbestos Standards, or by a state OSHA plan (40CFR763 Subpart G); and
- EPA's Asbestos Ban and Phase-out Rule (40CFR763 Subpart I).

Elements Of An Asbestos Management Program

There are two main elements of an effective asbestos management program: a baseline asbestos survey and risk assessment and an O&M program. A baseline asbestos survey is necessary in order to locate and assess the condition of asbestos containing materials (ACM) throughout the facility.

The survey should be conducted in accordance with the recently published ASTM International Standard E2356-Standard Practice for Comprehensive



Building Asbestos Surveys. The results of the survey and risk assessment will serve as the basis for an overall plan to mitigate potentially hazardous concerns effectively and to address the long-term management of ACM in place.



An O&M program is designed to minimize exposure to ACM by providing facility-specific policies and procedures to address these concerns. The O&M program provides work practices to maintain the ACM in good condition, to ensure the proper cleanup of asbestos fibers from damaged materials, to prevent further release of asbestos fibers, and to monitor the condition of ACM. The O&M program remains in effect until all ACM are removed from the building.

A successful O&M program should include, but not be limited to, the following elements:

- **Notification of employees and contractors.** Employees and contractors must be informed where asbestos is located, how to avoid damaging ACM, and who to notify if ACM are found.
- **Training.** The program development team and maintenance, design, and custodial workers should receive asbestos training.
- **Worker protection.** Employees and contractors exposed to asbestos must participate in medical and respiratory protection programs.
- **Work permit system.** Management must design a system to control work activities that could possibly disturb ACM.
- **Asbestos work practices.** O&M procedures are developed to avoid or minimize the release of asbestos during work activities that affect the ACM.
- **Periodic surveillance.** Regular inspections must be conducted to document any changes in the condition of ACM.
- **Record keeping.** Records must be kept to document all aspects of the asbestos management program.

One of the best methods for developing policies and programs to address asbestos is to establish a program development team. This team is ideally composed of maintenance, engineering, custodial, health and safety, industrial hygiene, and management personnel. The team is responsible for formulating and implementing the written program and revising the program as changes in the operating environment occur.

Some facilities may need to bring in outside consulting firms to supplement and support the program development team. It is important to select firms that have asbestos-specific training. Licensed Professional Engineers, Certified Industrial Hygienists, or Certified Safety Professionals are preferred.

The Human Element

The following human resource-related practices should be observed when dealing with asbestos issues in a facility.

Notification of Employees and Contractors. Employees and contractors must be notified as to the location and physical condition of asbestos, emphasizing the need to avoid disturbing the materials. Individuals informed of the potential hazards in their workplace will be less likely to disturb or damage the materials unknowingly.

The notification process can occur through several methods, depending on the number of people affected. Written notices can be distributed, postings or signs can be placed in central locations, and meetings can be held to present the information.

The information presented should include the following aspects of the ACM presence:

- Asbestos has been identified in areas where the materials could be disturbed or damaged.
- Asbestos is a health hazard only when inhaled or ingested. The fact that asbestos is present does not represent a health hazard.
- The physical condition of the materials is described along with the response actions required to address the materials.
- The exact location of the asbestos within the plant or facility is included.
- Employees and contractors must be cautioned not to disturb or damage ACM.
- Any evidence of disturbance or damage must be reported to the facility manager. The facility manager's name, location, and phone number should be provided on the notification.
- Custodial and maintenance personnel must take special precautions to clean up any debris and to protect against disturbing ACM.
- All ACM are periodically inspected. Additional precautions and protective measures will be employed to protect employees and contractors, if needed.

In addition to notifying employees and contractors, all identified and assumed ACM in the building must be labeled with warning signs. Specifically worded warning signs can be directly attached to the materials and can also be placed at the entrances to areas where ACM are prevalent.

Training. The key to a successful O&M program is training. Prior to the development of the asbestos management program, the facility manager and the program development team members will require asbestos training themselves. Once the management program has been developed and implemented, custodians and maintenance personnel will require training in order to perform cleaning, general maintenance, and emergency response repair tasks safely.

It is important to point out that OSHA and EPA require worker training programs for employees who deal with—or have the potential to disturb—ACM. Some states and localities may also have specific training requirements.

