ASBESTOS

Rules and Regulations

Controlling Exposure

DANGER

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

nysut
A Union of Professionals

This booklet was prepared and published by

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Introduction

- *A college secretary has noticed white crumbly material dropping down on her desk from the sprayed-on acoustical ceiling.*
- *Maintenance and custodial workers have to enter a pipe corridor, brushing past crumbling, dirty-gray pipe insulation.*
- *Transite roofing tiles and panels are seen lying broken around abandoned buildings.*
- *A high-mileage automobile has been donated to the vocational education auto shop for brake and clutch repair, requiring grinding.*
- *The science lab has flexible insulating mats under the Bunsen burners.*
- *Electrical repair and replacement is done in areas with old wires wrapped in crumbling insulation.*
- *Building occupants notice loose and broken floor tiles installed in the 1960s.*

Damaged Pipe Insulation

These actual events illustrate the hazards of asbestos exposure to employees. The materials in each case could contain asbestos, and the situations result in the release of asbestos fibers into the air. In the past these situations were not taken as seriously as they are today.

Asbestos was used in many products because of its properties and companies making asbestos containing products made huge profits. Some in the asbestos industry kept the health effects secret and, as a result, many asbestos workers who worked with the material in the 1930's and 1940's started to become ill in the 1960's and 1970's. For example, shipyard workers from World War II years later developed asbestos-related diseases, as did their families. It proved that even asbestos fibers brought home on work clothes could harm others who breathed them in. One of the most publicized cases involved the Johns Manville Corporation. Workers who became ill working with materials made by Johns Manville sued the company because they wanted to become compensated for their asbestos-caused illnesses. The company knew of the health effects but didn't warn producers and workers. Workers won that case because of the known harmful effects of breathing and swallowing asbestos fibers: cancer and asbestosis.

This booklet provides information on the many regulations passed since 1970 to protect workers from asbestos, and provides scenarios and their solutions within the chapter "Typical Situations and Remedies". Also included at the end of the booklet are resource lists, checklists for workers and definitions of regulatory terminology.

Workers who have been exposed in the past, and who do not appear to have symptoms of asbestos-related illness can still become ill because of the long period between exposure and on-set of illness.

Because of the illnesses and deaths experienced by asbestos workers, the federal government and states passed laws regulating exposure to asbestos. The worker protection laws passed since 1970 are designed to protect people from exposure and to reduce exposure.

These laws and regulations came long after tens of thousands of employees were overexposed. Thousands will continue to develop asbestos-related diseases causing death or serious chronic health problems. Though they came too late for workers exposed in the past to be protected against asbestosis or lung cancer, present and future workers can be protected if these laws are followed.

Your employer must protect you against exposure by complying with these laws.

Be informed of your rights and your employer's responsibilities about asbestos exposure.

This booklet is not a substitute for the referenced regulations, which are detailed and complex. See all applicable federal, state, and local regulations for complete requirements, or contact appropriate agencies for assistance and questions.

Asbestos Properties

Asbestos is a soft, threadlike mineral fiber that occurs naturally in certain types of rock. These rocks are mined, crushed and then put through a special suctioning process to separate out the commercially usable fibers. In 2010, about 2 million metric tons of asbestos was produced worldwide, primarily in Russia, China, and Brazil. There are no more operating asbestos mines in the U.S. 1100 tons of raw chrysotile asbestos was imported into the U.S in 2010, 58% of which was used in roofing products. Imported friction products such as brakes and clutches, especially from China, also contain asbestos, as do other legally imported manufactured items.

Asbestos has many properties that made it commercially valuable. Asbestos does not burn or easily conduct heat or electricity. It is also flexible and strong and is not affected by most chemicals and mechanical breakdown. Because it is virtually indestructible, asbestos was considered a "miracle fiber" and was used in many materials. It was used in the fire proofing and insulation of buildings and ships; in the insulation of pipes and boilers; as a component in putty, caulk, paints, and cements; in automobile parts, including clutch facings and brake linings, and in numerous building materials.

The properties of asbestos have been known since ancient times. In ancient Egypt, asbestos cloth was used to prepare bodies for burial. The Romans cremated their dead in asbestos cloth; the ashes were then easily collected since the fire did not destroy the cloth.

Asbestos fibers may be submicron in diameter (one-thousandth of a millimeter, also called μm or microns) and about 5 microns in length. This is the length of typical bacteria such as *Mycobacterium tuberculosis*. A micron is about 1/25000 of an inch!

Table 1: Comparison of Fiber Diameters

Fiber	Diameter in micrometers	Length in micrometers
Asbestos fibers	0.4 um, micrometers (typical)	5 um (typical)
Human Hair	75 um	
Glass fiber	6 um-30um	

There are 6 different types of asbestos. The best-known, most common, and most widely used type is chrysotile (white asbestos). Amosite, is a common industrial term that stands for Asbestos Mine of South Africa. Other types of asbestos include crocidolite, tremolite, a contaminant in talcum powder and vermiculite, anthrophyllite, and actinolite. Each of these materials is a specific mineral and there are several names for some of these

materials. In addition, some other minerals (erionite) are not technically asbestos but cause similar diseases.

The health hazards of asbestos were not well known until the early 1900's. In 1931, Great Britain was the first country to establish health laws regulating asbestos exposure. In 1935, the Canadian province of British Columbia passed a law requiring asbestos workers to wear protective equipment. Even though asbestos was known as a health hazard for years, it wasn't until 1970 that the United States passed the Occupational Safety and Health Act (OSHA). This law established OSHA and regulated worker exposure to asbestos.

In 1973, the US Environmental Protection Agency (EPA) banned sprayed asbestos for insulation and fire proofing. In 1986, the EPA began a program to reduce exposure to asbestos in all public and private primary and secondary school buildings. In 1989, the EPA ordered a gradual ban on the manufacture, processing, import, and distribution of many asbestos-containing products. This rule was thrown out by the federal courts and as of 2012; the US still has not banned the import and use of asbestos, unlike the European Union and Japan. Many asbestos products are still manufactured or imported and legal, including roofing products, gaskets, brakes, and clutches.

chysotile asbestos

Health Hazards of Asbestos

After exposure to asbestos fibers, it takes several years for asbestos-related illnesses to develop. The time between exposure and on-set of illness is called the latency period. Many people exposed to asbestos 20 to 30 years ago are now becoming ill. Latency can be as long as 50 or more years.

Information on the health effects of asbestos in people comes mostly from studies of people with very high workplace exposure levels. Workers who repeatedly breathe in asbestos fibers with lengths of 5 microns or greater may develop a slow buildup of scar-like tissue in the lungs and in the membrane that surrounds the lungs. This scar-like tissue does not expand and contract like normal lung tissue and so breathing becomes difficult. Blood flow to the lungs may also be decreased, and this causes the heart to enlarge. This disease is called asbestosis. People with asbestosis have shortness of breath, often accompanied by a cough. This is a slowly progressing, painful disease. It is serious and can eventually lead to disability and death. However, asbestosis is not usually of concern to people exposed to low levels of asbestos.

Asbestos exposure increases the chances of getting two principal types of cancer: cancer of the lung itself and mesothelioma, a cancer of the thin membrane that surrounds the lung and other internal organs. These diseases have a long latency period measured in decades. There is also some evidence that breathing asbestos can increase the chances of getting cancer in other locations, for example, the stomach, intestines, esophagus, pancreas, and kidneys. People who have lower levels of exposure may also have increased chances of getting cancer, but the risks are usually small and are difficult to measure directly. Lung cancer is usually fatal, while mesothelioma is almost always fatal, often within a few months of diagnosis.

The levels of asbestos in the air that lead to lung disease depend on several factors. The most important of these are (1) how long you were exposed, (2) how long it has been since your exposure started (latency period), (3) whether you smoked cigarettes. Cigarette smoking and asbestos exposure greatly increase your chance of getting lung cancer. Also, there is a scientific debate concerning the differences in the extent of disease caused by different fiber types and sizes.

There is also a direct connection between smoking and asbestos exposure. If you smoke and are not exposed to asbestos, you have a 10 times greater chance of getting lung cancer when compared to non-smokers. Asbestos alone increases the risk of lung cancer about 5 times. If you smoke and are exposed to asbestos, you have a 50 times greater chance of getting lung cancer when compared to non-smokers. Approximately 1/4 to 1/3 of all cigarette smoking asbestos workers who used no respiratory protection will develop lung cancer. Lung cancer in asbestos workers is preventable by stopping smoking and by not breathing asbestos dust. For workers in the asbestos-exposed trades, this means the use of

high quality, proper fitting and well maintained respiratory protective equipment and safe work practices.

Controlling Asbestos Exposure

Current methods of controlling asbestos exposure are:

- Asbestos can be removed. This can be a very effective way of dealing with asbestos exposure. The cost of removal may be high but once it is removed, you never have to worry about it again. Safely removing asbestos requires the use of proper procedures described in this booklet; improper procedures may increase exposure to workers and the public during the removal process. There are many examples of sloppy removal jobs which resulted in people being unnecessarily exposed to asbestos.
- If the asbestos is friable, it should be removed or covered (encapsulated or enclosed). Once asbestos is removed, the concern for exposure is eliminated. The removal cost may be high but it is a final cost. Removal also eliminates the need for frequent inspections, training of employees, and the costs of frequent repair.
- Other methods of controlling asbestos exposure include encapsulation and enclosure. When asbestos is encapsulated, a protective coating is applied to the asbestos so it binds to the substrate (material it was applied to) and does not become loose. When asbestos is enclosed, an airtight wall, ceiling or floor barrier is installed around the asbestos to prevent the fibers from getting into the environment.

