

Great Western Painting

Asbestos Management / Maintenance Work

29 CFR 1910.1001, Asbestos

29 CFR 1910.1001 App A, OSHA reference method Mandatory

29 CFR 1910.1001 App B, Detailed procedure for asbestos sampling and analysis – Non-Mandatory

29 CFR 1910.1001 App C, Qualitative and quantitative fit test procedures - Mandatory

29 CFR 1910.1001 App D, Medical Questionnaire; Mandatory

29 CFR 1910.1001 App E, Interpretation and classification of chest roentgenograms - Mandatory

29 CFR 1910.1001 App F, Work practices and engineering controls for automotive brake and clutch inspection, disassembly, repair and assembly - Mandatory

29 CFR 1910.1001 App G, Substance technical information for asbestos – Non-Mandatory

29 CFR 1910.1001 App H, Medical surveillance guidelines for asbestos – Non-Mandatory

29 CFR 1910.1001 App I, Smoking Cessation Program Information For Asbestos – Non-Mandatory

29 CFR 1910.1001 App J, Polarized light microscopy of asbestos – Non-Mandatory

29 CFR 1926.1101, Asbestos

ASBESTOS

Note: This written asbestos program has been developed to protect our employees from airborne asbestos exposures above the TWA and excursion limit where engineering and work practice controls are insufficient. Compliance with this program will reduce employee exposure to or below the TWA and to or below the excursion limit.

Identification of Asbestos Hazards

Thermal System Insulation (TSI) and sprayed or troweled on surfacing materials in buildings will be treated as asbestos-containing unless it is demonstrated that it is not by:

- a. Having an completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM; or
- b. Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests shall include analysis of 3 bulk samples of each homogeneous area of PACM collected in a randomly distributed manner. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) of the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

Asphalt and vinyl flooring material installed no later than 1980 must also be considered as asbestos containing unless it is determined that it is not asbestos-containing.

When communicating information to employees, PACM will be identified as ACM.

Prior to commencement of ACM and PACM abatement activities, we will:

- a. identify the presence, location, and quantity of ACM, and/or PACM therein.
- b. inform the following persons of the location and quantity of ACM and/or PACM present in the area and the precautions to be taken to insure that airborne asbestos is confined to the area:
 1. owners of the building/facility;
 2. all employees who will perform such work and employers of employees who work and/or will be working in adjacent areas.

Within ten (10) days of the completion of such work, the building/facility owner and employers of employees who will be working in the area will be informed of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

Upon newly discovered ACM and/or PACM on a worksite, information will be conveyed concerning its presence and location and to the owner and to other employers of employees working at the work site within 24 hours of the discovery.

To limit access to regulated area whenever airborne concentrations of asbestos are present at or above the TWA and/or excursion limit (**See next page**), warning signs that demarcate the regulated work areas will be displayed. This would include each location where Class I, II, and III asbestos work is to be conducted. Signs will be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

The warning signs will contain the following information:

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN
THIS AREA**

Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers. Where feasible, installed asbestos products shall contain a visible label.

Labels shall be printed in large, bold letters on a contrasting background containing the following information:

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

Note: The PEL's for asbestos are:

Time-weighted average limit (TWA). Exposure to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average.

Excursion limit. Exposure to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.

All regulated areas will be identified by posting of signs meeting OSHA requirements.

Employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard.

MULTI-EMPLOYER WORK SITES

On multi-employer work sites, other employers on the site will be informed of the nature of our work with asbestos and/or PACM, of the existence of, and requirements pertaining to, regulated areas, and the measures taken to ensure that their employees are not exposed to asbestos.

All our personnel should understand that asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.

Lastly, all general contractors on a construction project which includes work covered by 29 CFR 1926.1101 shall be deemed to exercise general supervisory authority over the work covered 29 CFR 1926.1101 even though the general contractor is not necessarily qualified to serve as the asbestos "competent person". As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with 29 CFR 1926.1101 and shall require such contractor to come into compliance with this standard when necessary.

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GLOSSARY OF TERMS AND DEFINITIONS USED IN THE ASBESTOS ABATEMENT INDUSTRY

"AGGRESSIVE METHOD" means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

"AMENDED WATER" means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

"ASBESTOS" includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

"ASBESTOS-CONTAINING MATERIAL (ACM)" means any material containing more than one percent asbestos.

"ASSISTANT SECRETARY" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"AUTHORIZED PERSON" means any person authorized by the employer and required by work duties to be present in regulated areas.

"BUILDING/FACILITY OWNER" is 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.

"CERTIFIED INDUSTRIAL HYGIENIST (CIH)" means one certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.

"CLASS I ASBESTOS WORK" means activities involving the removal of TSI and surfacing ACM and PACM.

"CLASS II ASBESTOS WORK" means activities involving the removal of ACM which 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" means repair and maintenance operations, where "ACM", including thermal system insulation and surfacing material, is likely to be disturbed.

"CLASS IV ASBESTOS WORK" means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

"CLEAN ROOM" means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

"CLOSELY RESEMBLE" means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

"COMPETENT PERSON" means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

When dealing with asbestos, the above definition is expanded to deal specifically with asbestos:

One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them. Additionally, for Class I and Class II work, a competent person is one who is specially trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent and, for Class II and Class IV work, one who is trained in an operations and maintenance (O&M) course developed by EPA [40 CFR 763.92 (a)(2)].

"CRITICAL BARRIER" means 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.

"DECONTAMINATION AREA" means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

"DEMOLITION" means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

"DIRECTOR" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"DISTURBANCE" means contact which releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

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

"EQUIPMENT ROOM (CHANGE ROOM)" means a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

"FIBER" means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

"GLOVEBAG" means an impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

"HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER" means a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

"HOMOGENEOUS AREA" means an area of surfacing material or thermal system insulation that is uniform in color and texture.

"INDUSTRIAL HYGIENIST" means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

"INTACT" means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.

"MODIFICATION FOR PURPOSES OF PARAGRAPH (G)(6)(II)," means a changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of paragraph (g)(6)(ii) of this section.

"NEGATIVE INITIAL EXPOSURE ASSESSMENT" means a demonstration by the employer, which complies with the criteria in

paragraph (f)(2)(iii) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

"PACM" means "presumed asbestos containing material".

"PRESUMED ASBESTOS CONTAINING MATERIAL" means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(4) of this section.

"PROJECT DESIGNER" means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

"REGULATED AREA" means: an area established by the employer to demarcate areas where Class I, II, and III 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. Requirements for regulated areas are set out in paragraph (e)(6) of this section.

"REMOVAL" means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

"RENOVATION" means the modifying of any existing structure, or portion thereof.

"REPAIR" means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

"SURFACING MATERIAL" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

"SURFACING ACM" means surfacing material which contains more than 1% asbestos.

"THERMAL SYSTEM INSULATION (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

"THERMAL SYSTEM INSULATION ACM" is thermal system insulation which contains more than 1% asbestos.

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MEDICAL SURVEILLANCE PROGRAM

A medical surveillance program will be instituted for all employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above the permissible exposure limit or excursion limit, and for employees who wear negative pressure respirators.

Medical examinations will be scheduled at a reasonable time and be performed either by a licensed physician or under the supervision of a licensed physician. All costs associated with medical examinations will be borne by:

NOTE: If the person who administers the required pulmonary function test is not a licensed physician, he or she must have had training in spirometry sponsored by an appropriate academic or professional institution.

Frequency of Medical Examinations:

- a. Prior to assignment to an area where negative-pressure respirators are worn;
- b. When assigned to an area where exposure to asbestos may be at or above the permissible exposure for 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;
- c. And at least annually thereafter.

If the examining physician determines that any of the examinations should be provided more frequently than specified, they will be provided to affected employees at the frequencies specified by the physician.

Exception to the above: *No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.*

Medical examinations made as indicated above shall include:

- a. A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.
- b. On initial examination, the standardized questionnaire (Part 1) will be completed by the employee receiving the initial medical examination.. On annual examinations the abbreviated standardized questionnaire (Part 2) will be completed by the employee receiving the annual medical examination..

