CONTROL METHODS

When asbestos containing materials are found in a building, the owner must decide which method or methods will be used to deal with the asbestos. The decision will be based on how likely the asbestos is to release fibers into the air. One or a combination of methods may be used.

Control Methods

As a worker, you will probably not be involved in the decision making process. However, as the work progresses, changes in conditions may require a worker to report problems with a control method that will change the process being used.

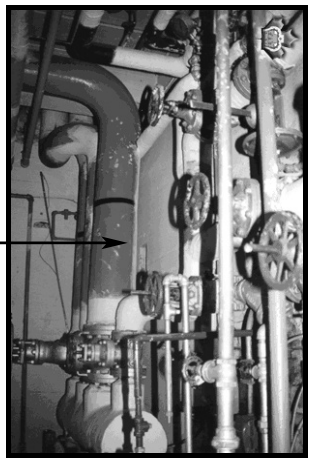
There are five ways to control the release of asbestos fibers:

1. Encapsulation
2. Enclosure
3. Repair
4. Removal
5. Operations and Maintenance Program

Location and condition of the asbestos, the use of the building, and the occupants of the building will be considered when deciding which method or methods to use.

Encapsulation

Encapsulation is the application of **a thick, paint-like material on asbestos containing material.** The encapsulant may be applied with **a low pressure sprayer.** The encapsulant then hardens and prevents the release of fibers into the air.



There are two types of encapsulants: **bridging** and **penetrating**. **Bridging encapsulants form a protective coating over the asbestos.** Penetrating encapsulants soak into the

material and then harden. The type of asbestos being encapsulated will determine the type of encapsulant used.

The asbestos material must be in good shape for an encapsulant to work. Any loose asbestos must be removed. Any damage to the asbestos or underlying surfaces must first be repaired.

Use only a low pressure sprayer when applying encapsulants. This will reduce the amount of fibers that are released into the air. Even with a low pressure sprayer, you will be exposed to asbestos fibers. You must wear a protective suit and respirator.

Enclosure

An enclosure is **an airtight barrier around the asbestos.** The enclosure can be built out of wood, metal, or sheetrock. All seams must be sealed completely and be air-tight. **If the structure is not air-tight, it is not an enclosure.**

Another type of enclosure is called **encasement.** Encasement is **a new covering built over the asbestos material.** For soil, pouring a layer of concrete over the asbestos contaminated dirt would be an encasement. For interior encasements, spraying a closed cell foam over the asbestos would seal the asbestos in place.

Removal

Removal is the most common way of controlling asbestos. **It is a permanent solution. The asbestos containing materials are removed and replaced with a non-asbestos containing material with similar properties.**

Removal consists of taking the asbestos off of whatever it is on. The waste is bagged and sent to a special landfill. A removal job not only deals with the asbestos that you can see, but also with the asbestos that you cannot see. During removal, large amounts of asbestos fibers are released into the air. They are spread over the entire containment area. The entire area must be cleaned for a removal job to be successful.

Removal, encapsulation and enclosures are considered Class 1 work. All of these methods will release fibers into the air. Removal releases large amounts of fibers into the air. Precautions must be taken to lessen fiber release and to contain the fibers to the work area.

Many times, damaged asbestos will need to be removed before encapsulation or to attach an enclosure. Tools, such as saws, nail guns, or drills will disturb the fibers and put them into the air.

For all three methods, a containment must be built. Workers must wear suits and respirators. A decontamination area must be built at the containment. Any waste generated is considered asbestos waste and must be disposed of properly.

Repair

Repair jobs are usually small in nature. They involve limited amounts of asbestos. Repairs are usually made to a small section of pipe or a small area of wall or ceiling. A patch is placed over a damaged area to control fiber release. The patch is then painted with a mastic to seal the patch.

Glovebags usually are considered maintenance jobs. A small amount of asbestos insulation is removed from a pipe or valve so that the pipe or valve can be repaired or replaced. The area is then re-insulated with a non-asbestos insulation.