  With encapsulation or enclosure, the hazard is not removed. Encapsulation does not last permanently. The encapsulant may deteriorate and cause fibers to get into the air. Often, when the asbestos is enclosed, the enclosure has to be removed to do installation or repair work. This could release fibers into the air. Some enclosures do not properly enclose the asbestos. Both methods also keep incurring costs when the encapsulant has to be reapplied and enclosures have to be repaired or re-built.

  Enclosure and encapsulation are temporary solutions since asbestos will eventually have to be dealt with during renovations, when the ACM begins to become friable, or when the building is demolished.
- ***Asbestos-containing materials (ACM) or Asbestos-containing building materials (ACBM)*** need frequent inspections to make sure they remain in good condition. ACM is any material containing more than one percent (1%) of asbestos. ACM should be labeled as asbestos so it is not disturbed or damaged, and so that employees know to take precautions if removal or disturbance is necessary.
- ***Friable asbestos*** is ACM that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure, or is capable of being released into the air by hand pressure. If it is not crumbly or loose or capable of being released into the air by hand pressure *(non-friable)* and is in good condition, asbestos is best left alone.

The method of control depends upon the condition and form of the asbestos (sprayed on insulation, friable, or in ceiling tile, etc.) the amount, the number of people exposed or potentially exposed, and its potential for being damaged.

The various regulations are discussed in the next chapter. Regulatory terms will be defined in the glossary.

Laws Regulating Exposure to Asbestos

There are a number of laws that regulate exposure to asbestos. These laws protect a range of people from employees working with asbestos, to building occupants, the public, and school children. Some of these laws are enforced by New York State and some by the Federal Government. Some local jurisdictions, such as New York City, also have specific rules pertaining to asbestos.

OSHA has a permissible exposure limit (PEL) of 0.1 fibers per cubic centimeter (f/cc) averaged over an 8 hour workday. However, it is wise to limit your exposure to asbestos as much as possible. This PEL may be a legal standard, but even OSHA cannot say for certain what a safe level of exposure is. People can still develop disease even though their exposure is below the PEL. Each person has a different ability to withstand the fibers. A certain accumulation of fibers in the body may make one person ill and not another. The PEL is an absolute maximum exposure and actual exposures should be as low as reasonably possible.

NYS Department of Labor Public Employees Safety and Health (PESH) enforce OSHA regulations for all state, county, municipal, and school district employees in New York State. Most regulations PESH enforces, including the asbestos regulations, are identical to the OSHA regulations, but both the chemical PEL's and the Hazard Communication Standard are somewhat stricter under PESH than OSHA.

New York State Industrial Code Rule 56 (12 NYCRR Part 56, Asbestos) requires precautions and trained workers for the "removal, encapsulation, enclosure, repair, or the disturbance of friable or non-friable asbestos, or any handling of asbestos material that may result in the release of asbestos fiber." This Code Rule is enforced by the New York State Department of Labor, and its purpose is to reduce the risk to the public safety and health during removal, encapsulation, enclosure or disturbance of asbestos, or the handling of asbestos material. It requires notification of building occupants and other authorities prior to such disturbance of asbestos materials

Industrial Code Rule 56 - NYS Department of Labor Industrial Code Rule - Asbestos Regulations

The purpose of Industrial Code Rule 56 (ICR 56) is to reduce the risks to the public from exposure to asbestos and to follow federal requirements as set forth in AHERA, NESHAP and OSHA. ICR 56 requires contractors or employers to be licensed and workers to be certified by the NYS Department of Labor Asbestos Control Bureau. Workers must pass examinations to become certified. The code rule also requires that specific work practices and air monitoring be done. The regulation applies to any asbestos project, defined as the "disturbance of asbestos fibers, and the planning, asbestos survey, design, background air sampling, inspection, air sampling and oversight of abatement work, cleanup, and the handling of all asbestos material subject

to abatement, as well as the supervising of such activities." The NYS Department of Labor Asbestos Control Bureau enforces these regulations.

The Asbestos Hazard Emergency Response Act (AHERA)

Federal regulation that protects school children and school employees from asbestos exposure. These regulations are enforced by the US Environmental Protection Agency (EPA) and are coordinated by the NYS Department of Education (SED) through the Office of Facilities Planning.

29 CFR 1926.1101 OSHA Construction Asbestos Regulations

Construction industry standards covers employees who perform, but are not limited to, the following: demolition, salvage of structures where asbestos is present, removal or encapsulation of building materials containing asbestos, construction, alteration, repair or renovation of building materials that contain asbestos, installation of building products containing asbestos, spills/emergency cleanup of asbestos, transportation, disposal, storage and containment of asbestos or asbestos containing products on the site where construction activities are performed. Enforced by PESH for public employees.

29 CFR 1910.1001 OSHA Asbestos Regulations

General industry standards that cover employees who make asbestos containing products or work with certain asbestos containing products such as brake linings and clutches, and employees who are incidentally exposed because of other workers disturbing it or because it's being released in the workplace. Enforced by PESH for public employees.

NYS Department of Environmental Conservation (DEC or EnCon)

Regulations cover requirements for transportation of asbestos on public roads and its safe disposal. These regulations are enforced by the NYS Department of Environmental Conservation.

Federal Department of Transportation

DOT regulations cover the requirements for transportation of asbestos on public roads. These regulations apply to states that do not have state regulations for transport of asbestos. These regulations are enforced by the Federal Department of Transportation.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

These federal regulations cover asbestos as an air pollutant when it is released during a demolition or renovation project. The US Environmental Protection Agency (EPA) enforces these regulations.

All of these regulations and more information concerning asbestos are readily available from the specific agencies on their websites.

NYS Department of Labor Asbestos Regulations – Industrial Code Rule 56

These are regulations that contractors and employers must follow when removing, enclosing, applying, encapsulating or disturbing asbestos or asbestos containing materials (ACM). It also applies to the demolition of structures containing asbestos. ACM is any material containing more than one percent (1%) of asbestos.

The purpose of ICR 56 is to reduce the risks to the public associated with exposure to asbestos and to conform to federal requirements set forth in AHERA, NESHAP, and OSHA. ICR56 requires that contractors and employers be licensed and workers be certified by attending approved training and by taking examinations.

Asbestos projects are defined by ICR 56 as work that involves the removal, encapsulation, enclosure, repair, or disturbance of friable or non-friable asbestos, or any handling of asbestos materials that may result in the release of asbestos fibers. An asbestos project includes any disturbance of asbestos fibers, and the planning, asbestos survey, design, background air sampling, inspection, air sampling and oversight of abatement work, cleanup, and the handling of all asbestos material subject to abatement, as well as the supervising of such activities.

The code defines two phases of asbestos work: phase I (pre-abatement, 2 steps) and phase II (abatement, 4 steps) as well as three sizes of projects (see Table 1).

Table 1
ASBESTOS PROJECT PHASES OF WORK

Phase I (Prior to Asbestos Abatement Contractor Mobilization) Pre-Abatement		**Phase II** ⇐ Start ----------Abatement----------End ⇒			
A	B	A	B	C	D
Asbestos Survey, Planning & Design	Background Air Sampling	Regulated Abatement Work Area(s) Preparation & Enclosure Construction	Asbestos Handling including, Gross Removal or Abatement, Initial Cleans and Waste Removal	Final Cleaning & Clearance Air Samples	Final Waste Removal From Site
⇐ Start ----------Asbestos Project----------End ⇒					

The three sizes of asbestos projects:

Table 2: Asbestos Project Sizes

Project Size	**Disturbance, handling work on ACM, PACM, or asbestos material:**
Large Asbestos Project	160 square feet or more or 260 linear feet or more
Small Asbestos Project	More than 10 sq. ft. and less than 160 sq. feet or More than 25 linear ft. and less than 260 linear ft.
Minor Asbestos Project	10 square feet or less or 25 linear feet or less

PHASE I: BEFORE THE ASBESTOS PROJECT BEGINS

Code Rule 56

Contractor/Employer Licensing

A contractor may be any state agency, political subdivision, public authority, other government agency, self-employed person, contractor, etc. that employs persons engaged in asbestos work. An asbestos handling license must be obtained in order to work as: an abatement contractor, management planner, project designer, project monitor, allied trades person, inspectors, and air sampling monitor. All persons at such firms must obtain required and approved training and asbestos certificates for tasks performed. Valid asbestos handling licenses must be prominently displayed outside a regulated abatement work area, during Phase 1B and Phase II A through IID of an asbestos project. (ICR-56-3.1)

No employee can disturb asbestos unless his or her employer has a valid asbestos-handling license issued by the NYS Department of Labor Asbestos Control Bureau.

Certification of Employees

All workers disturbing asbestos must be certified by the NYS Department of Labor Asbestos Control Bureau. (ICR-56-3.2)

A copy of valid asbestos handling certificates for each worker must be posted outside the regulated abatement work area. There are nine categories of asbestos certificates, including asbestos handlers (workers), restricted asbestos handlers (allied trades), air sampling technicians, inspectors, etc.

Allied trades such as plumbers, electricians, carpenters, building maintenance staff, etc., who must disturb asbestos when they perform installation or maintenance duties must have a certification as an asbestos worker or certification as a restricted asbestos handler. No allied trade can work in or around asbestos without either of these two certifications.