Worker Protection. A worker protection program includes medical surveillance, personal protection in the form of respirators and protective clothing, personal exposure monitoring, and engineering controls. OSHA regulations require medical surveillance and a written respiratory protection program whenever workers are required to wear respirators or where respirators are made available for use.

In addition, OSHA regulations require medical surveillance and a respirator program whenever workers are exposed, or likely to be exposed, to concentrations above the Permissible Exposure Limit (PEL, 0.1 fibers/cubic centimeter of air, on an eight hour time weighted average). OSHA regulations also require the use of protective clothing in the form of disposable coveralls, a head cover, foot covers, and gloves.

Work Permit System. The O&M program should include a system designed to control any and all work activities that could potentially disturb ACM. The facility manager can evaluate the request to determine if asbestos is present in the work area. The baseline asbestos survey is reviewed for information about the presence of asbestos where the work activity is to take place. The facility manager

should also inspect the area to verify the actual conditions.

If no asbestos is present, the work permit is issued and the work activities can proceed. If asbestos is found in the work area, the facility manager can assign properly trained and equipped maintenance workers to remove the materials. It is important to note that the removed materials must fit into one 60" x 60" waste bag. If larger amounts are present, an accredited asbestos abatement contractor must be employed to remove the material.

Asbestos Work Practices . Routine custodial and maintenance activities can potentially damage or disturb ACM. Custodial and maintenance workers must be made aware of this through training. This training must also provide these workers with specialized work practices and procedures to address asbestos hazards in the work place.

As soon as the O&M program is in place, properly trained and equipped custodial workers can conduct a thorough initial cleaning of the facility or plant. Dry mops, brooms, dust cloths, and standard vacuum cleaners must not be used, as these will re-suspend asbestos into the air, thus increasing the risk of employee exposure and distribution of contamination. Instead, a combination of wet mopping and wiping, along with vacuuming with HEPA-filtered vacuum cleaners should be used.

In addition to the techniques for custodial activities, special work practices must be developed for maintenance, emergency response, and planned renovation and demolition activities. These approaches should be designed to reflect the likelihood that ACM will be damaged or disturbed, categorized as follows:

- Contact with asbestos is unlikely.
- Accidental disturbance or damage is likely.
- Small amounts of ACM may be damaged or disturbed.
- Large amounts of ACM may be damaged or disturbed.

Training of maintenance workers and those identified to carry out emergency response procedures must occur for each type of work practice. To prepare for the possibility that large amounts of ACM may become damaged, the facility manager may wish to place unit cost contracts with accredited asbestos abatement contractors who can respond quickly to emergencies.

Periodic Surveillance. A visual reinspection of all ACM should be conducted to document any changes in the condition of those materials. The EPA AHERA regulations covering schools require an accredited inspector to reinspect school buildings once every three years to reassess the condition of ACM. These regulations also require a routine visual inspection every six months to monitor the condition of ACM.

The facility manager should establish schedules for routine visual inspections and periodic reinspections based on the level of maintenance, construction, and occupant activity occurring within the facility. The results of the routine visual inspections and reinspections, and any corrective actions taken based on the findings, should be documented and permanently filed in the facility records.

Record keeping. All documents related to the asbestos program must be permanently filed. These documents include:

- Asbestos management program documents;
- Asbestos survey reports;
- O&M program documents;
- Work permit forms;
- Periodic surveillance documentation files;

- Abatement activities; and
- Training certificates.

In addition, OSHA and EPA require that certain personnel records, such as personal air monitoring data and medical records, be kept for the duration of each worker's employment, plus 30 years. To ensure compliance with all record keeping requirements, facility managers should consult with attorneys and state and local agencies for guidelines.

Keep It Under Control

A properly designed and implemented asbestos management program will ensure that the daily operations in the facility are carried out in such a way as to minimize the potential for release of asbestos fibers into the air. In the event asbestos fibers are released, the program will provide the proper guidance and controls for cleanup procedures. An effective, well managed program will provide a less costly alternative to asbestos removal and may be sufficient to manage the asbestos in place, until renovation or demolition activities will dictate its removal.

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What issues do you face with asbestos? Send an e-mail to avazquez@groupc.com.

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