A glovebag is considered a mini-enclosure. All of the work is contained inside the bag. Glovebags can only be used to remove 3' or less of material. For removing asbestos from a larger area, a full containment must be built.

Operations and Maintenance

Operations and Maintenance is a control program for managing asbestos that remains in a building. The O&M program is basically **a paper trail that lists how asbestos is dealt with.** The parts of an O&M program are listed on the next page.

- ✎ A list or inventory of all asbestos containing material in the building. This includes the location, condition, and types of materials.
- ✎ Labeling of all asbestos containing materials to alert workers of the presence of asbestos.
- ✎ Inspection procedures and times to ensure that they are in good shape.
- ✎ Training for maintenance workers on how to deal with small releases of asbestos.
- ✎ Work procedures for removal of small amounts of asbestos for repairs to pipes or valves.
- ✎ Providing the proper equipment to maintenance workers so that they can do the work safely.
- ✎ Procedures for dealing with accidental damage to asbestos containing materials.

The point of an O&M program is to prevent the release of asbestos fibers into the air and throughout the building. This protects the occupants of the building, maintenance workers, and outside contractors. All parts of the O&M program must work.

Key Facts

Controlling the spread of asbestos fibers is the goal of all Control Methods.

There are 5 different methods to control the release of fibers: Encapsulation; Enclosure; Repair; Removal; and Operations and Maintenance.

All are temporary except for removal. The other methods manage the asbestos in place.

A combination of methods may be used on the same job.

SETUP

On of the best ways to control the amount of asbestos that you are exposed to is to keep it out of the air. Working in a controlled and careful manner is very important, but there are other things that you can do to lessen your exposure.

Proper setup is often 40% or more of a job. A proper setup will protect you, workers in other parts of the building, and the environment.

The following outline lists the steps in setting up (controlling) a Class 1 job. Many of the practices are not required by law, such as two layers of plastic on the floor. Regulations only state an impermeable drop cloth. **The practices being described are considered best practice.** Be sure to check all federal, state, and local laws for guidance.

Warning Signs

OSHA SIGN

Put up barricades to keep non-workers out of the area. Place signs on the barricades and in the surrounding area. These signs should be at eye level and in a language that the occupants of the building and other workers can understand.

Utilities

All power should be shut off to the work area. This includes electric, gas, water, any machinery, and the HVAC system. Place a **lock or tag on the power supply**. Turning off a switch is not enough. After turning off the power, check the switch to ensure that the right power supply was turned off.

In rare cases this is not possible. Extra care must be taken when working around live electrical or mechanical systems.

Temporary Power

Power will need to be supplied to the work area. Lights, the negative air machine, and any power tools will need electricity.

Removal of asbestos involves water. Extra care must be taken when using water around electricity. Any temporary power that is supplied to the work area must be protected with **Ground Fault Circuit Interrupters (GFCI)**.

Do not allow the cords to lay on the floor where they may be damaged or workers can trip on them. Tape them up off of the floor.

Decontamination

Next build the decontamination chamber. Any worker who enters the containment must exit through the decontamination chamber or decon. The decon normally has three rooms in this order (exit): the **equipment room** - often called the dirty room; the **shower**; and the **clean room**. The sequence is reversed for entry to the regulated area.

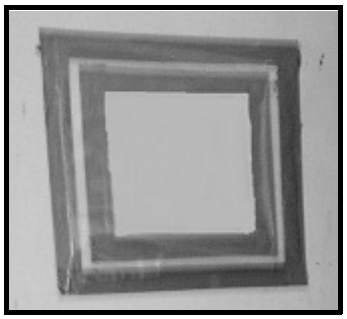
Access to and exit from the work area is always through the decon. The doors are designed to keep asbestos fibers from leaving the work area.