Contractor/Employer Notification

Large Asbestos Projects:

[Project involving more than 160 square feet or more than 260 linear feet]

The following agencies must be notified on specified forms and fees paid at least 10 calendar days prior to the start of the project: (ICR-56-3.4)

- NYS Department of Labor Asbestos Control Bureau
- US Environmental Protection Agency (260 linear feet or 1 cubic meter of ACM debris)

Any size Project:

Building occupants must be notified at least 10 calendar days before the start of the project. If a small project begins in less than 10 days, notification must be at least 3 days prior to the start of the project. For an emergency project, notification and posting of written notice shall be as soon as practicable. Notifications must remain posted until the completion of the project. (ICR-56-3.6)

EMERGENCY ASBESTOS PROJECTS ICR-56-3.5

Prior to the commencement of an asbestos project that is necessary to respond to an emergency, or to cleanup an incidental disturbance, the contractor must contact the Asbestos Control Bureau and receive verbal permission to proceed. Written notice must be filed within 3 business days. All work must be in compliance with ICR-56. US EPA must be notified the next day after the start of a large emergency asbestos project.

Work Area Preparation of Large and Small Asbestos Projects:

- Prior to preparing the area, all occupants must vacate the work area and asbestos restricted entry and caution signs must be posted. (ICR-56-7.4)
- All electric power must be shut off and locked out. Power is then brought in through a ground fault circuit interrupter system. (ICR-56-7.7)
- Heating, ventilating and air conditioning systems (HVAC) must be shut down and isolated or put under positive pressure. This prevents asbestos fibers from entering the system and getting into other parts of the building. (ICR-56-7.9)
- Air sampling must be done to make sure there in no contamination in non-project areas. The contractor must have someone other than his or her employees perform the air monitoring by contracting out the monitoring to a third party. Air sampling must be done inside and outside the asbestos project. (ICR-56-6, ICR-56-7.1, ICR-56-8.1)
- Fixed objects such as sinks, laboratory tables, heating units, and built-in bookcases, etc., have to be pre-cleaned by HEPA vacuuming or

wet/damp cleaning. HEPA means High Efficiency Particulate Air. HEPA filters stop 99.97% of the particles 0.3 microns or larger in size. In addition, fixed objects must be covered with 2 layers of 6-mil fire retardant plastic sheeting and sealed with duct tape. (ICR-56-7.10)

- Objects, i.e. equipment, furniture or other fixtures in the work area that can easily be removed must be removed and HEPA vacuumed. (ICR-56-7.10a)
- The work area must be pre-cleaned by either HEPA vacuuming or wet/damp cleaning. (ICR-56-7.10)
- Suspended ceiling tiles containing asbestos must remain in place until the work area is covered with plastic and decontamination equipment has been constructed. Tiles can then be removed and disposed of as asbestos waste.
- All emergency and fire exits must be maintained; elevators in the work area must be shut down or isolated. (ICR-56)

Demolition Regulated Areas:

a. All projects to be considered large projects unless it can be proven otherwise: The entire demolition area shall be considered the regulated abatement area. Prior to work area preparation, occupants must vacate all project areas. The project must be cordoned off with barrier tape, accessible by only one opening. Caution signs must be posted. (ICR-56-11.5)

CHECKLIST FOR BEFORE THE PROJECT BEGINS

____CONTRACTOR/EMPLOYER LICENSED? (ICR-56-3.1)

____WORKERS CERTIFIED? (ICR-56-3.2)

____DOL AND EPA NOTIFIED? (ICR-56-3.4, 3.5, 3.6)

____PROJECT AREA (AREA WHERE THE ASBESTOS WORK IS BEING DONE) VACATED BY OCCUPANTS? (ICR-56-7.4)

____HVAC SHUTDOWN? (ICR-56-7.9)

____PROJECT AREA HAS DECONTAMINATION ENCLOSURE SYSTEM? (ICR-56-7.5)

____CAUTION SIGNS POSTED? (ICR-56-7.4)

____AIR SAMPLING DONE BEFORE PROJECT BEGINS? (ICR-56-6)

ASBESTOS REMOVAL AND HANDLING: PHASE IIB OF THE PROJECT

Code Rule 56

Entry/Exit Procedures

All workers must enter and exit the work area through the decontamination enclosure system. All workers must first go to the clean room to remove street clothes and put on protective clothes such as a Tyvek suit and respirator. Before leaving the work area, all gross contamination (visible accumulation of asbestos) must be removed. After removal of gross contamination, workers go to the equipment room where work clothes are removed. Workers then go to the shower room and wash themselves. After showering, workers can put on clean work clothes if returning to the work area or street clothes if leaving for the day. (ICR-56-7.5, ICR-56-8.3)

Engineering Controls - Ventilation

All large and small projects must have negative air pressure ventilation that operates continuously. Negative air machines maintain air pressure inside the work area that is lower than outside air pressure by 0.02 inches of water column, as evidenced by a manometer. This prevents the workroom air from entering occupied areas. The machine exhaust must be HEPA filtered and vented to the outside. The exhaust opening cannot be within 15 feet of any building air intake. There must be enough negative air machines to provide at least 4 air changes per hour. One extra machine is kept as backup in case one of the others breaks down. If there is a power failure, all work must stop. (ICR-56-7.8)

Maintenance of Decontamination Enclosure Systems and Work Area Barriers

All plastic must be inspected twice daily and any damage must be repaired immediately. The negative air ventilation must be tested at least once a day.

If air monitoring shows that asbestos is getting outside the work area or any if barriers become damaged, work must stop and repairs must be made. Any debris outside the work area must be HEPA vacuumed and/or wet/damp cleaned. The enclosure system must be HEPA vacuumed and/or wet/damp cleaned at the end of each workday. (ICR-56-8.2)

Handling, Removal and Encapsulating Procedures

General Requirements

- The work area must be cleaned and isolated.
- Dry removal of asbestos is not permitted! Asbestos materials must be wetted frequently with amended water (water with a chemical that soaks through the asbestos). Material dropped more than 10 feet must go down a dust tight chute. Large pieces must be wrapped in plastic. Sharp pieces must be put in hard wall containers and sealed airtight.
- Surfaces that have been stripped must be HEPA vacuumed and/or wet cleaned and an encapsulating agent (sealant) must then be applied.
- An encapsulate (sealant) is applied using airless spray equipment at low pressure. Latex paint cannot be used as an encapsulant! All encapsulated asbestos material must be marked or labeled. (ICR56-8.4, ICR-56-8.7)

Procedures when Asbestos Containing Materials Are Enclosed - General Requirements

The work area must be cleaned and isolated as described under Work Area Preparation. Loose and hanging materials must be removed. Ducts insulated with asbestos must not be enclosed. Enclosed asbestos materials must be marked or labeled. (ICR-56-8.8)

Clean-Up Procedures: General Requirements for Large and Small Asbestos Projects

There must be at least one cleanup before the end of the workday. Asbestos must be kept wet throughout the entire procedure including during removal.

Dust and decontamination enclosure must be cleaned up using a HEPA vacuum and/or wet cleaning methods. Asbestos waste must be containerized using HEPA vacuums or rubber or plastic pans or shovels. Metal shovels cannot be used to pick up waste because they can damage the plastic. **Air monitoring must be done daily while the project is in progress.** (ICR-56-8.5)

CHECKLIST FOR DURING THE PROJECT

____WORKERS ENTERING AND EXITING THROUGH THE DECONTAMINATION ENCLOSURE SYSTEM? (ICR-56-8.3)

____PROJECT HAS EXHAUST VENTILATION TO THE OUTSIDE? (ICR-56-7.8)

____ ABATEMENT AREA SEPARATED FROM THE REST OF THE BUILDING WITH AN AIRTIGHT BARRIER? (ICR 56-7.11)

____NO ASBESTOS OUTSIDE THE WORK AREA? (ICR-56-8.1)

____HEPA VACUUMS USED FOR CLEANUP? (ICR-56-8.5)

____DAILY AIR SAMPLING DONE INSIDE AND OUTSIDE THE BARRIER DURING THE PROJECT? (ICR-56-8.1)

FINAL CLEANING REQUIREMENTS AFTER GROSS ABATEMENT IS COMPLETE

Post Abatement Requirements ICR-56-9

- Containerize all waste using HEPA vacuums or pick up with rubber or plastic pans or shovels.
- Wet clean all surfaces and remove plastic barriers.
- Perform a second cleaning and remove the remaining plastic.
- Perform a third cleaning. During this cleaning, HEPA vacuum or wet clean all surfaces, and perform visual inspection by trained and certified project monitor.
- Maintain negative air pressure during the cleaning.
- Remove all waste containers and tools from the work area.
- Perform air monitoring before the enclosure is removed using aggressive sampling techniques. These techniques include using a fan to stir up dust during the sampling period.

CHECKLIST: CHECKLIST FOR FINAL CLEANING AFTER GROSS ABATEMENT IS COMPLETE

____DAMP CLEANING AND HEPA VACUUMS USED FOR CLEANUP? (ICR-56-9.1)

____NEGATIVE PRESSURE VENTILATION KEPT RUNNING DURING THE CLEANING? (ICR-56-9.1)

____AGGRESSIVE AIR SAMPLING DONE BEFORE DECONTAMINATION ENCLOSURE TAKEN DOWN? (ICR-56-9.2)

____ASBESTOS WASTE PROPERLY CONTAINERIZED AND REMOVED? (ICR-56-10.4)

Minor Projects ICR-56-11.3

Minor projects involve the disturbance of less than 10 square feet or 25 linear feet or less of asbestos. Minor projects include patching, removal, or other disturbances such as nailing, drilling and scraping.

