

GLOVE BAG REMOVAL OF PIPE INSULATION

AN IMPORTANT ASPECT OF THE O&M PROGRAM AND OTHER REMOVAL PROJECTS

by: John A. Dietrichs

The glove bag method of removing asbestos pipe insulation is now widely accepted as an abatement technique within the asbestos industry in the United States and several countries beyond our borders, including England, Canada and Sweden. In the U.S., it is recognized in OSHA and EPA guideline literature and in the Code of Federal Regulations. However, there have been mixed results based on fiber counts during glove bag removal projects. Informal polling of researchers and laboratories monitoring these projects has shown results ranging from "below detectable limits" to "several fibers per cc."

Several factors have been identified as contributing strongly to successful glove bag projects (those with low air counts):

- 1.) **Training** - Glove bag workers who have received formal training from qualified training centers and "competent person(s)" usually perform better. Of particular note are workshops given at the five designated Asbestos Information and Training Centers (Georgia Institute of Technology, Tufts University, University of Kansas, University of California at Berkeley, and University of Illinois at Chicago). Many states have set up programs through state academic institutions that offer excellent training, and often workshops, as well.
- 2.) **Experience** - As with most skills, on-the-job training and experience hone ability and give confidence to the worker. Usually this is best gained by pairing an experienced worker with a novice as an apprentice, when possible.

- 3.) **Adequate Supervision** - Knowledgeable and keen supervision is always critical to maintaining quality of work and ensuring that workers do not take shortcuts. The employer should be aware that the mere presence of on-site air-monitoring technicians from a laboratory does not necessarily constitute "adequate supervision," as they may not be perceived as having authority to direct activities.

Even if these three factors are all addressed superbly, it is still possible to have high air counts during glove bag removal if two more factors are overlooked - that of the general condition of the insulation, and loose asbestos already present in the work area.

- 4.) **Condition of Insulation** - If the insulation is badly damaged or deteriorated, it must be stabilized before glove bag removal occurs. This may be done by wrapping poly sheeting around the pipe and insulation after gently vacuuming dust and loose particles with a HEPA vacuum, and/or gently misting the surfaces with amended water. The poly may be held in place by "candy striping" the polyed pipe with duct tape. If the insulation is in extremely bad condition, glove bag removal may not be the appropriate choice. (Please note that any disturbance of friable asbestos warrants the use of personal protective equipment - respirator and disposable clothing as a minimum.)
- 5.) **Loose Asbestos In Area** - If loose asbestos or dust that may be con-

taminated is in the work area, it should be HEPA vacuumed prior to beginning work.

Once all these factors have been addressed, you are ready to move ahead with your glove bag project. However, one final consideration must be looked at before starting - the choice of glove bag style.

Two basic choices are available at this time - the "Standard" glove bag and the "PVC" glove bag.

THE "STANDARD" GLOVE BAG

This was the first asbestos glove bag to come into common use, which occurred in the early 1980's. It consists basically of the following features:

1. 6-10 mil. clear polyethylene bag.
2. Usually 40" by 60", open at top only.
3. Separately attached sleeves and gloves, approximately centered on the bag.
4. A tool pouch of polyethylene attached inside the bag opposite the sleeves.
5. Stenciling on the bag to identify the contents. Usually:

**DANGER
CONTAINS ASBESTOS
FIBERS
AVOID CREATING DUST
CANCER AND LUNG
DISEASE HAZARD**

6. Some bags may have double-sided tape to facilitate attaching the two open sides of the bag at the top.

Other items needed to complete the glove bag removal kit will include:

1. HEPA vacuum with attachments.

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bag. It is a generalized system that must be properly adapted to each situation. Its effectiveness will be determined by the users' knowledge of the goals of the procedure, the procedure itself, and a generous dose of common sense. Be sure to analyze each situation in this light before starting the work.

- B. The owner is responsible for ensuring that the following steps are taken in preparation for using these specifications for the glove bag removal of asbestos:
1. Prior laboratory testing of material to certify it is in fact asbestos containing.
 2. Requiring a complete respirator training program for workers involved in asbestos removal.
 3. Ascertaining the qualifications of Contractors and their employees or "in-house" employees that will carry out the removal procedures.
 4. Medical monitoring of workers as required by Federal and State laws.

1.02 Submittals

(This section will include Federal, State and Local regulation and requirement forms and notifications that must be submitted before or during the abatement procedures.)

Section 02090-2

2.00 PRODUCTS

2.01 Materials and Equipment

- A. Glove Bag Appropriate "Standard" glove bag.
- B. HEPA Vacuum High Efficiency Particulate Air filtration vacuum unit. Wiring must include a three wire system or ground fault circuit interrupter for safety of operation.