Decons can be built on-site out of wood, metal or plastic frames that are covered with two layers of plastic. Other contractors may choose to use a pre-made decon that they purchase. Either way is acceptable.

Contractors often build a separate decon for waste, called a **waste load-out.** Anything that leaves the work area must be decontaminated. This includes any bags, wrapped waste, tools, or other materials.

Critical Barriers

All openings to the work area must be covered and sealed. These coverings are called critical barriers. Any openings for heating, ventilation, or electrical must be covered and sealed. All windows and doors must be covered and sealed with two layers of plastic at least 6 mils thick. One door must be left open for access. This door will lead to the decon area.



Clean, Remove, or Cover

The next step is to clean the work area. Clean everything in the area, including walls, floors, air vents, outlets, and any stationary or removable equipment. **Cleaning before building the containment will help in obtaining final clearance.** What good would it do to remove the asbestos if there was still asbestos dust present when you were finished?

Use damp rags and a **HEPA vacuum** when you clean. The damp rags will trap the asbestos fibers and prevent them from becoming airborne. After you wipe everything with a damp rag, HEPA vacuum the entire area. **Do not use a regular shop vacuum.** The filters in a regular shop vacuum are not designed to trap asbestos fibers.

The fibers will simply be redistributed in the air. Wet wipe the entire area again to clean any fibers that may have been missed.

After cleaning, **remove everything from the work area that you can.** This will make the asbestos removal job easier. It will also eliminate the possibility of damaging or contaminating these objects.

If you cannot remove items such as large pieces of equipment, cover them. Use two layers of plastic and seal the edges of the plastic to the floor or walls.

If an item cannot be cleaned, such as carpeting, wrap the item in two layers of plastic, label it, and remove it for proper disposal.

Negative Air

After everything is either cleaned and covered or removed, bring in the negative air machine. **Discharge the exhausted air outside of the containment area, usually out a window or a door.** A special connection will need to be made. Connect the discharge tube and seal the connection.

The number and size of negative air machines will be determined by the assigned tasks and the size of the work area. There must be enough volume to keep the pressure lower in the work area than outside of the area. This will ensure that any leaks will allow air to enter the containment rather than allowing asbestos to escape the area.

The negative air machine(s) must operate for the duration of the job. An extra negative air machine is advisable in case one of the other machines breaks down or has to be shut off for maintenance.

Contain the Area

Building a containment will keep the asbestos from spreading to other parts of the job. The containment is usually made of plastic. All seams and joints must be sealed with tape to prevent leaks.

Any areas of the room that are not being abated must be covered. This will stop the spread of contamination. If only the ceiling is being abated, cover the floor and walls. The floor may need to be covered with a layer of plywood or similar materials to protect the plastic from ladders, scaffolding, or materials being removed.

The containment may be large, enclosing the entire room. In some situations it may be a "mini-enclosure", only large enough to enclose a small area for small projects. Both containments are similar in that they must be completely sealed except for the entrance, and must be under negative pressure.

Bring Any Needed Tools into the Room

After the containment is built, bring any needed tools, ladders, or scaffolding into the work area. Many times, ladders and scaffolding are too large to fit through the decon.

Position and Attach the Decon

After all of the large equipment is in the work area, position and attach the decontamination chamber. The decon must be sealed to the work area so that no asbestos fibers can escape.

After the decon is attached, anyone or anything that enters or leaves the work area must pass through the decon.

Test the Containment

After the containment is built and the decon is attached, test the containment for leaks. Use ventilation smoke to see if air is moving out of the containment area.

Turn on the negative air machine(s). **Any air that is entering the containment should only enter through the decon.** From this point on, the negative air machine must run constantly.

The containment must be checked before every shift. Any leaks must be patched immediately. It is a good idea to have the workers observe the plastic for leaks or tears as they work. Seal all leaks as they are noticed.

Setup is a very important part of any asbestos abatement job. In many cases, **setup will be as much as 40% of the work on the job**. Building the containment properly will make the rest of the job easier and safer.