Glove bags and tents may be used to seal off the area being disturbed instead of sealing off the entire area as required by the larger projects. A glove bag is a large sealed plastic bag with attached inner gloves used for the removal of asbestos from pipes. A tent is a plastic enclosure that is used to isolate the area being repaired.

Negative air pressure ventilation must be used.

All waste must be containerized and removed. All surfaces in the work area must be damp cleaned.

Negative pressure must be maintained for 20 minutes after final cleaning.

Air monitoring must be undertaken to determine if isolation barriers can be removed.

Repair Procedures for Minor Asbestos Projects

a. Using a Glove Bag (ICR-56-3(d))

All repairs must be made with non-asbestos material. Pipe repairs are made using 6-mil plastic commercial glove bags. Duct tape must be placed around the pipe for a seal. All asbestos must be wetted with amended water before stripping. After stripping, the pipe must be wetted with amended water and scrubbed clean.

A HEPA vacuum must be used to collapse the glove bag. The glove bag must then be put in a 6 mil plastic bag.

b. Using a Tent (ICR-56-3(e))

Workers must wear disposable protective clothing and NIOSH approved respirators.

A HEPA vacuum must continuously exhaust the tent.

All material to be removed must be saturated with amended water and put in plastic bags before removal. The entire tent and project must be wet cleaned.

Workers, after exiting the tent, must put on clean protective clothing. The tent must be sealed and collapsed and be put in a 6 mil plastic bag or hard-wall container, sealed with tape and removed for disposal. Workers must then go to the decontamination shower.

Air Sampling, Monitoring, And Analysis Before, During and After Abatement Projects (ICR-56-4, ICR-56-7.1, ICR-56-8.1, ICR-56-9.1, ICR-56-9.2)

For some size projects, air sampling must be done prior to abatement and daily during the project. All projects require area monitoring after abatement. The size of the project determines the number of samples required and where they must be taken.

Remember: All monitoring must be done by a certified person who is not an employee of the contractor doing the abatement.

Clearance sampling cannot begin until at least 12 hours after wet/damp cleaning except for minor projects. Large Asbestos projects require a minimum of 5 area samples inside and 5 area samples outside the work area. Small asbestos projects require a minimum of 3 area samples inside and 3 area samples outside the work area.

Note: OSHA requires personal monitoring. At least one employee must have his or her breathing zone monitored. These are separate requirements for employees performing the abatement. See OSHA Asbestos regulations.

Table 3: ASBESTOS PROJECT AIR SAMPLING AND ANALYSIS REQUIREMENTS (ICR-56-4.9)

Project	Background Sampling (prior to start of project)	Pre-Abatement (area preparation)	Abatement Sampling (work in progress)	Clearance Air Monitoring (post-abatement)
Large	Required	Required	Required	Required
Small	Required	Not Required	Not Required	Required
Minor	Not Required	Not Required	Not Required	Required*

**If glovebag or tent failure or loss of integrity, or if minor size work is part of small or large project.*

Air Sampling and Analysis (ICR-56-4)

Certified air sampling technicians not employed by the contractor must do the air sampling, contracted by the property owner or owner's agent. Only a state certified laboratory (NYSDOH ELAP) can be used to analyze the samples. If air samples outside the work area or in the clean room show asbestos concentrations at or above 0.01 fibers per cubic centimeter (0.01 f/cc) or the pre-abatement (ambient) level, whichever is higher, work must stop immediately for inspection and repair of barriers and equipment. Clean up of surfaces outside the regulated abatement area shall be performed prior to resumption of activities.

Clean up must be done by HEPA vacuums and/or wet/damp cleaning. Air is considered clear when fiber concentrations are less than 0.01 f/cc or the ambient level. Union officers should request daily air results to insure that concentrations are not at or above the allowed levels. Sampling results must be back within 48 hours from the time the sample was collected. Asbestos contractors must notify the building owner and all employers and occupants in areas adjacent to a Phase II work area if there is an elevated air sample result or barrier failure and cleanup. This notification must be on the same day as they are aware of the air sampling results. (ICR-56-1.4)

Records (ICR-56-3.4)

The contractor or employer must keep records on asbestos projects for at least 30 years. These records must include:

- The name, address and social security number of the project supervisor
- The location and description of the project
- The amount of asbestos that was involved
- The project start and completion date
- The name, address, and asbestos handling license number of the air sampling contractor used
- The name, address, and current NYS-DOL ELAP registration number of the laboratory used for air sample analysis
- The name, address, and asbestos license number of the project monitor
- The name and address of the disposal sites
- The name and address of transporters
- The name, address, asbestos license or certificate number, and social security number of all persons engaged in the project.
- A copy of the asbestos abatement supervisor's daily project log

Any employee has a right to have access to air monitoring records in their work area. OSHA 29CFR 1910.1020, Access to Employee Exposure and Medical Records, outlines rights and access to air monitoring records and results.

The Asbestos Hazard Emergency Response Act (AHERA)

ENFORCED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA)

Asbestos-containing products were used extensively in the construction of schools and other public buildings, until the 1970's. In 1986, Congress passed the Asbestos Hazard Emergency Response Act (AHERA) to protect public and private school children and school employees from asbestos exposure. AHERA recognizes that asbestos materials in schools that are in good condition generally do not pose a health risk. AHERA includes requirements to monitor the condition of asbestos-containing materials, to manage the materials, and to maintain communication between all interested parties. The provisions of AHERA cover public and private schools in the United States and its possessions.

Provisions of AHERA

- Each school must designate and train a person to oversee asbestos-related activities in the school. This person can be a consultant or a school employee.
- All buildings must be inspected for the presence of asbestos-containing materials.
- A management plan for controlling asbestos exposure must be developed, using accredited inspection personnel to implement the plan. All records should be available for public review.
- All teachers, parents and employees should be informed annually about the asbestos-related activities in the school.
- School districts can be fined for failing to meet provisions of AHERA.

Further Information

If you have questions regarding asbestos in a particular school, you can speak to the person designated at that school to oversee asbestos-related issues. You can also speak to your local Environmental Protection Agency (EPA) Asbestos Regional coordinator (listed in Resources) or call the Environmental Protection Agency Asbestos Ombudsman at (800) 368-5888.

This law makes school administration responsible for protecting children and school employees by implementing inspections, seeing that custodial and maintenance employees are properly trained, that workers and building occupants are informed annually about the status of the asbestos, informing any outside repair

workers where asbestos is located in the building, making sure asbestos warning labels are posted on asbestos containing materials, and making management plans available for review by parents, teachers and employee organizations.

Inspections

- The school must have an accredited inspector visually inspect all areas of each school building to identify where friable and non-friable suspected asbestos might be located.
- The inspector must then develop an inventory of areas where samples are taken or where it is known where asbestos is located in the asbestos containing building materials (ACBM).
- The inspector is required to assess the physical condition of friable (easily crumbled) asbestos and report these findings in the management plan.
- Areas that do not need to be inspected include areas already identified as containing ACBM, areas that have been tested for the presence of ACBM and none was found, where records have shown all ACBM was removed, and schools built after October 12, 1988 if no ACBM was specified in the building specifications.
- The school must have a re-inspection at least once every three years. All areas known to contain ACBM must be re-inspected.
- The inspector must determine if any non-friable asbestos has become friable since the last inspection.
- All changes in conditions must be reported and included in the management plan.

Sampling and Analysis

- Sampling must be done on suspected and known ACBM. A bulk sample (small piece of the ACBM) is taken for analysis.
- Sampling must be done in a random manner to provide data that is representative of each area being sampled.
- Only laboratories accredited by the National Bureau of Standards (NBS) can be used for analysis. In NYS, labs must also be approved by the NYS DOH ELAP (Environmental Laboratory Approval Program).
- If the sample indicates a concentration of asbestos greater than one percent (1%), the material is identified as ACBM.

Assessment

Assessment should include the following considerations:

- ❖ Location and amount of materials.
- ❖ Condition of the ACBM.
- ❖ Potential to be disturbed by building occupants.
- ❖ Accessibility
- ❖ Known or suspected causes of damage.
- ❖ Preventive measures that can be taken to eliminate damage.

The school administration must then, after reviewing the results of the inspection and assessment, put in writing appropriate response actions they intend to implement.

Management Plans

School administration must develop an asbestos management plan that includes:

- ❖ A description of inspections and response actions.
- ❖ An assurance that accredited persons were used to conduct inspections, develops management plans, and design or conduct a response.
- ❖ A plan for re-inspection, periodic surveillance, and operations and maintenance.

A copy of the plan must be kept at each school building and at the central administrative office. Copies must be available to the public during business hours.

Response Actions

Response actions must be performed by accredited persons and must address the following:

- Damaged or significantly damaged thermal system insulation ACBM.
- Damaged or significantly damaged friable surfacing or miscellaneous ACBM.
- Friable surfacing or miscellaneous ACBM and thermal system insulation ACBM that has potential for damage or significant damage.

- ❖ Damaged or significantly damaged thermal system insulation must be either repaired or removed.

- ❖ Damaged friable surfacing must be encapsulated, enclosed, removed, or repaired.
- ❖ Friable surfacing that is significantly damaged, must be immediately isolated and then removed unless enclosure or encapsulation is sufficient to contain the fibers.
- ❖ Where any area of friable surfacing is significantly damaged, the space must be isolated before the asbestos is removed.