- c. A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV(1)). Interpretation and classification of chest shall be conducted in accordance with Appendix E to 29 CFR 1926.1101., a copy of which is included in this Section of this Project Manual and which is to be provided the examining physician
- d. Any other examinations or tests deemed necessary by the examining physician.

The following will be provided to the examining physician:

- a. a copy of 29 CFR 1926.1101, *Asbestos*, as well as copies of Appendices D, E, G, and I to 29 CFR 1926.1101.
- b. a description of the affected employee's duties as they relate to the employee's exposure;
- c. the employee's representative exposure level or anticipated exposure level;
- d. a description of any personal protective and respiratory equipment used or to be used; and
- e. information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

The Safety Director will obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

- a. the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;
- b. any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and
- c. a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
- d. a statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

The examining physician will be instructed not to reveal in the written opinion given to the Safety Director specific findings or diagnoses unrelated to occupational exposure to asbestos.

The Safety Director will provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

MEDICAL OPINION FOR RESPIRATOR WEAR

(Date)

(Applicant's Name)

(Applicant's SSN)

TO: Robert Evans
Respiratory Protection Program Administrator

RE: Medical Opinion for Respirator Use

On this date, a chest X-ray, spirometry and physical examination were completed on the above named applicant. It is found that he/she is:

- a. Eligible to use a respirator.
- b. Not eligible to use a respirator.

a. Eligible to use a respirator. _____
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

b. Eligible to use a respirator with the following restrictions:

(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

c. Not eligible to use a respirator.

(Signature of physician or licensed healthcare professional)

(Typed or Printed Name)

(Street Address)

(City, State, ZIP)

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RESPIRATORY PROTECTION PROGRAM FOR ASBESTOS

OVERVIEW

The best respiratory protection one can have is clean, breathable air. Engineering controls are our first line of defense against contaminated or oxygen deficient air. These controls include, but are not limited to, using measures such as enclosure or confinement to keep atmospheric hazards away from employees, general or local ventilation to exhaust hazardous atmospheres, and/or substitution of less toxic materials to avoid hazardous atmospheres in the first place. When effective engineering controls are not feasible, or during the time frame they are being instituted, appropriate respirators will be used.

The concept of respiratory protection is quite simple. Certain types of atmospheric hazards are merely particles that can be filtered out of the air through the use of an air-purifying respirator. Air-purifying respirators force the harmful particles into a filter specifically designed for the hazard(s) where they are trapped or absorbed. The air reaching the employee's lungs is essentially free of the hazard.

- a. If the action of inhalation causes the ambient air to be sucked through the filter, the respirator is considered a negative pressure respirator.
- b. If the ambient air is forced through the respirator filter (with a blower, for example), the respirator is considered a positive pressure respirator.

A respirator that removes harmful contaminants is of no value in an oxygen deficient (less than 19.5% oxygen) or oxygen enriched (more than 23.5 % oxygen) atmosphere.

An atmosphere-supplying respirator will be used in oxygen deficient atmospheres or in atmospheres where a filter cannot reduce the particulate hazard to an acceptable level. This type of respirator provides clean, breathable air from a source independent of the ambient atmosphere.

Different types of respirators provide different levels of protection. **Never** may an air-purifying respirator be substituted for a required atmosphere-supplying respirator.

Unfortunately, respiratory protection is more complicated than it first appears. Because of the variety and severity of respiratory hazards, the

types of respirators and their limitations, the methods for fitting and testing, and, most importantly, the detrimental ramifications of respirator misuse, this respiratory protection program is required.

Proper respirator selection and use can prevent occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays and vapors. In atmospheres that are immediately dangerous to life or health, proper respirator selection and use will save your life.

Approved respirators will be used in the four (4) following circumstances; work practice controls, work operations, to reduce exposure, and in emergencies.

When required, employees will be supplied appropriate respirators and all incidental costs associated with respirator use (respirators, fit testing, repair parts, filters, medical examinations, cleaning supplies, etc.) will be borne by the company.

DUTIES OF THE PROGRAM ADMINISTRATOR

The Respiratory Protection Program Administrator will keep abreast of developments in the respiratory protection field and ensure that our personnel are provided safe respiratory working conditions.

Our Program Administrator is: Robert Evans

Additionally, the Program Administrator will:

- a. measure, estimate, or review data on the concentration of airborne contaminants in the work area prior to respirator selection.
- b. select the appropriate type of respirator that will provide adequate protection from the airborne contaminants or provide clean, breathable air.
- c. explain the purpose, use, and limitations associated with each type of respirator.
- d. maintain applicable records including:
 1. fit test records.
 2. medical records.
 3. inspection records.
 4. evaluation records.
 5. training records.

DEFINITIONS

There are a number of terms and phrases, not used in ordinary everyday life, which must be understood by affected employees.

Air-purifying respirator: a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Atmosphere-supplying respirator: a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge: a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator: an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation: any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure: exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI): a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator: a respirator intended to be used only for emergency exit.

Filter or air-purifying element: a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask): a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor: a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test: the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Helmet: a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter: a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood: a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH): an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Loose-fitting facepiece: a respiratory inlet covering that is designed to form a partial seal with the face.

Negative pressure respirator (tight fitting): a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere: an atmosphere with an oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP): an individual whose legally permitted scope of practice allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required medical evaluation.

Positive pressure respirator: a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR): an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator: a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT): a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT): an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering: that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA): an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life: the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator: an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-fitting facepiece: a respiratory inlet covering that forms a complete seal with the face.

User seal check: an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

RESPIRATOR SELECTION/AREA SURVEILLANCE

Appropriate respirators will be selected and used as required on Asbestos Projects as noted below:

- a. during all Class I asbestos jobs.
- b. during all Class II work where the ACM is not removed in a substantially intact state.
- c. during all Class II and III work which is not performed using wet methods.
- d. during all Class II and III asbestos jobs where the employer does not produce a "negative exposure assessment".
- e. during all Class III jobs where TSI or surfacing ACM or PACM is being disturbed.
- f. during all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.
- g. during all work covered by this section where employees are exposed above the TWA or excursion limit.
- h. in emergencies.

An employee will be provided with a tight fitting powered, air-purifying respirator in lieu of any negative-pressure respirator when it is requested and the chosen respirator will provide adequate protection to the employee.

Respirators, filters, cleaning materials and all costs associated with respirator use will be provided at no cost to the employee.

RESPIRATORY PROTECTION FOR ASBESTOS FIBERS

Airborne concentration of asbestos
or conditions of use

Required respirator

Not in excess of 1 f/cc (10 X PEL),
or otherwise as required independent
of exposure pursuant to (h)(2)(iv)

Half-mask air purifying respirator
other than a disposable,
respirator equipped with high
efficiency filters.

|
Not in excess of 5 f/cc (50 X PEL)

Full facepiece air-purifying
respirator equipped with high
efficiency filters.

Not in excess of 10 f/cc (100 X PEL)

Any powered air-purifying
respirator equipped with high
efficiency filters or any supplied
air respirator operated in
continuous flow mode.

Not in excess of 100 f/cc (1,000 X PEL).

Full facepiece supplied air
respirator operated in pressure
demand mode.

Greater than 100 f/cc (1,000 X PEL)
or unknown concentration.

Full facepiece supplied air
operated in pressure demand
mode equipped with an auxiliary
positive pressure self-contained
breathing apparatus.

- Note:**
- a. **Respirators assigned for high environmental concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.**
 - b. **A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.**
 - c. **If an employee opts to use a PAPR (that provides adequate protection), he/she will be supplied with a PAPR at no cost.**

A half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters will be provided whenever employees perform the following activities:

- a. Class II and III asbestos work and a negative-exposure assessment has not been conducted.
- b. Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

TYPES OF RESPIRATORS TO BE USED

All respirators will be NIOSH approved.