Key Facts

Setup is a major part of an asbestos job.

You must be protected during setup. Respirators, other PPE, and decontamination are needed.

Proper setup will make the rest of the job safer and easier.

WORK PRACTICES

In addition to the control methods mentioned, there are several things that you as a worker and your employer can do to reduce the amount of asbestos in the air.

Following these simple rules will greatly reduce the amount of asbestos that you will be exposed to and the chance of it leaving the work area.

Keep it Wet

Keeping asbestos wet during setup, removal and bagging will greatly reduce the amount that gets into the air. **The asbestos should be moist** (about the consistency of oatmeal) without being saturated.

Keep the asbestos wet until it is sealed in bags or other containers for disposal.

Asbestos does not accept water very well. An additive must be mixed with the water. This additive is called a **surfactant.** A surfactant breaks the surface tension of the water and allows it to be more easily absorbed.

Only low pressure sprayers should be used to apply the amended water. High pressure sprayers such as a garden hose will put out too much water.

Any water that is used must be collected and disposed of as asbestos waste. The force of the water will dislodge fibers and put them into the air.

Contain the Area

Putting up critical barriers and containing the work area will prevent asbestos from moving to other parts of the building. Covering any areas not being abated will stop the spread of asbestos and prevent the need for extensive cleaning after the job is complete.

Mini-Enclosures

For some jobs, you may not need to enclose the entire room to perform your work. You may build what is called a "mini-enclosure". A mini-enclosure is built the same way as a full containment, only smaller. It is made to accommodate only two workers. A mini-enclosure is ideal for small jobs such as working above a ceiling where only one tile needs to be removed for access.

Filter the Air

Using **HEPA vacuums and negative air machines** to filter the air in the work area will lower the amount of asbestos in the air. You cannot use a regular shop vacuum for cleaning. A shop vacuum is not designed to filter very small fibers of asbestos from the air.

Use Negative Air Pressure

Lowering the pressure inside the containment area will keep asbestos from leaking out. If the pressure is lower in the work area, any leaks will allow air to enter, not fibers to escape. **Lowering the pressure can be done by using a negative air machine for larger jobs or with a HEPA vacuum for smaller jobs.**

The negative air machine will also help to cool the work area. This will reduce the stress on the workers. Unfortunately, it will also dry out the asbestos quicker. Bagging the waste immediately is essential.

Clean Up Waste Immediately

Cleaning up the waste immediately will lower the amount that gets into the air. If waste is allowed to accumulate, it will dry out before it is bagged for disposal. If waste does begin to pile up, wet it again before handling it. Consider adding workers to bag the waste quicker.

Waste should not be permitted to accumulate on the floor or other walking surfaces. If workers walk on the waste, they will break the fibers into smaller pieces. These fibers will be forced back into the air. Always bag waste as soon as it is removed.

Never force air from the waste bag. Use a HEPA vacuum to remove the air. Seal the bag, **wrap the end back on itself, and seal again. This is called "goosenecking".**

Double bag or double wrap all waste. This will ensure that the asbestos is contained and will not leak out. After double bagging or wrapping, apply the required labeling. All waste material must contain the following label:

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

Working on High Areas

If you are working more than 50' above the floor, you must catch the asbestos. You cannot let it fall to the floor. Bag it and lower it to the floor or slide it down an enclosed chute.

Even though NESHAP says you cannot drop asbestos more than 50', it is a good idea to catch all asbestos if possible. This will lower the amount that gets in the air and make cleanup easier.

Work in a Careful and Controlled Manner

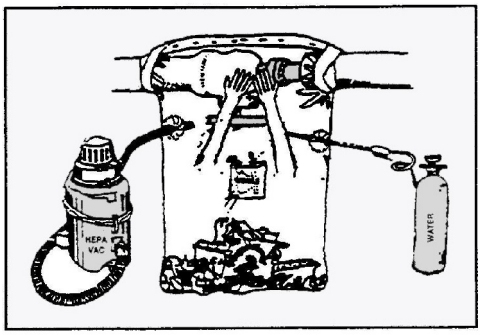
When working around asbestos, work in a careful and controlled manner. Do not rip and tear when removing asbestos. This will put more fibers in the air.