- C. Respirator Dual cartridge asbestos-rated respirator, using NIOSH rated filters for asbestos.
- D. Disposable Clothing Disposable coveralls; hoods and booties (separate or as part of coverall).
- E. Asbestos Disposal Bags Six mil. thickness with asbestos warning printed or pasted on bag.
- F. Water Pump Sprayer Three to five gallon capacity.
- G. Surfactant A wetting agent to add to water to increase penetrating ability.
- H. Duct Tape Preferably 3" width.
- I. Double Sided Tape Preferably 1/2" wide.
- J. Stapler Suitable for penetrating plastic and double-sided tape.
- K. Wettable Cloth A glue-impregnated cloth used in sealing exposed insulation left in place.
- L. Pipe Insulation End Caps Alternative to wettable cloth.
- M. Spray Glue Used to seal exposed remaining asbestos insulation if wettable cloth or end caps are unavailable.
- N. Barrier Tape Yellow with warning.
- O. Warning Signs Yellow with black lettering stating asbestos dust may be present and to wear appropriate protection.
- P. Bone Saw Disposable or reusable. For cutting any thickness of insulation, but primarily where razor knife or other knife is too short.
- Q. Razor Knife Disposable or reusable.
- R. Hook Knife Disposable or reusable.
- S. Damp Rag Used to wipe metal pipe clean of asbestos particles.
- T. Wire Snips Used to cut wire or metal bands that hold insulation to pipe.
- U. Metal or Fiber Drum 35 to 55 gallon capacity drum with sealable top, marked to indicate asbestos contents.
- V. Designated Shower Area Either portable or existing in building, in case of accidental contamination.

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3.00 EXECUTION

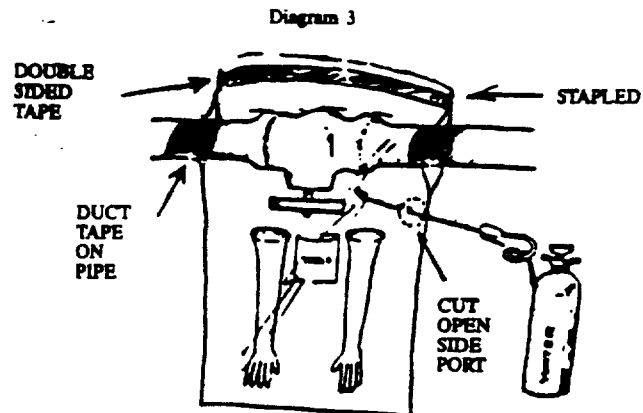
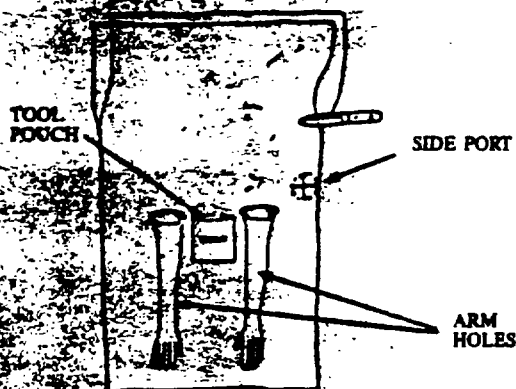
The following steps, if done with care and attention to detail, will isolate small sections of piping, valves, fittings, pipe knuckles, etc. so that asbestos containing insulation or lagging may be removed without allowing fibers to become airborne outside the bag. Note that two workmen are required for each work site.

- A. Isolate the area in which removal will take place by placing barrier tape at least 20 feet from all open entrances to affected room. Lock from external entry all but one entrance whenever possible. Determine emergency exit provisions, however-ideally inside panic bar fitted doors. Otherwise, key available. A wider area may be blocked off with barrier tape at discretion of owner.

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NOTE: Plan to support bottom of bag when removal starts. The weight of insulation and water can strain even a well constructed seal at the top.

maining insulation is non-asbestos containing, duct tape may be used instead.

- U. Wet-wipe all exposed pipe, valve, etc. surfaces one final time before proceeding with pipe or valve repair, or insulation replacement.
- V. If completed with project, thoroughly HEPA vacuum work site surfaces.
- W. All disposable items used on

project should now be put in a separate yellow disposal bag (wipe rags, glove used in tool removal, water used to clean tools, etc.). If no shower is required, disposable clothing may also be discarded.

AIR MONITORING

The building owner or project supervisor will determine in advance if air monitoring must be done. For small projects, of short duration,

monitoring may not be done in every case. It is generally agreed that monitoring is always advised, if possible, to give physical evidence of exposure levels.

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