In oxygen-deficient atmospheres as well as atmospheres in which the respiratory hazard exposure cannot be determined (Immediately Dangerous to Life or Health atmospheres), one of the below respirators will be used:

- a. a full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
- b. a combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

NOTE: Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

Generally, but not always, atmospheres work areas that require respiratory protection are not IDLH and in these cases respirator selection offers more options. The respirator selected will be adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements under routine and reasonably foreseeable emergency situations. Of course, the respirator selected will be appropriate for the chemical state and physical form of the contaminant.

For protection against gases and vapors, the respirator provided will be:

- a. atmosphere-supplying.
- b. air-purifying, provided that:
 1. it is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or
 2. if there is no ESLI appropriate for conditions in respiratory hazard area, a change schedule for canisters and cartridges will be used that is based on objective data that will ensure that canisters and cartridges are changed before the end of their service life.

The Program Administrator will rely on past experience and cartridge manufacturer recommendations. If the competent person on site or any respirator user notices that breathing becomes more strained, the change schedule will be modified.

For protection against particulates, the respirator provided will be:

- a. atmosphere-supplying; or
- b. air-purifying equipped with a filter certified by NIOSH under 30 CFR part 11 like a HEPA filter; or

Note: Filters manufactured under 30 CFR part 11 standards may continued to be used, however, as of July 10, 1998, other than PAPR's , they are not to be purchased. Only 42 CFR part 84 type filters will be used.

- c. air-purifying equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

Note: These respirators and filters, other than PAPR's are identified on the packaging with numbers that take the form: TC-84A-XXX.

- a. Filters will have an "N", "R", or "P" designation followed by "100", "99" or "95".
Examples: N100 or R99
 - 1. "N" indicates the filter is for any solid or non-oil containing particulate contaminant.
 - 2. "R" indicates the filter is for any particulate contaminant.
If used for an oil containing particulate, a one shift use limit applies.
 - 3. "P" indicates the filter may be used with any particulate contaminant.
- b. The number indicates the filter efficiency -- the higher the number, the more efficient.
100 = 99.97% efficiency; 99 = 99% efficiency; and 95 = 95% efficiency.
- d. air-purifying equipped with any filter certified for particulates by NIOSH for contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers.

PARTICULATE RESPIRATOR SELECTION

Prior to respirator selection, the following factors must be known:

- a. The identify and concentration of the particulates in the workplace air.
- b. The permissible exposure limit (PEL), the NIOSH recommended exposure limit (REL) or other occupational exposure limit.
- c. The hazard ratio (HR). The (HR) is obtained by dividing the airborne particulate concentration by the exposure limit.
- d. The assigned protection factor (APF) for the type of respirator to be used. The (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an (APF) of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10 (or to 10% of the workplace concentration).

- e. The immediately dangerous to life or health (IDLH) concentration, including oxygen deficiency.

The (APF) should be greater than the (REL) and multiplying the occupational exposure limit by the APF give the maximum workplace concentration in which the respirator may be used.

All filters will have a 99.97% efficiency rating indicated by the number 100.

SERVICE LIFE OF FILTERS

If the selected filters have an end-of-service-life indicator (ESLI), the filters will be used until the indicator shows that it is time to be replaced.

In the absence of an ESLI, the following is our policy of service life of filters:

All HEPA filters manufactured under 30 CFR part 11 (for PAPR's) will be replaced at least daily (once each work shift) or if breathing resistance becomes excessive or if the filter suffers physical damage (tears, holes, etc.) If PAPR filters become available under 42 CFR part 84 standards, they will be used and fall under the below schedule:

All filters will be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.

N-series filters may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the workplace to be exceptionally dirty, the filters will be changed each work shift.

R-series filter will be changed every work shift if oil is present. If oil is not present, they be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the workplace to be exceptionally dirty, the filters will be changed each work shift.

P-series filters will be used and reused in accordance with the manufacturer's time-use limitations when oil aerosols are present.

P-series filters can be used and reused subject only to consideration of hygiene, damage, and increased breathing resistance if oil aerosols are not present.

RESPIRATOR FIT TEST

There are various protocols for fit testing respirators and they can be found in Appendix A, 29 CFR 1910.134. One of the four qualitative protocols listed below will be used:

<u>Protocol/Fit Test Procedure</u>	<u>Appendix A to 29 CFR 1910.134</u>
a. Isoamyl Acetate Fit Test Procedure	Paragraph B2 Paragraph B2(b)
b. Saccharin Solution Aerosol Fit Test Procedure	Paragraph B3 Paragraph B3(b)
c. Bitrex™ Solution Aerosol Fit Test Procedure	Paragraph B4 Paragraph B4(b)
d. Irritant Smoke (Stannic Chloride) Fit Test Procedure	Paragraph B5 Paragraph B5(c)

The purpose of fit testing is to ensure that the respirator selected will actually do the job for which it was intended. Different manufacturers make different sizes of each model. Fit testing, following the OSHA approved protocols, will ensure that the specific make, model and size is appropriate for the user. An employee may only use the specific respirator(s) on which he/she has passed a fit test.

Eye glasses and contact lenses pose special problems when dealing with respirators. Contact lenses will not be worn during the fit test or during respirator use. Normal eye glasses, while they do not interfere with the skin to facepiece seal of a ½ face respirator, will prevent a proper seal on a full face respirator and thus will not be worn. If glasses are needed, special adapters can be provided to hold lenses within the respirator.

Upon successful completion of respirator fit testing, a Record of Respirator Fit Test form will be completed and maintained with the employee's records. Only the latest fit test record need be retained. The Respirator Fit Test will be repeated at least annually or when:

- a. a different respirator facepiece (size, style, model or make) is used.
- b. there has been a weight change of at least 20 pounds.
- c. there has been significant facial scarring in the area of the facepiece seal.
- d. there has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
- e. reconstructive or cosmetic surgery.
- f. any other condition that may interfere with facepiece sealing.

As explained in the protocols, the fit tests shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface. Further, there shall not be mustaches that are so long as to interfere with the inlet or exhaust valves in the respirator. Of course, these requirements apply not only to fit testing procedures, they apply to actual on the job use where the seal between face and respirator must be maintained.

USER SEAL CHECK

A user seal check, performed in accordance with the manufacturer's instructions (or Appendix B-1 to 29 CFR 1910.134), will be made prior to each use by the wearer of a tight-fitting respirator.

A user seal check is solely for respiratory protection of the employee and without this check there is no way of knowing if the selected respirator is actually working. Failure to perform a seal check may result in the use of a respirator which is of little or no value.

MEDICAL SURVEILLANCE

Medical Surveillance is found elsewhere in this Project Manual. However, all persons require medical approval for respirator wear. Medical surveillance determines the fitness for asbestos abatement work and establishes a set of medical data to be used as a baseline against which future medical data can be compared.

HAZARD COMMUNICATION & EMERGENCY PROCEDURES

One would not be wearing a respirator in the first place if there were not some detrimental health consequences of non-use. Often, these consequences are chronic (long term) and immediately unnoticeable.

If respirator failure would lead to noticeable physical or mental impairment, then, in these situations, two (2) employees will be assigned in the same area and in view of each other. If one employee presents symptoms of physical or mental distress, the second employee will remove the first employee from the area. If there is not an immediate, total recovery, the affected employee will be provided medical care by emergency responders.

In the event work is being performed in an IDLH atmosphere, a safety harness and safety lines will be used so that the employee may be pulled to safety. Suitable rescue equipment will be available and a standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

All personnel should be aware of the appropriate MSDS for the products they are working with, and particular attention should be given to health hazards, both acute and chronic; symptoms of overexposure; first aid measures; emergency procedures; and exposure limits.

WORK AREA SURVEILLANCE

The competent person at the work area where respirator use is required will maintain appropriate surveillance of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the Program Administrator or competent person will reevaluate the continued effectiveness of the respirator.

Employees are to leave the respirator use area:

- a. to wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use.
- b. if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
- c. to replace the respirator or the filter, cartridge, or canister elements.

Defective respirators will be repaired or replaced before returning to the respirator use area.