When doing demolition, dropping asbestos containing materials may damage the containment. All materials should be bagged and lowered to the floor by **rope** or slid down an **enclosed chute**. Double bag or

wrap all materials as soon as possible and remove them from the work area. This will prevent the asbestos from drying out and releasing fibers into the air.

Glovebagging

You may not need to build an entire containment if you are removing a small amount of asbestos. For removing small amounts of asbestos from pipes you may use a glovebag.



A glovebag is a mini-containment that is attached to the pipe to totally enclose the work being done. Glovebags are or small jobs only. You cannot remove more than 36" of asbestos containing material. The amount that can be removed is determined by the size of the bag. Glovebags cannot be any larger than 60" x 60".

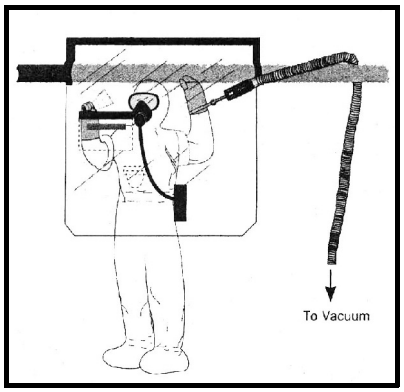
Glovebags are usually associated with repair jobs. They are used to remove small amounts of asbestos from pipes or valves for repair or replacement of the pipe or valve.

Before attaching the bag to the pipe, make sure that the area where the attachment is made is in good condition. Wrap tape around the pipe to get an airtight seal. Place a layer of poly on the floor to catch anything that may be dropped during removal.

When using a glovebag, two people must do the work. One person does the removal while the other person operates the water spray. It is difficult to see the entire way around the pipe. Usually, one person is on one side of the pipe and the second person is on the other side. The second person can act as the eyes on the back side of the pipe.

All tools and materials are placed inside the bag before it is attached to the pipe. The bag is sealed to the pipe and tested with smoke to make sure it is airtight.

One person inserts his or her arms into the sleeves that are built into



the bag to perform the task. Any materials that are removed are placed gently in the bottom of the bag. Do not allow materials to fall, as they may puncture the bag.

When the task is done, wet and wipe the inside of the bag to trap any fibers and prevent their release when the bag is removed. After the bag has been cleaned inside, all tools are gripped in one hand. As the hand is pulled from the sleeve, the sleeve turns inside out, and the tools are left in the glove. The sleeve is sealed with two pieces of tape and the glove is cut off between the tapes. The tools are removed from the glove in a bucket of water to prevent fibers from getting into the air.

Use the HEPA vacuum to collapse the bag and seal the waste in the bottom of the bag with tape. Cut the glovebag from the pipe and place it in a disposal bag. Remove the tools from the glove and put the glove in the bag. Clean and remove the poly from the floor and place it into the waste bag. Dump the water from the tool removal bucket into the waste bag and use the HEPA vacuum to remove all of the air from the bag. Seal and gooseneck the bag, then place it in another waste bag and gooseneck again. Attach a label and send to an approved waste site.

Key Facts

Regardless of which method is used for removal - full containment, mini-containment, or glovebag - all methods have several things in common.

1. **Contain the area to control the spread of fibers.**
2. **Keep the asbestos wet to keep fibers out of the air.**
3. **Double bag or double wrap all waste as soon as possible.**
4. **Remove the waste from the work area as soon as possible to reduce clutter and to prevent slips, trips, and falls.**

Glovebags are for small removal jobs only. Bags cannot be moved or reused.

Two people are required for all glovebag jobs.

VAT