Operations and Maintenance (O&M) Program

An operations and maintenance program must be developed by the school to make sure that the ACBM in place is in good condition. The purpose of the O&M program is to:

- ❖ Clean up asbestos fibers that have been released
- ❖ Prevent further release by minimizing ACBM disturbance
- ❖ Monitor conditions of ACBM.

All work must be performed by certified employees under NYS Code Rule ICR-56 requires certification by the NYS DOL for any disturbance, cleanup or removal of asbestos, no matter how small.

Before conducting any response action, all areas of the school building must be cleaned of any friable asbestos that may have been released. Cleaning includes the following procedures:

- ❖ Vacuum all carpets with a High Efficiency Particulate Air (HEPA) filter vacuum (never a conventional vacuum) or steam clean all carpets.
- ❖ HEPA vacuum or wet or damp clean all floors and all other horizontal surfaces (<u>never</u> dry sweep, mop or dust).
- ❖ Dispose of all debris, filters, mop heads, and clothes in sealed, leak-tight containers.

If any O&M activities disturb asbestos, these procedures must be followed:

- Restrict entry into the area except to those performing the work.
- Post signs to prevent unauthorized entry.
- Shut off or temporarily modify the air handling system to prevent building contamination.
- Use wet methods, protective clothing, HEPA vacuum, mini-enclosures and glove bags to control the spread of fibers.
- Clean all fixtures in the work area.
- Place debris and other cleaning materials in sealed, leak-tight containers.

- ❖ **Note**: All cleanup of fiber releases and debris and/or disturbance of asbestos containing building materials in schools must comply with provisions of the NYS Department of Labor Industrial Code Rule 56.
- ❖ **Remember**: A worker cannot be asked to clean up asbestos without having the training and certification required by ICR-56 and the employer, which is the Local Education Agency (LEA), must have an asbestos handling license issued by the NYS Department of Labor, if school district employees are going to clean up asbestos.

Training and Surveillance

School administration must make sure all maintenance and custodial staff receive at least 2 hours of awareness training whether or not they are required to work with ACBM. New maintenance and custodial employers must be trained within 60 days of hire. This training must include:

- ❖ Information on uses and forms of asbestos.
- ❖ Information on the health effects associated with asbestos exposure.
- ❖ Locations of ACBM in the building(s) where they work.
- ❖ Recognition of damage or deterioration.
- ❖ Name and telephone number of person designated to carry out responsibilities and the location of the management plan.

The school must conduct periodic surveillance at least once every 6 months. This requires checking the ACBM to see if there have been any changes in its condition. The date of the surveillance and any changes must be recorded in the management plan.

School Asbestos Worker and School Occupant Protection

- School asbestos workers are protected by the New York State Department of Labor Industrial Code Rule 56 Asbestos Regulations, the Public Employees Safety and Health (PESH) Bureau enforcing OSHA standards relating to both general industry and construction industry, and the Asbestos Hazard Emergency Response Act (AHERA). The most restrictive regulations are listed first.
- School building occupants who do not work directly with asbestos are protected by the Department of Labor ICR-56 and AHERA.
- AHERA does not use air monitoring as the criteria for the presence of asbestos. The presence of asbestos in materials and the condition of those materials determine the response action to be taken.

Warning Labels

Warning labels must be attached to any friable or non-friable ACBM or suspected ACBM in maintenance areas, such as boiler rooms, until the material is removed.

CAUTION:

ASBESTOS HAZARDOUS

DO NOT DISTURB WITHOUT

PROPER TRAINING AND EQUIPMENT

Small-Scale, Short Duration Activities (O&M Repair)

All workers performing these jobs are required to comply with Code Rule 56 regarding training, certification, and worker protection. The employees must be certified and the employer must have a license. Under AHERA, the "small-scale short duration" projects are limited to 3 square feet or 3 linear feet, which is more restrictive than the definition under ICR-56.

Prohibited Activities:

- DO NOT drill holes in ACBM.
- DO NOT sand ACBM.
- DO NOT hang plants or pictures on structures covered with ACBM.
- DO NOT damage ACBM while moving furniture or other objects.
- DO NOT install curtains, drapes or dividers in a way that damages ACBM.
- DO NOT dry dust or sweep floors, ceilings, moldings.
- DO NOT use an ordinary vacuum to clean up asbestos debris.
- DO NOT remove ceiling tiles located below asbestos-containing materials without wearing proper respiratory protection, clearing the area of people, and following asbestos removal waste disposal procedures as per ICR-56.
- DO NOT remove dry filters in ventilation systems. They must be wetted down before removal.

❖ DO NOT shake ventilation system filters.

OSHA Asbestos Regulations
General Industry, Construction Industry

29 CFR 1910.1001, General Industry, 29 CFR 1926.1101, Construction
Enforced In the Public Sector by the NYS Department of Labor Public Employees Safety and Health (PESH) Bureau

Asbestos has proven to be a serious health hazard for workers who inhale it. This prompted OSHA to issue standards for both general industry and construction activity. These rules apply to asbestos work in schools in addition to all the provisions of Industrial Code Rule 56 and AHERA.

Types of Activities Covered under OSHA Construction Standard

- Demolition or salvage of structures where asbestos is present
- Removal or encapsulation of materials containing asbestos
- Construction, alteration repair, maintenance or renovation of structures or parts of structures containing asbestos
- Installation of products containing asbestos
- Asbestos spills or emergency cleanup
- Transport, disposal, storage or containment of asbestos or asbestos-containing products at the site where construction activities are performed.

Many construction jobs are covered under this standard: carpenters, if they remove, enclose, or encapsulate ACBM; electricians, if they disturb asbestos when running wires, etc.; plumbers, if they disturb asbestos when repairing or installing pipes; HVAC workers, when they perform heating and ventilation work in asbestos containing areas; painters, if they paint over asbestos containing materials.

Exposure

Exposure levels are the same as in the General Industry Standard: the Permissible Exposure Limit (PEL) is, as of 1994, 0.1 fiber per cubic centimeter (f/cc) as an 8 hour time weighted average (TWA). The PEL is the limit set for medical monitoring of employees if there is reason to believe it may be exceeded. There is an Excursion Limit (EL) of 1.0 fiber per cubic centimeter that cannot be exceeded for over 30 minutes. This level also requires medical monitoring.

Monitoring

Monitoring is required as per General Industry Standards. Each employer who has a workplace or work operation covered by this standard must perform personal monitoring to determine levels of exposure. Monitoring must be done daily for employees working in regulated areas. Employees must be notified of the results of the monitoring.

Methods of Compliance

The employer must use one or a combination of the following control methods to obtain compliance with the TWA of 0.1f/cc or Excursion Limit of 1.0 f/cc:

- Local exhaust ventilation equipped with HEPA filters
- General ventilation systems
- Vacuum cleaners with HEPA filters
- Enclosure or isolation of processes
- Use of wet methods, wetting agents or encapsulants
- Prompt disposal of wastes in leak proof containers
- Use of work practices; for example,
    - Reducing the amount of time a worker is exposed to asbestos
    - Removing workers from the asbestos exposure
    - Wetting down the asbestos before it is handled, mixed, removed, cut or scored
    - Wetting asbestos down when removing it from bags, cartons or containers.

Prohibited Work Practices

- ❖ Do not use portable machine tools that are not equipped with appropriate engineering controls, such as vacuums.
- ❖ Do not use compressed air to remove asbestos unless it is done in an enclosed ventilation system.
- ❖ Do not use spray methods to apply asbestos containing materials.
- ❖ Do not rotate employees to avoid overexposure.

Respirators

Respirators must be used in the following situations:

- ❖ During the time necessary to install engineering and work practice controls
- ❖ In work operations such as maintenance and repair where engineering and work practice controls are not feasible
- ❖ In instances where engineering and work practice controls alone cannot reduce exposure to below the TWA and/or Excursion Limit.

The employer must provide (at no cost to the employee) the appropriate respirator. Respirators must be approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH).

When respirators are used, the employer must implement a respiratory program in accordance with OSHA CFR 1910.134. This includes fit testing, training, surveillance and medical examinations.

Contaminated Clothing

Contaminated clothing must be transported in sealed impermeable bags or closed impermeable containers. Clothing must be inspected for rips and tears. If they are found, the clothing must be immediately mended or replaced. Employers in New York must also follow Code Rule 56 requirements.

Hygiene Facilities and Practices

The employer must follow NYS Code Rule 56 requirements for Worker decontamination enclosure systems (ICR-56-7.5).

Exposure Monitoring

Monitoring must be conducted on all Class I jobs exceeding the PEL and EL. Daily monitoring is required at all areas for each employee on Class I & II jobs until a Negative Initial Exposure Assessment (NEA) is conducted. Other classes have periodic employee monitoring. Remember, employers must follow OSHA **and** NYS CR56 regulations.

If the job could result in exposures over the OSHA limits, employers must perform initial personal monitoring at each workplace for each job classification. If the level of 0.1 f/cc is met or exceeded or the Excursion Limit of 1.0 f/cc is met or exceeded, monitoring must be done every 6 months or daily until a NEA is conducted. The employers must monitor employees whenever there has been a change in production, process, control equipment, personnel or work practices that may result in new or additional exposures. Employees must be allowed to observe monitoring and must be notified within 15 working days of the results of the monitoring. There must be personal monitoring where at least one worker for each job for each shift in each work area is monitored by a pump attached to the employee in his or her breathing zone. Monitoring can be stopped if the employer can show statistically there is no exposure above the PEL or EL, until there is a change in procedures. Monitoring can also be stopped if employees are in supplied air positive pressure respirators.