AIR QUALITY

Atmosphere-supplying respirators, depending on the type (supplied-air or SCBA) use compressed air, compressed oxygen, liquid air or liquid oxygen. Compressed and liquid oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen.

Compressed breathing air must meet the requirements of Grade "D" breathing air including: oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor. Compressed oxygen shall not be used in supplied-air respirators or open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with air line respirators.

Breathing air may be supplied to respirators from cylinders or air compressors. If cylinders are used, they will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 178).

If a compressor is used for supplying breathable air by way of air line hoses to a respirator mask, it is a Type "C" system. The hose couplings used on these systems must not be compatible with any other gas systems.

Breathable air -- not pure oxygen -- is used in these systems. All safety and standby devices will be maintained in working order such as alarms to warn of compressor failure or overheating. Compressors will be located so that contaminated air does not enter the system and suitable in-line filters

will be installed. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in the event of a compressor failure shall be in place. If an oil lubricated system is used, it shall have a high temperature and carbon monoxide alarm.

Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration must accord with the following specifications:

- a. oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

Cylinders used to supply breathing air to respirators must meet the following requirements:

- a. cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);
- b. cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and
- c. the moisture content in the cylinder does not exceed a dew point of 50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.
- d. compressors used to supply breathing air to respirators are constructed and situated so as to:
 1. prevent entry of contaminated air into the air-supply system;
 2. minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature;
 3. have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
 4. have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

For compressors that are not oil-lubricated, the competent person will ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

For oil-lubricated compressors, a high temperature or carbon monoxide alarm, or both, will be used to monitor carbon monoxide levels. If only

high-temperature alarms are used, the air supply will be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

CLEANING; INSPECTION; AND MAINTENANCE

Respirators issued for the exclusive use of one worker will be cleaned and disinfected after each day's use or more often, if necessary. A respirator used by more than one person will be cleaned and disinfected after each use by the employee who used it. Cleaning should be done using the manufacturer's recommendations or the guidelines in Appendix B-2 to 29 CFR 1910.134. Remove or protect the filters/cartridges before cleaning because moisture can defeat the effectiveness of a filter. During cleaning, an inspection of the respirator will be made to ensure it retains its original effectiveness. Valves, straps, canisters, elasticity, facepieces, if applicable, will be inspected per the manufacturer's instructions. Defective parts will be replaced before reuse.

Employees who use respirators will be instructed in the replacement of parts as allowed by the manufacturer (such as valves and straps). Respirators that require a higher level of repair will be returned to the manufacturer. All replacement parts will be of the same manufacture as the respirator and all replacement parts will be NIOSH approved. Maintenance will be limited to replacing parts (straps, filters, valves, etc.) allowed by the manufacturer. Only respirators in 100% working order will be used.

Cleaning supplies and replacement parts will be provided at no cost. In the event a respirator is not used for thirty (30) days, it will be inspected by a competent person. Particular attention will be paid to SCBA apparatus and Type "C" connections. SCBA apparatus shall be inspected monthly and air and oxygen cylinders will be fully charged according to the manufacturer's instructions. All warning devices will be checked to ensure they are properly functioning.

MAINTENANCE OF EMERGENCY/UNASSIGNED RESPIRATORS

Emergency and unassigned respirators (respirators used by more than one person) will be cleaned and inspected for defects every thirty (30) days and after each use. Particular attention will be given to the elasticity of the respirator and ensuring that the respirator is defect free. Only the latest record of this inspection will be maintained. A tag showing the name of inspector, the date, and condition of the respirators will be attached to the respirator.

STORAGE OF RESPIRATORS

Respirators will be stored in a convenient, clean, and sanitary location in such a manner as to protect them from dust, heat, sunlight, extreme cold, excessive moisture, and damaging chemicals. On a job site, a plastic bag can help protect a respirator from dust and moisture. Respirators will not be stored in lockers or tool boxes unless they are in cases or cartons. Respirators will be stored with the facepiece and exhalation valve resting in a normal position. This will also prevent the soft, pliable material of which respirators are made from setting in an abnormal position, changing shape, and reducing face to mask seal.

PROGRAM EVALUATION

This Program will be evaluated on a continual basis and updated if the need arises. Reasons for upgrading would include new atmospheric hazards; new respiratory protection equipment; new or altered work procedures; the introduction of new engineering controls; the failure of employees to follow standard operating procedures.

Often, the effects of breathing contaminated atmospheres are chronic in nature and thus some employees may tend to become lax in using their respirators properly. Supervisors must be on alert for this tendency.

Employees must realize that they must use the provided respiratory protection in accordance with the instructions and training received.

TRAINING

Training will be given by a competent person, prior to use, to ensure each affected employee can demonstrate knowledge of at least the following:

- a. why a respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
- b. what the limitations and capabilities of the respirator are.
- c. how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
- d. how to inspect, put on and remove, use, and check the seals.
- e. the procedures for maintenance and storage of the respirator.
- f. how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
- g. the general concepts of this program.

Retraining will be given annually and when:

- a. changes in the workplace or the type of respirator render previous training obsolete.
- b. inadequacies in the employee's knowledge or use of the respirator indicates that the employee lacks the required understanding or skill.
- c. a situation arises in which retraining appears necessary to ensure safe respirator use.

OSHA RESPIRATORY PROTECTION STANDARDS

29 CFR 1910.134, *Respiratory Protection*, and its appendices is found in Section III of our Safety Program. All sections of this standard are applicable to respiratory protection during abatement with the exception of paragraph (d)(i)iii and paragraph (e), Medical Evaluation.

Appendices C, *OSHA Respirator Medical Evaluation Questionnaire (Mandatory)* and D, *Information for Employees Using Respirators When Not Required Under the Standard* also do not apply to asbestos abatement work.

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RESPIRATOR FIT TEST SUMMARY

Name of employee: _____ SSN: _____

Date of Testing: _____ Test Conducted By: _____

Respirator(s) Selected: _____
_____ (Manufacturer) (Model/Series)

(Respirator Size) (NIOSH Certification #)

Respirator(s) Selected: _____
_____ (Manufacturer) (Model/Series)

(Respirator Size) (NIOSH Certification #)

Respirator(s) Selected: _____
_____ (Manufacturer) (Model/Series)

(Respirator Size) (NIOSH Certification #)

Testing Agent (Protocol): Circle One

- a. Isoamyl Acetate Protocol. (Banana Oil)
- b. Saccharin Solution Aerosol Protocol. (Saccharin Taste)
- c. Bitrex™ Solution Aerosol Protocol (Denatonium Benzoate)
- d. Irritant Smoke Protocol. (Irritant Smoke)

Signature of Person Conducting the Test: _____

Signature of Employee: _____

The Respirator Fit Test will be repeated at least annually or when:

- a. a different respirator facepiece (size, style, model or make) is used.
- b. there has been a weight change of at least 20 pounds.
- c. there has been significant facial scarring in the area of the face-piece seal.
- d. there has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
- e. reconstructive or cosmetic surgery.
- f. any other condition that may interfere with facepiece sealing.

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RESPIRATORY PROTECTION PROGRAM

EVALUATION FORM

The Respiratory Protection Program Administrator or a designated competent person will conduct job site and administrative evaluations to ensure the provisions of our respiratory protection program are being properly implemented. Discrepancies noted will be immediately corrected.

A random sampling of affected personnel addressed the below listed concerns and the responses are indicated below:

	<u>Yes</u>	<u>No</u>
Is the respiratory protection program understood?	<input type="checkbox"/>	<input type="checkbox"/>
Problem areas: _____		
Corrective action: _____ _____		
Do respirators fit without interfering with job performance?	<input type="checkbox"/>	<input type="checkbox"/>
Problem areas: _____		
Corrective action: _____ _____		
Are respirators being properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>
Problem areas: _____		
Corrective action: _____ _____		
Are appropriate respirators selected for the hazard?	<input type="checkbox"/>	<input type="checkbox"/>
Problem areas: _____		
Corrective action: _____ _____		

(Signature of Person performing evaluation)

(Date)

Note: Retain only the latest evaluation.

