

taking asbestos off the ceilings, walls, pipes, etc.; "removal" to refer to taking stripped asbestos material out of the building for disposal. If material cannot be removed wet because of freezing temperatures or damage to equipment by water, the EPA NESHAPS Coordinator should be notified. In some cases dry removal of asbestos material requires written permission from EPA.

Stripped asbestos material must be placed in leak-tight containers while still wet before removal from the building. Containers of asbestos material may not be dropped out of windows or down from one floor to the next. Asbestos material must be transported within the building in containers or dust-tight chutes.

Containers must be marked with a warning label (use the OSHA label on page and be buried in a waste disposal site meeting the requirements of Section 61.25 of the EPA regulations. In most cases a State-approved sanitary landfill will be an acceptable disposal site.

Before contractors begin any asbestos removal operation, they must send a written notification to the EPA NESHAPS Coordinator before starting the removal operation. The notification must contain the following information:

- (1) Name and address of the contractor.
- (2) Address and description of the building, including age, and prior use of the building and amount of asbestos material present (square feet).
- (3) Scheduled starting and completion dates for removal.
- (4) Procedures that will be employed to comply with the regulation.
- (5) The name and address of the waste disposal site where the asbestos waste will be deposited.

When contractors send in notification of an asbestos removal operation to EPA, the EPA NESHAPS Coordinator will notify the OSHA office for that area that a removal operation is planned.

See Appendix A for the full text of the EPA asbestos regulations. Questions about the regulations and compliance problems can be answered by the NESHAPS Coordinator listed in Appendix B.

OSHA Regulations

OSHA regulates workplace practices and the airborne concentration levels to which asbestos workers can be exposed. The OSHA regulations apply to removal, encapsulation, and enclosure operations involving asbestos materials.

OSHA has established limits on the amount of airborne asbestos to which a worker may be exposed on a daily basis. Over an 8-hour period the average airborne asbestos concentration level (also known as the time weighted average (twa)) to which a worker may be exposed may not exceed two fibers longer than five micrometers per cubic centimeter of air (2f/cc). At

no time during the 8-hour period may the airborne concentration exceed 10 fibers longer than 5 micrometers per cubic centimeter of air (10f/cc). The 10f/cc concentration is called the ceiling concentration. NIOSH has recommended lowering the 8-hour twa to 0.1 fibers per cubic centimeter (0.1f/cc).

Contractors must use air monitoring to determine whether the airborne concentration of asbestos exceeds these exposure limits. The regulations prescribe the method to be used for air monitoring and where and how often air samples must be taken.

If the airborne concentration does exceed the specified exposure limits (either the 8-hour twa or the ceiling concentration), then the contractor performing removal, encapsulation, or enclosure must:

(1) Provide employees with approved respirators. The OSHA regulations require different types of respirators under different conditions. The OSHA Regional Offices listed in Appendix D can provide information on respirator requirements. The NIOSH Regional Offices listed in Appendix E can provide information on approved respirators.

(2) Provide change rooms and two separate lockers or storage containers so that employees can keep street clothes and work clothes separate. In addition, if the ceiling concentration is exceeded, the contractor must provide his employees with protective clothing.

The regulations require contractors to place caution signs inside and immediately outside of the work area. The signs must advise people entering the area of the hazards of exposure to asbestos.

Containers of waste asbestos material must be marked with a warning label which states:

**CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY CAUSE
SERIOUS BODILY HARM**

See Appendix C for the full text of the OSHA asbestos regulations. Questions about the regulations and compliance problems can be answered by the OSHA Regional Offices listed in Appendix D. Information on contractor training and occupational safety is also available from these OSHA offices and the NIOSH Regional Offices listed in Appendix E.

Contract Specifications

The following general specifications are recommended for removal and encapsulation contracts. Some of these specifications are also appropriate for enclosure contracts. If these recommended specifications are incorporated into contracts and strictly enforced, the building environment will be protected against contamination.