Information and Training

Table 4: Training Requirements
29 CFR 1926.1101

Class IV	**Two hour Awareness Training**
Class III	**Operations and Maintenance or Restricted Handler**
Class I & II	**EPA approved 4 Day Handler Course or better**

Employees who perform housekeeping must be informed of presumed asbestos containing material (PACM) if the employer cannot prove that it does not contain asbestos.

OSHA and AHERA distinguish between the duties and training of custodial workers and the additional duties and training needs of maintenance and service workers. They believe that building/facility workers who frequently disturb asbestos containing material need more extensive training. Workers who do Class II work must be given 16 hours of training consistent with EPA requirements, and workers doing Class IV work must receive at least 2 hours of awareness training, regardless of job title. Under the training provisions of AHERA, all members of the maintenance and custodial staff of schools who may work in a building containing ACBM are required to receive at least two hours of awareness training whether or not they are required to work with it. Those who perform work that will result in disturbance of ACBM shall receive both the awareness training and 14 additional hours of training. AHERA set as a minimum that awareness training cover:

- Information on uses and forms of asbestos in buildings
- Information on health effects of exposure to asbestos
- Location of ACBM in building where employee works
- Recognition of deteriorating or damaged ACBM; and
- The identity of the person responsible for management of ACBM.

More extensive training needed by those who might disturb ACBM include:

- Description of proper methods to handle ACBM
- Information on respirator protection
- The provisions of the AHERA rule; and
- Hands-on training on the use of protective equipment and work practices.

OSHA Regulations - General Industry

29 CFR 1910.1001 OSHA Asbestos Regulations

Workers covered by the General Industry Standard include:

- Employees who manufacture asbestos-containing products
- Employees who repair and replace automotive brakes and clutches
- Employees engaged in housekeeping activities
  - In industrial facilities that manufacture asbestos products
  - In public and commercial buildings with installed asbestos-containing materials.

In New York, public employees are covered under the standard through the NY State Department of Labor Public Employee Safety and Health Bureau (PESH).

The 1995 updated Asbestos Standard for General Industry includes the following requirements:

- The PEL is 0.1 fibers/cc as a TWA. The Excursion Limit is 1.0 fibers/cc averaged over 30 minutes.
- Asphalt and vinyl flooring material installed no later than 1980 must be treated as asbestos containing unless disproven by specified inspection and testing.
- Thermal System Insulation (TSI) and sprayed-on/troweled-on surfacing materials in buildings constructed before 1980 must be treated as asbestos containing unless rebutted by specified inspection and testing.
- Building and facility owners must determine the presence, location and quantity of ACBM/PACM and keep records of asbestos-containing material and presumed asbestos-containing material.
- Building and facility owners must inform other employers and their own employees who will perform housekeeping activities of the presence and location of such materials.
- Building and facility owners must post signs at entrances to mechanical rooms/areas that contain ACBM/PACM and that employees may enter.
- Previously installed ACBM/PACM must be identified by labels or signs.
- Employers must provide an asbestos awareness training course to employees who will perform housekeeping activities in an area containing ACBM or PACM.
- Employers must use specific controls and methods (specified in Appendix F) for brake and clutch repair unless another method is demonstrated to achieve equivalent results.

Duties of Employers and Building Owners

Other requirements of the General Industry Standard include employee notification of the presence and location of ACBM/PACM. Building owners often are the only and/or best sources of information concerning building materials. Therefore owners are assigned specific duties to inform employers and employees and keep records under the asbestos standard. Building/facility owners who are also employers must follow employer duties as well.

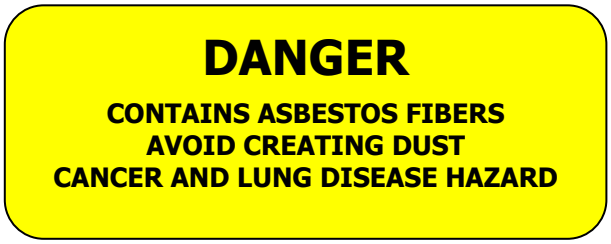
Posted signs at the entrance to mechanical rooms/areas that employees reasonably expect to enter and that contain ACM/PACM must identify the material that is present, its location, and appropriate work practices that will ensure ACM/PACM will not be disturbed. Warning signs must say the following:

If respirators and protective clothing are required in the area, the sign must include the words:

"Respirators and protective clothing required in this area."

Previously installed PACM/ACM that is identified by a building owner or employer must be labeled where the label will clearly be noticed. Posting of signs may be used as an alternative to labels.

The wording for labels is:



In addition, the employer shall, within 15 working days after the receipt of the results of any monitoring performed under the standard, notify the affected employees of these results in writing either individually or by posting the results in an appropriate location that is accessible to affected employees. The written notification shall contain the corrective action being taken by the employer to

reduce employee exposure to or below the TWA and/or excursion limit, wherever monitoring results indicated they had been exceeded.

When employee monitoring is done, the employer shall provide affected employees or their designated representatives and opportunity to observe any monitoring of employee exposure to asbestos.

Handling Asbestos

Each person entering a regulated area shall be supplied with and required to use a proper respirator. The employer shall use engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and/or Excursion Limit to the extent that such controls are possible. Local exhaust ventilation and dust collection systems shall be designed, constructed, installed and maintained in accordance with good practices such as the ANSI Standard Z9.2-1979.

As much as possible, asbestos shall be handled or worked with in a wet state to prevent the release of airborne fibers in excess of the TWA and/or excursion limit. Compressed air shall not be used to remove asbestos or asbestos-containing materials unless used with a capture ventilation system. Sanding of asbestos-containing flooring material is prohibited.

If exposure is above the TWA or Excursion Limit, or where eye irritation exists, the employer shall provide, <u>at no cost</u> to the employee, appropriate work clothing such as: coveralls or full-body work clothing, gloves, head coverings, foot coverings, face shields, vented goggles, or other appropriate protective equipment. The employer shall clean, launder, repair or replace protective equipment, and launder contaminated clothing to prevent release of fibers, or inform any person who launders contaminated clothing of the hazards of asbestos. Contaminated clothing must be transported in sealed impermeable bags.

Motor Vehicle Brake and Clutch Work

During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and work practices, including the following:

- Negative pressure enclosure/HEPA vacuum system method
- Low pressure/wet cleaning method
- Equivalent method with written procedures that can demonstrate results as above methods
- For less than 5 operations per day, see Appendix F of the Standard.

NYSDEC Regulations for the Transport and Disposal of Asbestos Waste

NYSDEC - NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

New York State classifies asbestos as an industrial waste and assigns it a waste number of N807. The Federal Department of Transportation classifies asbestos as a hazardous material with an assigned number of NA2212.

Transporting and Disposing Procedures

All waste must be wetted down to prevent fibers from becoming airborne.

The wetted material must be placed in leak tight sealed containers of leak tight plastic wrappings at least 6 mil thick.

The containers and wrappings must have the following labels:

- **DANGER:** CONTAINS ASBESTOS FIBERS, AVOID CREATING DUST, CANCER AND LUNG DISEASE HAZARD
- RQ ASBESTOS, CLASS 9, NA 2212, PACKING GROUP III
- Name of waste generator
- Location where waste was generated.

All containers and plastic bags must be inspected to make sure there is no asbestos residue on the outside that could become airborne and that the containers are not leaking.

Prior to transport to a landfill, the disposer and transporter must have permission from the landfill operator to dispose of the waste. Not all landfills accept asbestos waste.

Transport Permit Requirements

Before the asbestos is transported, a NYSDEC Waste Transporter Permit (WTP) must be obtained. The permit must be in the truck and the disposal facility registration number must be affixed to the driver's door. The permit must be renewed yearly.

The vehicle transporting the waste must be registered with the DEC to indicate it is transporting industrial waste.

A Waste Shipment Record (WSR) must be given to the disposal site owner or operator at the time the waste is taken to the site.

- The transporter must complete a WSR and keep the generator copy for agency records.
- If the waste is transported by the private transporter to the disposal site, the owner or operator of the site must send back a signed copy of the WSR within 35 days of delivery to the agency indicating the asbestos was disposed of properly.
- The transporter must have the required insurance in the event of accident or other emergency. The generator can be held equally libel with the transporter if there is a release of asbestos during transport.

Federal Department of Transportation (DOT) Regulations

Governing Transport of Asbestos Materials and Waste

- The Federal Department of Transportation classifies asbestos as a hazardous material and assigns it a number NA2212.
- If a pound or more of friable asbestos is transported within the state or out-of-state, both the Federal DOT and NYSDEC regulations must be followed.
- The Waste Shipment Record (WSR) and all containers or wrappings described under "NYSDEC Transport and Disposal" must have the description label:

RQ ASBESTOS, CLASS 9, NA2212, PACKING GROUP 111

National Emission Standards for Hazardous Air Pollutants; Asbestos (NESHAP)

Because airborne asbestos fibers pose a significant risk to human health, they are classified as an air pollutant. The fibers are regulated under the Federal Clean Air Act (CAA) which is enforced by the U.S. Environmental Protection Agency (EPA).

Demolition and Renovation

New York State Department of Labor Code Rule 56 must be followed in demolition and renovation operations.

Procedures for Asbestos Emission Control

These procedures must conform to Code Rule 56.