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TRAINING AND CERTIFICATION REQUIREMENTS

All employees who have potential exposure to airborne concentrations of asbestos at or above the PEL have received training prior to initial assignment. Retraining will be given at least annually thereafter. Training includes the below information/topics as well as the training as noted on the following two (2) pages [Worker and Supervisor Sheets].

Note: The PEL's for asbestos are:

Time-weighted average limit (TWA). Exposure to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average.

Excursion limit. Exposure to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.

Further, all employees who are involved in asbestos abatement have received training and understand:

- a. Methods of recognizing asbestos, including the to presume that certain building materials contain asbestos.
- b. **The health effects associated with asbestos exposure.**
- c. The relationship between smoking and asbestos in producing lung cancer.
- d. The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; including where Class III and IV work is performed, the contents of "Managing Asbestos In Place" (EPA 20T 2003, July 1990) or its equivalent in content.
- e. **The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134.**
- f. The appropriate work practices for performing the asbestos job.
- g. Medical surveillance program requirements.
- h. The contents of 29 CFR 1926.1101 including appendices.

- i. The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. A copy of 29 CFR 1926.1101 App J, *Smoking cessation program information for asbestos, non-mandatory*, is available for all employees.
- j. The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

Lastly, without cost, written materials relating to the employee training program, including a copy of this regulation have been made readily available to all affected employees, the Assistant Secretary of Labor for Occupational Safety and Health and the Director of the National Institute for Occupational Safety and Health.

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TRAINING AND CERTIFICATION REQUIREMENTS

EMPLOYEE TRAINING (ASBESTOS WORKERS)

All our asbestos workers are licensed to work with asbestos. To achieve this license, they have, at a minimum, per 40 CFR 763:

- a. Attended an initial Environmental Protection Agency (EPA) approved four (4) day Worker Course which includes such topics as:
 1. Regulatory Agencies & Regulations
 2. Medical Effects of Asbestos Exposure
 3. Medical Surveillance
 4. Respiratory Protection & Personal Protective Equipment
 5. Establishing Type "C" Systems
 6. Hands on Training: Respiratory Equipment & Personal Protective Equipment
 7. Safety and Health Considerations other than Asbestos Exposure
 8. Hands on Training: Air Monitoring Lab
 9. Prep Work & Establishing Decontamination
 10. Establishing Negative Air
 11. State of the Art Work Practices for Asbestos Abatement
 12. Hands on Training: Preparation of Work Area & Establishment of the Decontamination Unit
 13. Hands on Training: Removal Techniques, Glovebag Procedure, and Tear Down
- b. Passed a written examination demonstrating their knowledge of the above.

Additionally, every year all asbestos abatement workers must, to maintain their license, take an eight (8) hour refresher course.

Note: There must be at least 14 hours of hands-on training.

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TRAINING AND CERTIFICATION REQUIREMENTS

EMPLOYEE TRAINING

(ASBESTOS ABATEMENT SUPERVISORS)

All of our Asbestos Supervisors are licensed and have successfully demonstrated knowledge of the preceding employee training for asbestos workers. Additionally, a five (5) day EPA approved course with at least 14 hours of hands-on activity is required for supervisors. Separate initial training is required for contractor/supervisor certification, as opposed to tacking an additional 8 hours on a worker course of instruction, due to different emphasis on subjects taught. Supervisors will have included in their training:

- (1) Legal and Insurance Considerations
- (2) Contract Specifications
- (3) Pre-Bid Walkthrough Activities
- (4) Supervisory Techniques & Record Keeping
- (5) Industrial Abatement - Case Study

Supervisors must take a refresher course on the above subject annually to maintain their license.

It should be noted that contractor/supervisors may legally work in the capacity of workers without additional training because their training is more comprehensive than that of the worker. However, workers may not work in the capacity of contractor/supervisor without certification through a five (5) day, EPA approved, course of instruction.

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AIR MONITORING PLAN

Accurate and timely air sampling results are critical to successful asbestos projects. Below listed is a summary of the air sampling strategies to be used.

BACKGROUND AIR SAMPLING: Background air samples having a volume of not less than 1500 liters will be collected prior to the removal of gross material and prior to glovebag removal where ambient air quality is in question.

AMBIENT AIR SAMPLING: Ambient air samples will be collected daily for those projects utilizing the enclosure method of removal. All ambient air samples will have a volume of not less than 1500 liters. Sampling locations for ambient air samples include both inside and outside the enclosure system.

Ambient air samples will also be collected where glovebag procedures are used in normally occupied areas. Routine air sampling outside the enclosed work area may be accomplished by AFD exhaust testing.

REPRESENTATIVE PERSONAL AIR SAMPLING [Breathing Zone Air Monitoring]: Representative personal air sampling will be provided on all asbestos projects regardless of the magnitude of duration to ensure no employee is exposed to airborne concentration of asbestos above the PEL. For those projects requiring the enclosure method of removal, an eight (8) hour time weighted average (TWA) will be obtained for each job being performed inside the enclosure.

Short term projects with short time exposure shall be representative of thirty (30) minute exposures associated with operations that are most likely to produce exposures above the excursion limit (excess of 1.0 fiber per cubic centimeter for air (1f/cc) as averaged over a sampling period of thirty (30) minutes).

Note: Air quality (safety) is to be determined from breathing zone air samples. The samples will be representative of the 8-hour TWA and 30-minute short-term exposure.

No employee will be exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.

All results of personal air samples will be DOCUMENTED and be available to the abatement personnel on the following day or as soon thereafter as practical.

CLEARANCE SAMPLING: Clearance sampling will be conducted following the completion of the removal of asbestos containing materials (ACM) for projects utilizing the enclosure method of removal. Final clearance will not be given to an enclosure until a fiber concentration of less than .01 fibers per cubic centimeter (.01f/cc) can be obtained or the fiber concentration is equal or lower than the original background sample should it have been higher than .01f/cc.

All Air Monitoring Plans are subject to review and additional sampling may be required.

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EMERGENCY CONTINGENCY PLAN

It is well documented that exposure to asbestos fibers can be detrimental to the health of a person. Due to the high concentration of airborne fibers during normal asbestos abatement procedures, it is imperative to prevent asbestos fiber exposure to the workers and occupants of the building. In addition, the release of asbestos fibers to the outside air as a hazardous air pollutant must be avoided. Reference should be made to the National Emissions Standards for Asbestos, 40 CFR 61, Subpart M, for protecting the safety and health of asbestos workers for a comprehensive interpretation of the regulations. EPA regulations call for an Emergency Contingency Plan covering any release of any hazardous substance.

An Emergency Contingency Plan is defined as a document setting out an organized, planned and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste constituents that could threaten human health or the environment. This plan covers procedures to be taken when emergencies occur due to the failure of the safety equipment required by the asbestos regulations, or due to unforeseen occurrences.

During an emergency situation, the supervisor on the project shall become the emergency coordinator and shall direct his workers to alleviate the situation. Emergencies such as failure of the polyethylene barrier, glovebags, or negative pressure systems shall require an immediate shut down of the project for immediate repairs. If repairs are extensive, the emergency coordinator shall contact the Environmental Safety and Control Office for assistance. The spare respirators, Tyvek suits, boots, etc., that are at the job site for emergency use, shall be used in case the emergency situation involves asbestos fiber contamination outside the work area. Appropriate fire fighting equipment such as dry chemical, carbon dioxide, or foam types shall be at the job site to contain small fires. The emergency coordinator shall determine whether outside assistance for the local safety responders is required at this time. The below listed telephone numbers will be posted at all job sites and each entity should be notified at the start of each project.

Job Site Security	_____
Local Police Department	_____
Local Fire Department	_____
Local Hospital	_____

FIRE

In the event of fire, other than very small, confinable fires, workers will be immediately evacuated from the work area and exit the building. Emergency responders will be notified.

Fire Fighting (Small fires): dry chemical, carbon dioxide, water spray or foam.

Fire Fighting (Large fires): water spray, fog, or foam. Large fires will be handled by the fire department.

