

Special Section

Protective Clothing: A Worthwhile Precaution For Asbestos Workers

Those hot, uncomfortable requirements pay off in safety for employees and their families

Protective clothing and respirators are required equipment, according to the Occupational Safety and Health Administration Asbestos Standard 1910.1001, for asbestos abatement workers. While respirators are recognized as the main defense against diseases caused by breathing asbestos fibers, the importance of protective clothing may not be as obvious.

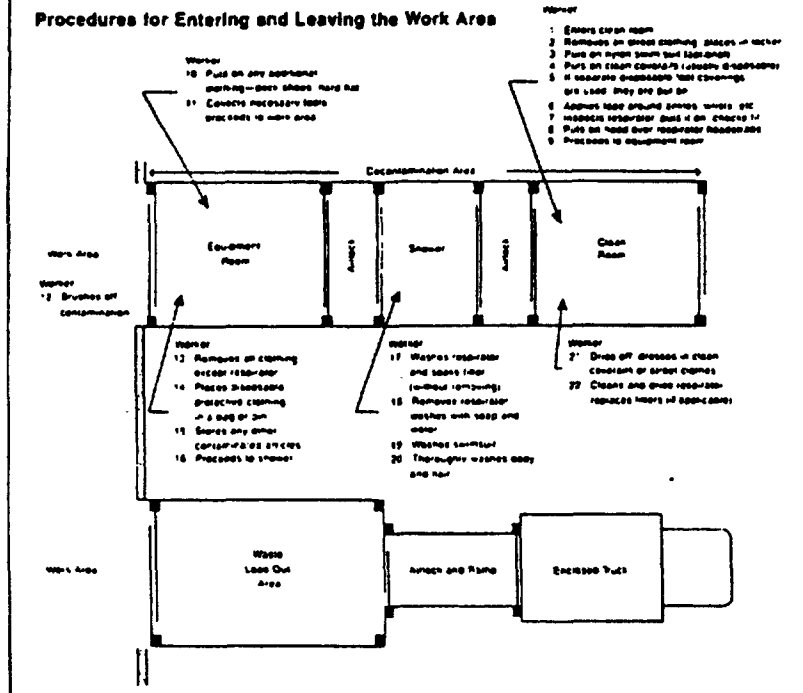
Anyone who enters an asbestos abatement project during the warm season can think of reasons why full-body clothing seems inappropriate. The work area is typically sealed with plastic sheeting, and the heating, ventilation and air conditioning unit is shut off and sealed. Water is sprayed on the asbestos material to minimize airborne fiber concentration.

HEAT STRESS. These containment precautions result in a hot and humid environment which is uncomfortable to a person standing still and almost unbearable to those workers removing the asbestos-containing material. Heat stress is a major hazard under these conditions. Workers who enter this hostile setting daily question the value of wearing protective clothing which seems to add to the heat stress potential.

The safety and health reasons for wearing protective clothing are usually considered more important than leaving it off to keep skin cool. The microscopic asbestos fibers which lodge in skin pores and hair follicles are not removed during the brief shower workers take as they leave the work area. Fortunately, there is no research data indicating that asbestos fibers cause skin cancer. However, those fibers may eventually dislodge from the worker's skin and hair, exposing not only the worker but also those with whom he comes into contact outside the work area. Documented cases indicate that family members of shipyard workers and textile weavers have contracted asbestosis and cancer from exposure to the asbestos brought

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Procedures for Entering and Leaving the Work Area



home on the worker's clothing.

The primary purpose of protective clothing is to keep asbestos debris off the body so it will not be transferred from the work environment to the outside and home environment.

PROTECTIVE CLOTHING. Specific protective clothing needs vary with the conditions on each abatement project.

Family members have contracted asbestosis from worker clothing.

Disposable coveralls, foot coverings and head covering are the most common types of protective clothing worn. They may be supplemented with hard hats, safety shoes or boots, and eye protection when necessary.