- All regulated asbestos containing materials (RACM) must be removed first before the renovation or demolition begins.
- All RACM must be wetted prior to removal or, if not wetted, controlled by a local exhaust system designed to capture the fibers.
- All RACM that has been removed or stripped must be wetted and must be kept wet until collected or treated.
- All RACM must be carefully lowered to the ground. If the RACM is more than 50 feet above the ground, it must be lowered via leak-tight chutes, not dropped in stairwells, between floors, etc.

When wetting of asbestos is discontinued because of freezing temperatures, owners and operators must measure temperatures in the work area three times. The contractor can continue to remove asbestos only after the temperature rises enough to permit its wetting.

At least one on-site foreman, management level person, or authorized representative trained in the provisions of NESHAP must be on site during the project. This person must receive refresher training every 2 years.

If a facility is demolished by intentional burning, all RACM including Categories I and II non-friable ACM must be first removed. The Federal Environmental Protection Agency must be notified prior to demolishing by intentional burning.

Waste Disposal

- All ACBM wastes must be adequately wetted.
- No visible emissions can be discharged to the outside.
- All wetted asbestos must be placed in leak-tight containers.
- Labels and markings must be placed on vehicles, containers and wrapped materials or described under NYSDEC Transport and Disposal and Federal DOT Transport regulations.

For facilities demolished prior to removal of RACM, the RACM must be kept wet at all times after demolition and kept wet during handling and loading prior to transport to a disposal facility. These materials do not have to be sealed in leak-tight containers or wrappings but may be disposed of in bulk.

Local laws may require a building permit for demolition even though it is not a federal requirement.

All ACM waste must go to an approved disposal site as soon as practical.

Typical Work Situations and Remedies

Situation	***Remedies***	***Who to call if it isn't done properly***
In an office setting, white dust from a deteriorating or damaged ceiling accumulates on a desk	Contact your supervisor to determine if it is asbestos. If it is asbestos, the damaged area must be removed or repaired and debris cleaned up per DOL Code Rule 56. The work must be done by certified workers whose employer has an asbestos handler's license per DOL Code Rule 56.	♦ NYS DOL asbestos control bureau and ♦ PESH – and for schools – ♦ AHERA (EPA) ♦ EPA
Air monitoring in the situation above does not indicate levels of asbestos over the OSHA limits.	OSHA 29 CFR 1910.1001 requires all surfaces be kept free of asbestos (housekeeping).	♦ PESH (public sector) ♦ OSHA (private sector)
Your employer brings in a company to test for asbestos and denies you the right to see test results	OSHA 29 CFR 1910.1020 requires your employer to give you access to any exposure records within 15 days of your request. The NYS Right-to-Know Law (RTK) and OSHA 29 CFR 1910.1200 (HAZCOM) requires that you be informed of any hazardous substance to which you are exposed. OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101 requires the employer to notify employees of air monitoring results that represent employees exposure as soon as possible.	♦ PESH (public sector) ♦ OSHA (private sector)

Situation	***Remedies***	***Who to call if it isn't done properly***
You are asked to remove 10 linear feet of asbestos pipes wrap on each of 5 consecutive days.	You are required to be trained and certified and your agency must have a contractor's license. If the total linear feet exceed 25, your employer must comply with the laws governing either small scale or large scale removal as required by NYS DOL Code Rule 56.	NYS DOL Asbestos Control Bureau.
You are asked to repair a leaking pipe within a regulated area where asbestos is being removed	You cannot enter the work area without a restricted handler certification required by NYS DOL Code Rule 56. Training is required under OSHA 29 CFR 1910.1001.	♦ NYS DOL Asbestos Control Bureau ♦ PESH ♦ OSHA
Bags of asbestos are placed in a dumpster and your employer requests that you transport it to the landfill.	Asbestos must be transported and disposed of in accordance with NYS DEC and federal DOL requirements. Containers must be labeled, waste shipment record completed, permits acquired, disposal site approved, etc.	NYS DEC
You work in a school district and your employer asks you to remove less than 3 square feet of asbestos from the mechanical room. The only training you have received is the two-hour operation and maintenance (O&M) training.	NYS DOL Code Rule 56 requires you to have an asbestos handler certificate to remove asbestos, and the school must have an asbestos contractor's license.	NYS DOL Asbestos Control Bureau OSHA PESH AHERA

Situation	***Remedies***	***Who to call if it isn't done properly***
You work in a school district and want to determine whether the ceiling tiles contain asbestos.	AHERA requires that school administration develop a management plan that identifies the location of the asbestos. The law requires the school give you a copy of the plan upon request. Code Rule 56 requires persons taking samples to be certified.	AHERA (EPA) schools NYS DOL Asbestos Control Bureau
Your employer's management plan is not current.	AHERA requires an update of the management plan to keep it current with ongoing operations and maintenance, periodic surveillance, inspection, reinspection, and response action activities.	AHERA (EPA) schools
You work at the school bus garage repairing brakes and clutches.	OSHA 29 CFR 1910.1001 requires your work environment be monitored for airborne concentrations of asbestos and/or work practices and engineering controls be implemented to protect you from exposure.	♦ NYS DOL Asbestos Control Bureau ♦ PESH
An abandoned building must be demolished and it contains asbestos.	NESHAP requires all regulated asbestos containing materials be removed prior to demolition. NESHAP and NYS DEC regulate transport and disposal of asbestos waste. NYS DOL code rule 56, OSHA 29 CFR 1926.1101 regulate worker training and procedures.	♦ NESHAP ♦ NYS DOL Asbestos Control Bureau ♦ PESH (public sector) ♦ OSHA (private sector)

Situation	***Remedies***	***Who to call if it isn't done properly***
Maintenance workers are asked to remove a wall and are not sure if it contains asbestos.	The NYS Right-to-Know (RTK) law requires your employer to provide information on hazardous substances within 3 working days after you request it in writing. If the wall contains asbestos, you must be trained and certified and follow procedures outlined NYS DOL Code Rule 56 and OSHA 29 CFR 1910.1001. Disposal must follow NYSDEC regulations.	♦ NYS RTK ♦ NYS DOL Asbestos Control Bureau (DOSH) ♦ PESH (public sector) ♦ OSHA (private sector) ♦ NYS DEC
There is an asbestos abatement project in your building and you are concerned that asbestos may be "escaping" into your area.	NYS DOL Code Rule 56 and OSHA 29 CFR 1910.1001 require asbestos projects be air monitored for fiber concentration both in and out of the project area. OSHA 29 CFR 1910.1020 requires that you be apprised of exposure results within 15 working days from the date the air was monitored.	♦ NYS DOL Asbestos Control Bureau ♦ PESH (public sector) ♦ OSHA (private sector)
You suspect that you've been exposed to asbestos while working over the past several years.	OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101 require medical surveillance of asbestos workers. OSHA and the NYS Right-to-Know Law require record keeping of employee exposures.	♦ PESH (public sector) ♦ OSHA (private sector) ♦ Labor-Management forums ♦ White Lung Association ♦ NYS Right-to-Know Laws
Extensive renovations will be done at your worksite, and the contractor is not planning to remove the asbestos first.	NYS DOL Code Rule 56 and NESHAP require that no asbestos be disturbed dry. CR56, OSHA and AHERA require controls to prevent the release of asbestos fibers.	♦ EPA ♦ PESH (public sector) ♦ OSHA (private sector) ♦ Labor-Management forums ♦ NYS DOL Asbestos Control Bureau

Checklists for Asbestos Projects

NYS Department of Labor Code Rule 56

CHECKLIST FOR BEFORE THE PROJECT BEGINS

____CONTRACTOR/EMPLOYER LICENSED?

____WORKERS CERTIFIED?

____DOL, DEC, AND EPA NOTIFIED?

____PROJECT AREA (AREA WHERE THE ASBESTOS WORK IS BEING DONE) VACATED BY OCCUPANTS?

____HVAC SHUTDOWN?

____PROJECT AREA HAS DECONTAMINATION ENCLOSURE SYSTEM?

____CAUTION SIGNS POSTED?

____IF A MINOR PROJECT, IS IT CORDONED OFF WITH BARRIER TAPE?

____AIR SAMPLING DONE BEFORE PROJECT BEGINS?

CHECKLIST FOR DURING THE PROJECT

____WORKERS ENTERING AND EXITING THROUGH THE DECONTAMINATION ENCLOSURE SYSTEM?

____PROJECT HAS EXHAUST VENTILATION TO THE OUTSIDE?

____PLASTIC BARRIERS ARE INTACT?

____NO ASBESTOS OUTSIDE THE WORK AREA?

____HEPA VACUUMS USED FOR CLEANUP?

____AIR SAMPLING DONE DURING THE PROJECT DAILY?

CHECKLIST FOR WHEN THE PROJECT IS COMPLETED

____HEPA VACUUMS USED FOR CLEANUP?

____VENTILATION KEPT RUNNING DURING THE CLEANING?

____AIR SAMPLING DONE BEFORE DECONTAMINATION ENCLOSURE TAKEN DOWN?

____ASBESTOS WASTE PROPERLY CONTAINERIZED AND REMOVED?

____AGGRESSIVE AIR MONITORING USED?

Asbestos Directory

The following organizations and government agencies can help ensure that you and your co-workers are not suffering needless exposure to asbestos:

- **New York City Department of Environmental Protection, Asbestos Control Program**, 59-17 Junction Boulevard, Corona NY 11368; public information 718-595-3682, certification center 718-595-3693. Accepts illegal asbestos removal complaints, enforces abatement regulations, notification, training and certification of asbestos workers and investigators. Hot line for complaints, 718-337-4357.
- **New York State Department of Labor, Asbestos Control Program**, *License and Certificate Unit*, State Campus 12, Rm. 161, Albany, NY 12240, 518-457-2735. Licenses asbestos abatement contractors, certifies asbestos workers, notification/inspection and enforcement of asbestos abatement projects. Asbestos Code Rule 56: Requirements of this code include the licensing of contractors, certification of all persons working on asbestos projects, filing of notifications of large asbestos projects and pre-demolition survey of buildings to identify any asbestos, which may be present to ensure proper abatement of asbestos materials. The Bureau works closely with the Environmental Protection Agency (EPA) and national databases established under the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) and NARS/ACTS.

