

## **Appendix F. Recommended Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement\***

### **F.1. Introduction**

This appendix provides guidelines for the use of negative pressure systems in removing asbestos-containing materials from buildings. A negative pressure system is one in which static pressure in an enclosed work area is lower than that of the environment outside the containment barriers.

The pressure gradient is maintained by moving air from the work area to the environment outside the area via powered exhaust equipment at a rate that will support the desired air flow and pressure differential. Thus, the air moves into the work area through designated access spaces and any other barrier openings. Exhaust air is filtered by a high-efficiency particulate air (HEPA) filter to remove asbestos fibers.

The use of negative pressure during asbestos removal protects against large-scale release of fibers to the surrounding area in case of a breach in the containment barrier. A negative pressure system also can reduce the concentration of airborne asbestos in the work area by increasing the dilution ventilation rate (i.e., diluting contaminated air in the work area with uncontaminated air from outside) and exhausting contaminated air through HEPA filters. The circulation of fresh air through the work area reportedly also improves worker comfort, which may aid the removal process by increasing job productivity.

### **F.2 Materials and Equipment**

#### **F.2.1 The Portable, HEPA-Filtered, Powered Exhaust Unit**

The exhaust unit establishes lower pressure inside than outside the enclosed work area during asbestos abatement. Basically, a unit (see Figure F-1) consists of a cabinet with an opening at each end, one for air intake and one for exhaust. A fan and a series of filters are arranged inside the cabinet between the openings. The fan draws contaminated air through the intake and filters and discharges clean air through the exhaust.

Portable exhaust units used for negative pressure systems in asbestos abatement projects should meet the following specifications.

##### **F.2.1.1 Structural Specifications**

The cabinet should be ruggedly constructed and made of durable materials to withstand damage from rough handling and transportation. The width of the cabinet should be less than 30 inches to fit through standard-size doorways. The cabinet must be appropriately sealed to prevent asbestos-containing dust from being emitted during use, transport, or maintenance. There should be easy access to all air filters from the intake end, and the filters must be easy

\*Information in this Appendix is taken, with modification, from PEDCo Environmental, Inc., April 1982. *Continued Evaluation of Asbestos Removal Technologies and Recommended Specifications of Negative Pressure Systems*. Washington, DC: Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. Contract No. 68-02-3173.