

4.3.3 The work area shall have a vacuum cleanup system. This can be a system of hoses connected to a central vacuum system. All parts of the room should have vacuum cleanup at least daily, to prevent accumulation of dust on ledges, shelves, floors, and machines.

CAUTION: No dry sweeping shall be performed. Air hose is not to be used as an aid in cleanup.

4.4 Asbestos-Material Mixing

4.4.1 Cement, mortar, coatings, grout, and plaster containing asbestos shall be mixed in closed bags or other closed containers.

4.4.2 Any dried-out cement should be discarded. Do not attempt to rework it.

4.5 Removal of Asbestos Insulation

4.5.1 Atmosphere supplying respirators (per 5.4) and special clothing (per 6.2) shall be worn by employees engaged in removal or demolition of asbestos insulation or covering.

4.5.1.1 This requirement does not apply to removal of insulation, fabricated and protected to withstand repeated removal and reinstallation for equipment maintenance or other reasons, providing the techniques employed have been demonstrated to maintain asbestos concentrations within allowable limits.

4.5.1.2 This requirement does not apply to removal for maintenance or alterations when precautions listed below are followed and sampling has shown the precautions maintain asbestos concentrations within allowable limits.

- a. Dampen insulation prior to and during removal.
- b. Remove fasteners with care. Support insulation temporarily until it can be put into proper containers (see 4.6). Do not drop.
- c. Avoid sawing where possible. Knife cutting is preferred.
- d. Maintain good housekeeping. Vacuum equipment shall meet requirements of 4.8.2.
- e. Others to suit local conditions.

4.6 **Waste Disposal.** Asbestos waste, including items such as scrap, empty bags or clothing to be discarded, vacuum system collection, and other wastes which may create airborne dust concentrations, shall be collected and disposed of in sealed, impermeable bags or containers. Caution labels shall be attached conforming to 7.6 and Figure 2.

4.6.1 Asbestos contaminated clothing to be laundered shall be handled in sealed, labeled bags as in 4.6. Persons involved shall be instructed in proper handling.

4.7 **Asbestos Spraying.** Employees engaged in spraying asbestos for insulation or fireproofing shall wear atmosphere supplying respirators, see 5.4.

4.8 **Exhaust ventilation and dust collection system** shall be in accordance with ANSI Z9.2, Fundamentals Governing the Design and Operation of Local Exhaust Systems.

4.8.1 Caps or dampers should be provided in each intake hose and machine connection to maintain capacity of the system. However, care should be taken to assure that connections are open at the equipment being operated.

4.8.2 Discharge should be into a cyclone separator or into bag filters which meet the following criteria:

- a. Cotton bag filters should have an air flow permeability not exceeding 20 cfm/sq ft
- b. No bypass devices
- c. No leakage of unfiltered air
- d. Ability to empty hoppers without creating visible emissions of particulate matter
- e. No torn or ruptured bags
- f. No worn or threadbare bags
- g. No improperly positioned bags
- h. Dust samples shall be taken at the dust collection discharge periodically as necessary to assure satisfactory performance of the system, see section 3.

5. RESPIRATORY EQUIPMENT

5.1 Respiratory protection shall be provided to all personnel in areas where the permissible exposure limits may be exceeded under the following conditions:

- a. During the time necessary to install engineering controls and work practices per 4.1
- b. In situations when the above controls are technically not feasible or insufficient to meet the limits in section 3
- c. In emergencies

Refer to S2H for general description and vendors of respirator equipment.

5.2 **Mechanical filter-type respirators** are required when the TWA or ceiling concentrations are reasonably expected to exceed no more than 10 times the limits in section 3.

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