  New York State Department of Labor Division of Occupational Safety & Health (DOSH)
  Asbestos Control Bureau District Offices

  - DOSH-Asbestos Control Bureau
    Room 401
    450 South Salina Street
    Syracuse, NY 13202
    Phone 315/479-3215

  - DOSH-Asbestos Control Bureau & Program Mgr.
    Room 157
    Building #12, State Campus
    Albany, NY 12240
    Phone 518/457-2072

  - DOSH-Asbestos Control Bureau
    P. O. Box 683, Mail Stop #7F
    New York, NY 10014-0683
    Phone 212/352-6109

  - DOSH-Asbestos Control Bureau
    Room 405
    65 Court Street
    Buffalo, NY 14202
    Phone 716/847-7601

- **New York State Department of Health, Asbestos Workers Safety Training Program**, Center for Environmental Health, Flanigan Square, Rm 230, 547 River Street, Troy, NY 12180-2216, 518-402-7940, FAX 518-402-7949. Accredits and reviews asbestos safety training curricula of private asbestos safety training providers. Also responds to public inquiries regarding asbestos safety in home and workplace. Provides outreach and pamphlets such as “Asbestos in the Home”, “Asbestos in the Workplace”, and “The New York State Citizen’s Guide to Asbestos”.

- **New York State Department of Environmental Protection.** DEC (also called ENCON)

  To report problems, contact is your regional office.

  Region 1 Suffolk and Nassau counties (516) 444-0354
  Region 2 Manhattan, Bronx, Queens, Brooklyn and Staten Island (718) 482-4900
  Region 3 Sullivan, Ulster, Orange, Dutchess, Putnam, Rockland and Westchester counties (845) 256-3000
  Region 4 Montgomery, Otsego, Delaware, Schoharie, Schenectady, Albany, Greene, Rensselaer and Columbia counties (518) 357-2234
  Region 5 Franklin, Clinton, Essex, Hamilton, Warren, Fulton, Saratoga and Washington counties (518) 897-1200
  Region 6 Jefferson, St. Lawrence, Lewis, Oneida and Herkimer counties (315) 785-2239
  Region 7 Oswego, Cayuga, Onondaga, Madison, Tompkins, Cortland, Chenango, Tioga and Broome counties (315) 426-7400
  Region 8 Orleans, Monroe, Wayne, Genesee, Livingston, Ontario, Yates, Seneca, Steuben, Schuyler and Chemung counties (585) 226-2466
  Region 9 Niagara, Erie, Wyoming, Chautauqua, Cattaraugus and Allegany counties (716) 851-7000

- **New York State Education Department**, Albany, NY. Facilities Planning, 518-474-3906. Or e-mail www.emsc.nysed.gov/facplan/
- **U.S. Environmental Protection Agency, Region II, Air Compliance Branch**, 290 Broadway, New York, New York 10007-1866, 212-637-4080. Administers federal asbestos abatement activities applicable to public and private elementary and secondary schools. Provides general asbestos information and notification of asbestos disturbance during building renovation or demolition.
- **White Lung Asbestos Information Center**, 80 Eighth Avenue, New York NY 10011, 212-886-9859. A volunteer organization of asbestos victims and those concerned with health and safety. Advises on health and safety, medical-legal resources, and steps to take to avoid asbestos exposure. Refers questions on training to the New Jersey White Lung Center, 201-758-1590.

Summary

CONTROLLING EXPOSURE TO ASBESTOS

There are several regulations that protect the asbestos worker and building occupant from asbestos exposure.

The most effective regulation that protects building occupants is the New York State Department of Labor Code Rule 56 (Asbestos). This Code Rule is very explicit in its requirements in protecting building occupants.

The important points of all these regulations are:

- You must be advised when there are asbestos construction projects at your workplace.
- Construction projects must be enclosed and isolated.
- Asbestos must be wetted down to prevent airborne dispersal of fibers.
- Asbestos construction areas must be cleaned up with HEPA vacuums and put into leak-proof containers and disposed of properly.
- Contractors/employers must be licensed, and asbestos workers certified.
- The employer is responsible for training of employees who work with asbestos.
- Maintenance and custodial employees who are at the highest risk to being exposed to asbestos without protection are required to be trained.
- Workers have the right to be informed and trained on the hazards of asbestos.
- Worksites where asbestos is or may be disturbed must have an operations and maintenance (O&M) program to prevent or minimize exposure to building occupants.
- Asbestos, if it is not crumbling, can be managed without removal by enclosing or encapsulating it. An effective O&M program must be in place.
- Buildings still containing asbestos, if managed properly by employers, pose no exposure hazard to occupants.

Be aware of your rights as an employee and know what your employer's responsibilities are to protect you. You have a right to a safe workplace. Protect that right by being informed.

Glossary

ABATEMENT – Procedures to control fiber release from asbestos material. This includes removal, encapsulation, enclosure and repair.

ASBESTOS – Any naturally occurring hydrated mineral silicate separable into commercially usable fibers. This includes Chrysotile, Amosite, Crocidolite, Tremolite, Anthrophyllite and Octinolite.

ASBESTOS CONTAINING BUILDING MATERIAL (ACBM) – Material that includes surfacing, thermal insulation and miscellaneous asbestos containing materials (ACM) in or on the interior of the building.

ASBESTOS CONTAINING MATERIAL (ACM) – Any material containing more than 1% by weight of asbestos.

ASBESTOS PROJECT – Work that involves the installation, removal, encapsulation, application, enclosure or disturbance of asbestos.

AUTHORIZED PERSON – Any person authorized by the employer and properly trained and/or certified to conduct asbestos abatement activities.

BUILDING/FACILITY OWNER – The legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

CATEGORY I – NONFRIABLE ASBESTOS – Asbestos containing materials such as packing, gaskets, resilient floor covering, asphalt and roofing products.

CATEGORY II – NONFRIABLE ASBESTOS – Asbestos that cannot be easily crumbled or powdered.

CLASS I ASBESTOS WORK – OSHA General Industry definition for activities involving the removal of TSI and surfacing ACM and PACM.

CLASS II ASBESTOS WORK – OSHA General Industry definition for activities involving removal of ACM that is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

CLASS III ASBESTOS WORK – OSHA General Industry definition meaning maintenance operations where ACM, including TSI and surfacing ACM and PACM, may be disturbed.

CLASS IV ASBESTOS WORK – OSHA General Industry definition meaning maintenance and custodial construction activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

CLEAN ROOM – A room with facilities for the storage of street clothes and uncontaminated materials and equipment.

DECONTAMINATION AREA - An enclosed area connected to the regulated work area. It consists of an equipment room, shower/wash room and clean room in series connected by air locks.

ENCAPSULATION – Coating or spraying of asbestos containing material with a sealant.

EQUIPMENT ROOM – A room where contaminated clothing is removed and placed in impermeable bags or containers.

EMPLOYEE EXPOSURE – exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

EXCURSION LIMIT (EL) – Maximum concentration of asbestos that employees can be exposed to as averaged over 30 minutes.

FIBER – A particulate form of asbestos 5 micrometers or longer with a length-to-diameter ration of at least 3 to 1.

FRIABLE –Exposed asbestos that can be crumbled, pulverized, powdered or crushed by hand pressure.

GLOVE BAG – A sealed compartment with attached inner gloves used for small-scale asbestos removal operations such as on pipes.

HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER – A filter capable of trapping 99.97% of particles .3 micrometer in size or larger.

HOLDING AREA – Room in the waste decontamination enclosure where the waste containers are held pending removal.

HVAC – Heating, ventilation and air conditioning systems.

MSHA – Mine Safety and Health Administration. Federal agency that approves respiratory equipment.

NEA – Negative Initial Exposure Agreement. Required for Class I and Class II activities under OSHA's Asbestos Standard for Construction. The NEA shows that employee exposure during an operation is consistently below the PEL.

NIOSH – National Institute for Safety and Health. Federal agency that approves respiratory equipment.

PACM – presumed asbestos containing material. PACM is thermal system insulation and surfacing material found in buildings constructed no later than 1980.

PEL – see below.

PERMISSIBLE EXPOSURE LIMIT (PEL) – Level of asbestos exposure that cannot be exceeded averaged over 8 hours (TWA) or 30 minutes (excursion). These limits are established by OSHA and enforced in the private sector by OSHA and in the public sector by the Public Employees Safety and Health (PESH) Bureau of the New York State Department of Labor.

REGULATED AREA – An area designated by the employer where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the Permissible Exposure Limits.

REGULATED ASBESTOS CONTAINING MATERIALS (RACM) – Asbestos materials that are friable, nonfriable ACM that has become friable, nonfriable asbestos that will be or has been subjected to sanding, grinding, cutting or abrading, or nonfriable ACM that has a high probability of becoming crumbled, pulverized or powdered.

TSI – Thermal System Insulation. ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

TIME-WEIGHTED AVERAGE (TWA) – Maximum concentration of asbestos that employees can be exposed to average over 8 hours.

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