FAILURE OF POLYETHYLENE BARRIERS

In the event of failure of the polyethylene barriers, the area will be re-sealed immediately and a background air sample will be taken at the point of failure to determine if the area has been contaminated. Should the area become contaminated, it will necessitate a thorough cleaning to ensure proper decontamination. Should an isolation structure fail, the same precautionary measures will be taken.

FAILURE OF NEGATIVE AIR PRESSURE SYSTEMS

To guard against possible failure of the negative air pressure system, an additional backup unit will always be on hand ready for use. This unit will be located just outside the decontamination unit. Should a failure occur, this unit will be immediately accessible. Background air testing will be taken to ensure that no contamination has occurred and clean-up will be done immediately in the event of contamination.

POWER FAILURE

If power failure should occur, the work area will be sealed to ensure that no fibers will escape. If failure occurs during the removal stage, the work area will be kept wetted down. If the failure occurs during the clean up stage, the area will continued to be cleaned. Air testing will be done inside and outside of the work area to ensure no fibers were released.

ACCIDENT

- a. Minor Injury: Worker will be decontaminated before he/she is brought out of the work area. He will then be given medical attention.
- b. Major injury: Worker will be immediately brought out of the work area and given medical attention. Emergency responders will be called and informed of the situation.

CHEMICAL SPILL OR LEAK

Stop leak if it can be done without risk.

- a. Small spills: Take up with sand or other non combustible absorbent material and place into containers for later disposal.
- b. Large spills: Dike far ahead of spill for later disposal.

FIRST AID

In case of contact with material:

Immediately flush eyes with running water for at least 15 minutes.

Wash skin with soap and water.

Remove and isolate contaminated clothing and shoes at the site.

Any release of one (1) pound of friable asbestos into the atmosphere over a 24-hour period would amount to more than the RQ (Reportable Quantity) for asbestos as established by the EPA. Even if the release appears to be confined to the job site, it must be reported to the National Response Center and the State Air Regulators.

RESPONSE CENTERS PHONE NUMBERS:

National Response Center: (800) 424-8802

CHEMTREC: (800) 424-9300.

Ohio EPA Emergency Response: (800) 282-9378

Reports to the above Centers should contain the following information:

- a. Name and title of person making the report.
- b. Name and estimated amount of substance released in the environment.
- c. Where the release took place.
- d. List where substance appears.
- e. Reportable quantity (RQ) of the substance.
- f. Part of the environment where the release escaped.
- g. Remedial actions taken to control the release effects.

Asbestos is listed in the Emergency Planning Guide, under Guide 31, for potential hazards. This is distributed by the National Response Team in support of the Community Awareness and Emergency Response Program (CAER) to improve local emergency response planning.

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CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

[NOTE: All personnel who work with asbestos in any capacity are required to read, understand, and sign this statement.]

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING GENERAL PUBLIC.

Contracts for asbestos removal on all projects requires that:

- a. You be trained, at no cost to you, in safe work practices both in procedure and in use of equipment utilized on asbestos abatement projects.
- b. You receive, at no cost to you, a medical examination to determine your fitness for asbestos work.

By signing this certificate, you are assuring the party for whom you are working that you have been provided the above services.

[NOTE: Your signature below is an affirmation of the four (4) paragraphs listed below]

1. **RESPIRATORY PROTECTION:** I have been trained in the proper use of respirators, which are supplied by my employer at no cost, and informed of the type or types of respirator to be used on various asbestos abatement projects. I have a copy of the Respirator Training Certificate and the Respirator Test Summary (Fit Test) covering the respirator(s) used by my on asbestos abatement projects.

2. **TRAINING COURSE:** I have been trained in the dangers inherent in handling asbestos, breathing asbestos dust and fibers, and in proper work procedures. I have also been trained in personal and area protective measures. The topics covered in the course of study included the following:

- a. The health effects associated with asbestos exposure;
- b. The relationship between smoking and exposure to asbestos producing lung cancer;
- c. The quantity, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos;
- d. The engineering controls and work practices associated with the employee's job assignment;
- e. The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;
- f. **The purpose, proper use, and limitations of respirators and protective clothing, if appropriate;**
- g. The purpose and a description of the medical surveillance program required by paragraph (l) of 29 CFR 1910.1001;
- h. The content of 29 CFR 1910.1001, including appendices.
- i. The names, addresses and phone numbers of public health organizations which provide information, materials, and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix I to this section, to comply with this requirement.
- j. The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

3. **I have received training in the use of PPE and have been supplied PPE by my employer at no cost. PPE includes, but is not limited to: coveralls, gloves, head coverings, face shields and vented goggles.**

4. **MEDICAL EXAMINATION:** I have had a medical examination within the past 12 months which was paid for by my employer. This examination included a health history and pulmonary function tests. It may have included an evaluation of a chest X-ray. I have been informed of the existence, location, and availability of these records.

DATE: _____

WORKER'S SIGNATURE: _____ SSN: _____

WITNESS'S SIGNATURE: _____

Great Western Painting

ASBESTOS REMOVAL PROCEDURES WORK PRACTICES AND ENGINEERING CONTROLS FOR ASBESTOS OPERATIONS

Note: Engineering Controls and Work Practices are designed to reduce/maintain the asbestos exposure below the TWA.

On all asbestos operations, regardless of levels of exposure, a competent person will be designated having the qualifications and authority to ensure worker safety and health. The competent person will perform frequent and regular inspections of the job sites, materials, and equipment.

- a. Class I Jobs: On-site inspections will be made at least once during each work shift and at any time requested by an employee.
- b. Class II & III Jobs: On-site inspections will be made at intervals sufficient to assess whether conditions have changed and at any reasonable request by an employee.

Duties of the designated competent person on worksites where employees are engaged in Class I or Class II asbestos work shall include, if applicable, the performance or supervision of:

- a. Setting up the regulated area, enclosure, or other containment.
- b. Ensuring (by on-site inspection) the integrity of the enclosure or containment.
- c. Setting up procedures to control entry to and exit from the enclosure and/or area.
- d. Supervising all employee monitoring required and ensuring that it is done properly.
- e. Ensuring that all employees working within the enclosure and/or using glove bags wear protective clothing and respirators as required.
- f. Ensuring through on-site inspection that all employees setting up and removing engineering controls use work practices and personal protective equipment as required.
- g. Ensuring that employees use the hygiene facilities and observe the decontamination procedures.
- h. Ensuring that through on-site inspection engineering controls are functioning properly and employees are using proper work methods.
- i. Ensuring that notifications requirements are being met.

All asbestos operations, regardless of levels of exposure, will use:

- a. Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM or PACM. This equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.
- b. Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, and cleanup except when wet methods would create a greater danger such as:
 1. The creation of electrical hazards.
 2. Equipment malfunction.
 3. Slipping hazards (i.e., when working on a steep roof).
- c. Prompt clean-up and disposal of ACM or PACM waste and debris in leak-tight containers. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing ready for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers.

To achieve compliance with the TWA permissible exposure limit (0.1 fiber or less per cubic centimeter of air in an eight (8) hour time-weighted average) and the excursion limit (1.0 fiber or less per cubic centimeter of air as averaged over a period of thirty (30) minutes, the following control methods will be used:

- a. Local exhaust ventilation equipped with HEPA filter dust collection systems.
- b. Enclosure or isolation of processes producing asbestos dust.
- c. Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter.

When feasible engineering and work practices cannot sufficiently reduce employee exposure to acceptable levels, the employee exposure will be reduced to the maximum extent possible and then be supplemented with the appropriate respirator protection. Reference our [Respirator Protection Plan](#).

All asbestos projects, the following **will not be used**

- a. high-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

- b. Compressed air to remove asbestos or ACM unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- c. Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM or PACM.
- d. Employee rotation as a means of reducing employee exposure to asbestos.

All Class I work will conform to the below requirements:

- a. Oversight by a competent person
- b. Use of critical barriers over all openings to work area
- c. Isolation of HVAC systems
- d. Use of impermeable drop cloths and coverage of all objects within regulated areas
- e. Negative pressure enclosures, where feasible, will be used.

