

Chapter 12.9

Regulated Areas, Site Preparation, and Negative Pressure Enclosures

1. What this chapter covers

This chapter outlines the asbestos work requirements for regulated areas, site preparation, and negative pressure enclosures. Organizations and contractors performing these tasks for asbestos work shall follow industry accepted practices and procedures, and comply with applicable OSHA and EPA regulations.

2. Regulated areas

You shall conduct all Class I, Class II, Class III, and Class IV emergency response asbestos-related work at JSC within a regulated area. The methods and systems for establishing a regulated area are described in paragraph 3 below.

The OSHA definition (29 CFR 1926.1101) of a regulated area is:

An area established to demarcate areas where asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

You shall follow these requirements:

- a. *Demarcation.* Mark the regulated area in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, demarcate the regulated area with the barriers or enclosures. Provide signs and display as required by Chapter 12.10 of this handbook.
- b. *Access.* Limit access to regulated areas to people who are authorized and trained to perform asbestos work and who are wearing protective clothing, respiratory protection, and other PPE. Establish a list of authorized personnel before starting a job and post that list in the unrestricted clean area of the job site. The job site superintendent or on-site competent person has control of site access.
- c. *Respirators.* Supply all persons entering a regulated area where employees are required to wear respirators with a respirator that meets OSHA standards 29 CFR 1926.1101(h) and 29 CFR 1910.134.
- d. *Prohibited activities.* People inside a regulated area shall never eat, drink, smoke, chew tobacco or gum, or apply cosmetics.

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3. Methods and systems used to establish a regulated area

You shall follow these requirements to establish a regulated area:

- a. Every regulated area used for asbestos-related activities specified in Part 12 shall use at least one of the methods or systems described below to prevent visible emissions from the worksite and to prevent the escape of airborne asbestos fibers into the general environment. Any method used shall meet the engineering control requirements of 29 CFR 1926.1101(g). Submit a work plan for any task requiring a large-scale enclosure to the APM per the notification requirements of Part 12.
- b. The methods and systems for Part 12 and the job performance requirements are classified into the following four systems:
 1. Barrier with floor covering
 2. Glovebag
 3. Small enclosure, mini-enclosure, or “pop-up” enclosure (e.g., “Klean Kube®”)
 4. Large enclosure
- c. You may use barriers with no enclosure if there is little risk of spreading asbestos into the general area or if there is minimal risk to individuals who may pass into the work area unknowingly. Barriers are used when the primary concern is to keep building occupants or other employees from inadvertently getting into the work area where there might be a localized risk of asbestos exposure. The regulated area shall be visibly identified using any marker (i.e., signs and tapes or barricades) that warns employees or visitors to stay out of the work area. These barrier systems are used with polyethylene floor coverings to prevent localized contamination.
- d. Use glovebags when the work is small enough to be completed in the bag. These are usually restricted for use on pipes, joints, and valves, but may be used for spot abatement of small amounts of spray-applied asbestos insulation. *NEVER PERFORM GLOVEBAG REMOVAL ON HOT PIPES!* This may cause the bag or gloves to melt over the workers’ hands and arms. Devise special procedures if glovebags are used on hot pipes.
- e. Use small enclosures when the work area is larger than can be accommodated by a glovebag or is needed to provide more protection than a barrier system. The small enclosure is generally limited in size and used for small-scale, short-duration activities. A small enclosure may not involve the use of negative pressure systems, but will have an entrance chamber or multiple entry flaps. Small enclosures rely on HEPA-filtered vacuums and wet methods to control fiber concentrations. You may use small enclosures for any repair or maintenance activity that may disturb ACM and release airborne asbestos fibers.
- f. Use large enclosures for asbestos-related projects that a small enclosure cannot accommodate. Large enclosures will usually include the use of a negative-pressure air filtration system to isolate the work area from the general building area that is not involved in the asbestos-related activity. The large enclosure may involve the use of ancillary contamination controls (e.g., showers, change or clean rooms, waste load out

chambers, decontamination rooms, contaminated equipment rooms, etc.). Large enclosures for Class I and Class II asbestos work shall pass inspection by the OHD before the asbestos-related activities start.

- g. The OSHA regulations in 29 CFR 1926.1101 use the term “critical barrier.” A critical barrier consists of “one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.” Critical barriers are most often used on doorways, windows, and ventilation system openings. They are required for Class I and II asbestos work, but may also be used on Class III work.
- h. Table 12.9-1 below indicates the regulated area methods and systems that are appropriate for each class of asbestos work. Please note that containment for an emergency response could involve any of the four methods and depends upon the judgment of the responders. Essentially, an emergency response to a major fiber release episode could involve procedures meeting the requirement of Class I or Class II asbestos abatement or removal.

Table 12.9-1. Regulated Area Methods or Systems Used with Asbestos Work Classes

Methods or Systems	Asbestos Class			
	I	II	III	IV*
Barrier and floor covering			X	X
Glovebag			X	X
Small enclosure	X	X	X	X
Large enclosure	X	X	X	X
Critical barriers	X	X		X

*Only required for asbestos Class IV emergency response.

4. Site preparation

Before any asbestos-related activity, prepare the worksite for follow-on actions. You shall take the following steps to define the regulated area and limit contamination of furniture and equipment.

- a. *Post warning signs and barriers.* Place warning signs and temporary barriers, if an enclosure is not required, at all entrances and approaches to the regulated area. Warning signs shall meet the requirements specified in Chapter 12.10.
- b. *Cleaning and removal of furnishings and equipment.* Remove all non-stationary items that can feasibly be taken from the work area to prevent damage or contamination of the items.

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1. Before storing these items outside the work area, clean them of visible debris with a HEPA-filtered vacuum or wet wipe to remove any asbestos-containing dust.
 2. Thoroughly pre-clean the designated work area before beginning containment construction. If carpets in the work area remain, vacuum them with a HEPA-filtered vacuum and cover them with 6-mil polyethylene sheeting. You may use plywood between the layers of polyethylene to help protect the carpets from damage and maintain the containment integrity.
- c. *Follow these requirements for sealing stationary items:*
1. If it is not feasible to remove items from the work area, completely cover them with a minimum of one layer of 6-mil polyethylene. For Class I and Class II activities, seal these covers and secure them with duct tape.
 2. If stationary equipment such as electrical transformers, refrigeration equipment, or other electrical heat-generating equipment shall continue to operate during the asbestos-related activity, make special provisions to prevent creating a fire hazard. Such items shall have constant ambient airflow or they may overheat. In these situations, provide a separate framework to support the polyethylene sheeting, with provision for separate air intake and exhaust outside the defined work area.

4. Negative Pressure Enclosures

You shall follow these requirements for any negative pressure enclosure (NPE) used with OSHA Class I and Class II asbestos abatement projects:

- a. The machine(s) used to maintain a NPE must provide at least 4 air changes per hour and maintain a pressure differential of at least -0.02 column inches of water inside the NPE relative to outside pressure. (Ref OSHA 29 CFR 1926.1101(g)(5)(i)(A))
- b. The NPE must be kept under negative pressure throughout its period of use. (Ref OSHA 29 CFR 1926.1101(g)(5)(i)(A))
- c. Pressure measurements shall be recorded for the NPE throughout its entire period of use. The recording of the pressures may be done by either using a strip-chart recorder on the manometer or by an employee writing down the pressure readings on a log sheet at hourly intervals.
- d. An employer maintaining a NPE must have an employee immediately available for the entire period of use to take action to restore negative pressure in case the machine maintaining the NPE fails.
- e. The machine maintaining the NPE shall run continuously until passing a clearance inspection and, as applicable, passing clearance air sampling.