If safety shoes or boots are not worn, workers should be provided with inexpensive rubber-soled, slip-on deck shoes. Tight-fitting bathing suits (nylon works well) which can be easily cleaned during showering may be worn underneath the coveralls. If there are protrud-

ing objects in the work area which could snag the disposable clothing, workers may choose to wear shorts over their coveralls.

Gloves should be worn inside the work area, but are often not used by the workers. Jewelry should remain outside the abatement project.

Any street clothes worn inside the work area, such as T-shirts, blue jeans, sweat bands, kneepads or socks, must remain in the work area and are disposed of as asbestos waste when the job is completed. Additional protective clothing such as safety shoes or boots and hard hats are also left in the work area each time employees exit.

When the project is completed, these items can be cleaned, placed in plastic bags, labeled as containing asbestos, and taken to the next project.

PITFALLS AND PRACTICES. There are some common pitfalls to avoid and proven practices to consider when purchasing and using protective clothing. Those pitfalls and practices include:

- Disposable coveralls with hoods and booties attached save time and hassle. If pieces are bought separately, one

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component is often used up before the others and the workers are left without a complete set.

- Typical prices for coveralls with head and foot covering attached are usually about \$3 each when purchased in quantity. Separately, the coveralls cost approximately \$2.50, head covering about 35 cents, and foot coverings about 50 cents per pair.

- Coveralls are available in varying quantities. Double-stitched seams last longer, but cost more. There are now a variety of closure methods to choose from including zippers, VelcroTM and snaps.

- Bargain-priced coveralls often use less material. While the same sizing system (S, M, L, XL) is used by most suppliers, the actual sizes may vary considerably between suppliers. An "extra large" in the less expensive brands may only fit a medium-sized employee.

- Buy the largest size coverall available for all workers. One size (extra-large) is usually adequate for most work crews; an extra-large suit can be tailored and taped to fit almost any worker. Smaller workers can use

tape to "custom fit" their overalls. This will assure that there are always coveralls large enough for all workers.

- Coveralls constructed of breathable material may aid in body cooling by allowing the hot, moist air to be circulated away from the skin. This air exchange should help to minimize heat stress conditions. A few fibers might penetrate the fabric, but they should be washed from the skin during the shower as the workers exit. Some experts advocate using non-breathable materials in protective clothing for asbestos abatement projects. However, the goal of protective clothing is to keep gross contamination from the skin and hair—not to keep every fiber from the body. Breathable clothing may allow some

- Duct tape or masking tape can be used to seal around ankles, wrists and hoods. Masking tape is less expensive and is easier to tear off; both types of tape are easier to remove from the body if the tape is turned back on itself at the loose end to form a tab.

- Cotton gloves work better than rubber gloves. If metal or wire will be handled during the project, leather gloves should be considered.

- Inexpensive canvas deck shoes or safety shoes/boots provide additional protection for the workers' feet. Workers should label their own sets of shoes along with personal respirators, hard hats and other personal equipment.

Workers put on the new protective clothing in the clean room of the decontamination unit before entering the work area. They remove the contaminated clothing inside the equipment room of the decontamination unit as they exit the work area each time.

SAFETY SEQUENCE. The diagram illustrates a sequence which can be followed by the worker to maximize the effectiveness of the protective clothing and to minimize contamination outside the work area. No one should enter or leave the work area without going through these steps unless it is an extreme emergency.

The effective use of protective clothing, along with respiratory protection, is imperative to the health and safety of asbestos abatement workers and their families.

The investment in time and training to learn about the purpose, types and uses of protective clothing are small compared to the protection gained by the employee and the family. ■

Street clothes worn inside the project should be discarded.

fibers to reach the body, but the trade-off may be worthwhile in heat stress reduction.

- Coveralls with elastic gathering at the wrists and ankles do not require application of tape to form a seal. Workers save time in dressing and undressing.

- Buy enough protective clothing in the beginning to last to the duration of the entire project. As a rule of thumb, figure: 5 suits X number of workers X project duration (days) X 1.1 = number of coveralls needed. The 1.1 figure gives a 10 percent surplus for visitors and project overruns.