NEGATIVE PRESSURE ENCLOSURE SYSTEMS (NPE)

The NPE will be constructed to provide an air-tight seal around ducts and openings into existing ventilation systems as well as around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc.. NPE's should be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

Though there is no specific limit on size, an NPE should be the minimum volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

The walls, ceilings and floors of the NPE will be supported in such a manner that portions of the enclosure will not fall down during normal use.

Openings should be located at a distance from active removal operations. They should be designed to draw air into the enclosure under all anticipated circumstances.

In the event that negative pressure is lost, openings should be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits should be controlled by an airlock or a vestibule.

Frames should be constructed to support all unsupported spans of sheeting.

Walls, barriers, ceilings, and floors should be lined with two layers of plastic sheeting having a thickness of at least 6 mil. (Due to the weight of 6 mil plastic, on vertical surfaces, 4 mil plastic may have to be used to ensure the structural integrity of the enclosure.)

Seams in the sheeting material will be minimized to reduce the possibilities of accidental rips and tears in the adhesive or connections. All seams in the sheeting should overlap, be staggered and not be located at corners or wall-to-floor joints.

Plastic sheeting used to protect horizontal surfaces, seal HVAC openings or to seal vertical openings and ceilings should have a minimum thickness of 6 mils. (Due to the weight of 6 mil plastic, on vertical surfaces, 4 mil plastic may have to be used to ensure the structural integrity of the enclosure.) Tape or other adhesive used to attach plastic sheeting should be of sufficient adhesive strength to support the weight of the material plus all stresses encountered during the entire duration of the project without becoming detached from the surface.

Each NPE will consist of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur should be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

The decontamination area that is adjacent and connected to the regulated area will, where feasible, consist of an equipment room, shower area, and clean room in series. All employees must enter the regulated area through the decontamination area.

When leaving the NPE work area each person should step into the equipment room, clean tools and equipment, and remove gross contamination from clothing by wet cleaning and HEPA vacuuming.

Before entering the shower area, foot coverings, head coverings, hand coverings, and coveralls are removed and placed in impervious bags for disposal or cleaning.

Airline connections from airline respirators with HEPA disconnects and power cables from powered air-purifying respirators (PAPRs) will be disconnected just prior to entering the shower room.

The Negative Pressure Enclosure will:

- a. Have at least 4 air changes per hour.

- b. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, maintained within the NPE as evidenced by manometric measurements.
- c. Kept under negative pressure throughout the period of its use.
- d. Have air movement directed away from the employees performing asbestos work with the enclosure and toward a HEPA filtration or collection device.

NPE WORK PRACTICES

- a. Before beginning work within the enclosure and at the beginning of each shift, the NPE will be inspected for breaches and smoke-tested for leaks. Any leaks will be sealed.
- b. Electrical circuits in the enclosure will be deactivated, unless equipped with ground-fault circuit interrupters.

CLASS I WORK PROCEDURES

Asbestos removal procedures will include, at a minimum, the steps noted below. Often, more stringent procedures are employed due to conditions encountered on specific projects as well as differing job specifications and requirements.

There are eight primary steps involved in the asbestos abatement process. These steps, overseen by a competent person, are applicable to removal, demolition, and/or renovation projects. The steps are listed below:

1. Set up the enclosure.

Before setting up the enclosure, all movable objects such as chairs, desks, rugs, light fixtures, etc., will be removed to prevent them from becoming contaminated with asbestos fibers. Objects that cannot be removed from the enclosure will be covered with two (2) layers of 6 mil polyethylene sheeting that is securely taped with duct tape to form an air tight seal. A minimum of two (2) layers of 4 mil polyethylene will be placed on the walls and a minimum of two (2) layers of 6 mil polyethylene will be placed on the floors.

2. Ensure the integrity of the enclosure.

The enclosure will be inspected before asbestos removal begins and prior to each work shift throughout the entire period work is being conducted in the enclosure. This is accomplished best by running a hand over all seams in the plastic enclosure to ensure that no seams are ripped and the tape is securely in place.

3. Control entry to and exit from the enclosure.

The competent person should ensure that all unauthorized personnel do not enter the enclosure and that all employees and other personnel who enter the enclosure have the proper protective clothing and equipment. The competent person will also ensure that all employees and other personnel who enter and exit the enclosure use the hygiene facilities and observe the proper decontamination procedures indicated below:

Entry Procedures:

- a. enter the decontamination area through the clean room;
- b. remove and deposit street clothing within a locker provided for their use; and
- c. put on protective clothing and respiratory protection before leaving the clean room.
- d. before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

Exit Procedures:

- a. before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.
- b. employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.
- c. employees shall not remove their respirators in the equipment room.
- d. employees shall shower prior to entering the clean room.
- e. after showering, employees shall enter the clean room before changing into street clothes.

4. Supervise all employees exposure monitoring.

Air monitoring will be performed in accordance with the Air Sampling Plan.

5. Ensure the use of protective clothing and equipment.

6. Ensure that employees are trained in the use of engineering controls, work practices, and personal protective equipment.

Proper work practices are necessary during asbestos removal, demolition, and renovation to ensure that the concentration of asbestos fibers inside the enclosure remains as low as possible. One of the most important work practices is to wet the asbestos containing material before it is disturbed and throughout the removal activity. After the asbestos containing material is thoroughly wetted, it should be removed by scrapping (as in the case of sprayed on or troweled on ceiling material) or removed by cutting the metal bands on the wire mesh that support the asbestos containing material on boilers or pipes. Any residue that remains on the surface of the object from which the asbestos is being removed should be nylon or wire brushed and wet wiped.

Bagging asbestos waste material in two (2) 6 mil pre-labeled bags promptly after its removal is another work practice control that is effective in reducing the airborne concentration of asbestos fibers within the enclosure. Whenever possible, the asbestos will be removed and placed directly into bags for disposal rather than dropping the material to the floor and then picking up all of the material when the removal is complete. If a significant time elapses between the time the material is removed and the time it is bagged, the asbestos material is likely to dry up and generate asbestos laden dust when it is disturbed. Any asbestos contaminated supplies that cannot be decontaminated should be disposed of in two (2) 6 mil pre-labeled bags. Items included in this category include plastic sheeting, disposable work clothing, respirator cartridges, and contaminated water.

7. Ensure the use of hygiene facilities and the observance of proper decontamination procedures.

A decontamination enclosure unit that consists of a shower chamber, an equipment room, and a clean room will be installed in conjunction with the enclosed work area.

8. Ensure that engineering controls are functioning properly.

GLOVEBAGS/GLOVEBAG WORK PRACTICES

Glovebag systems shall be used to remove PACM and/or ACM from straight runs of piping with the following specifications and work practices:

- a. Glove-bag systems will be used to remove PACM and/ACM from straight runs of piping.

- b. Glovebags will be 6 mil thick at a minimum and seamless at the bottom.
- c. Each glovebag will be installed so that it completely covers the circumference of the pipe or other structure where the work is to be done.
- d. Glovebags will be smoke-tested for leaks and any leaks sealed prior to use.
- e. Glovebags will be used only once and may not be moved.
- f. Glovebags will not be used on surfaces whose temperatures exceeds 105 degrees.
- g. Prior to disposal, glovebags will be collapsed by removing air within them using a HEPA vacuum.
- h. Before beginning a glovebag operation, loose and friable material adjacent to the glovebag will be wrapped and sealed in two layers of six (6) mil plastic or otherwise rendered intact.
- i. Where a glovebag system uses attached waste bag, such bag will be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity.
- j. Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected.
- k. At least two (2) persons shall perform Class I glovebag removals.
- l. Negative pressure glove bag systems will be used to remove ACM or PACM from piping.

CLASS II WORK PROCEDURES

All Class II work conducted will conform to the below requirements of 29 CFR 1926.1101(g). Items of emphasis include:

- a. For removal of vinyl and asphalt flooring materials (ACM or PACM):
 - 1. Flooring or its backing shall not be sanded.
 - 2. Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.
 - 3. Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during decontamination. Rip-up of resilient sheet floor material is prohibited.

4. All scraping of residual adhesive and/or backing shall be performed using wet methods.
 5. Dry sweeping is prohibited.
 6. Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(iv) of this section.
 7. Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.
 8. When tiles are heated and can be removed intact, wetting may be omitted.
 9. Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.
- b. For removal of roofing material which contains ACM or PACM:
1. Roofing material shall be removed in an intact state to the extent feasible.
 2. Wet methods shall be used where feasible.
 3. Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.
 4. All loose dust left by the sawing operation must be HEPA vacuumed immediately.
 5. Unwrapped or unbagged roofing material shall be immediately lowered to the ground via covered, dust-tight chute, crane or hoist, or placed in an impermeable waste bag or wrapped in plastic sheeting and lowered to ground no later than the end of the work shift.
 6. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.
 7. Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.
- c. For removal of cementitious asbestos-containing siding and shingles or transite panels containing ACM:

1. Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.
 2. Each panel or shingle shall be sprayed with amended water prior to removal.
 3. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.
 4. Nails shall be cut with flat, sharp instruments.
- d. For removal of gaskets containing ACM:
1. If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in paragraph (g)(5)(ii) of this section.
 2. The gasket shall be thoroughly wetted with amended water prior to its removal.
 3. The wet gasket shall be immediately placed in a disposal container.
 4. Any scraping to remove residue must be performed wet.
- e. When performing any other Class II removal of asbestos containing material for which specific controls have not been listed (d1 through d4 above):
1. The material shall be thoroughly wetted with amended water prior and during its removal.
 2. The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.
 3. Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.
 4. Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

FLOORING

At a minimum, all critical barriers will be sealed.

A mini-decontamination enclosure (shower chamber, equipment room, and clean room) will be installed in conjunction with the enclosed work area.

If chemicals are introduced into the work area to remove the floor covering and mastic, proper protective equipment will be used such as impermeable boots and gloves and proper eye and respiratory protection.

Should a mechanical process be used to remove floor tiles and mastic, such as a pneumatic scraper, standard asbestos abatement procedures will apply such as wet removal and negative pressure enclosures.

All machines will be plugged into GFCI's, fitted with HEPA filtered exhausts (if applicable) and decontaminated after use.

All waste will be containerized, labeled and transported in accordance with all local, state and federal regulations.

CLASS III WORK PROCEDURES

During all Class III work which involves the disturbance of thermal system insulation or surfacing material (unless a "negative exposure assessment" has been made) or where monitoring results show a PEL has been exceeded, employees will wear appropriate respirators per our Respiratory Protection Plan.

CLASS IV WORK PROCEDURES

All Class IV work shall be conducted by employees trained pursuant to the asbestos awareness training program. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out 29 CFR 1926.1101(g)(1) which mandates wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

- a. Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph 29 CFR 1926.1101(h).
- b. Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

RECORDKEEPING

If objective data that demonstrates that products made from or containing asbestos or the activity involving such products or material are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling, we will establish and maintain an accurate record of this objective data. This record will include:

- a. the product qualifying for exemption per paragraph (f), 29 CFR 1926.1101, Exposure Assessments and Monitoring; A copy of the standards is included with this program.
- b. the source of the objective data;
- c. the testing protocol, results of testing, and/or analysis of the material for the release of asbestos;
- d. a description of the operation exempted and how the data support the exemption; and
- e. other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

These records will be maintained for the duration of reliance upon the objective data.

Exposure measurements:

An accurate records of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f), 29 CFR 1926.1101, Exposure Assessments and Monitoring, will be maintained. The services of competent organizations such as industry trade associations and employee associations to maintain these records may be utilized. These records will include:

- a. the date of measurement;
- b. the operation involving exposure to asbestos that is being monitored;
- c. sampling and analytical methods used and evidence of their accuracy;
- d. number, duration, and results of samples taken;
- e. type of protective devices worn, if any; and
- f. name, social security number, and exposure of the employees whose exposures are represented.

The above records will be maintained for at least thirty (30) years in accordance with 29 CFR 1910.1020.

Medical surveillance:

An accurate record for each employee subject to medical surveillance in accordance with 29 CFR 1910.1020 will be established and maintained. This record will include at least the following information:

- a. the name and social security number of the employee;
- b. a copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.
- c. physician's written opinions;
- d. any employee medical complaints related to exposure to asbestos; and
- e. a copy of the information provided to the physician as required by paragraph (m), 29 CFR 1926.1101.

The above records will be maintained for the duration of employment plus thirty (30) years in accordance with 29 CFR 1910.1020.

Training records.

All employee training records will be maintained for one (1) year beyond the last date of employment.

Data to Rebut PACM.

Where we and/or the building owner have relied on data to demonstrate that PACM is not asbestos-containing, such data shall be maintained for as long as they are relied upon to rebut the presumption.

Records of Required Notifications.

Where the building owner has communicated and received information concerning the identification, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the building owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities.

Availability.

Upon written request, all records required to be maintained by this section will be made available to the Assistant Secretary and the Director for examination and copying.

Upon request, any exposure records required by paragraphs (f) and (n) of 29 CFR 1926.1101 will be made available for examination and copying to affected employees, former employees, designated representatives, and the Assistant Secretary, in accordance with 29 CFR 1910.1020(a) through (e) and (g) through (i).

Upon request, employee medical records required by paragraphs (m) and (n) of 29 CFR 1926.1101 will be made available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.1020.

Transfer of records:

Should we cease to do business, the successor employer shall receive and retain all the above medical records.

Should we cease to do business and there is no successor employer to receive and retain the above medical records, they shall be transmitted to the Director.

At the expiration of the retention period for the above medical records, the Safety Director will notify the Director at least 3 months prior to the disposal of such records and shall transmit those records to the Director if he requests them within that period.

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DISPOSAL PLAN FOR ASBESTOS CONTAINING MATERIAL (ACM)

All the rules, regulations, and guidelines regarding the proper disposal of asbestos containing material will be complied with. Attention is paid to Department of Transportation, OSHA, and EPA requirements as well as any specific requirement of local or other regulatory agencies.

All ACM is wetted, doubled bagged, and containerized during handling, shipping, and disposal to prevent asbestos fiber emissions to the outside air. The ACM containers are identified with Class 9 warning label.

**DANGER
ASBESTOS
NA2212
(WITH APPROPRIATE CLASS 9 SYMBOL)**

[(Per 49 CFR 172)]

and

**DANGER
Contains Asbestos Fibers
Avoid Creating Dust
Cancer and Lung Disease Hazard**

[(Per 29 CFR 1926.1101(k)(6)(ii)]

Further, per 40 CFR 61.150 (NESHAP) all containers of asbestos (bags, fiber drums, etc.) will contain the identity of the Waste Generator and the location at which the waste was generated. This identification may be pre-printed or otherwise securely affixed to the containers.

Under no circumstances will ACM be disposed at a landfill that has been identified as a superfund site by the EPA under CERCLA and SERA.

All steps will be taken to prevent breakage of ACM containers (double six (6) mil bags, fiber, or metal drums during the disposal process from facility to landfill. Broken or torn bags will be placed inside a third bag in total. Any spillage will be thoroughly cleaned up and the area decontaminated.

During loading or unloading of ACM containers into our vehicles or vehicles of other transporters, the "Danger, Asbestos Containing Material" sign will be affixed to the vehicle with maximum visibility.

Chain of Custody will be maintained utilizing an EPA Waste Shipment Record for Regulated Asbestos Waste Material. It is required by D.O.T. that the asbestos material be identified: "RQ, ASBESTOS, 9, NA2212, PG III".

The US EPA Waste Shipment Record for Regulated Asbestos Waste Material may be used as a shipping document per 49 CFR 172.205(h).

Any company employee who is driving a vehicle containing ACM will have the Asbestos Material Safety Data Sheet in his possession as well as a Hazardous Materials endorsement on his/her Commercial Driver's License (CDL). No person shall drive a vehicle containing more than one (1) pound of asbestos containing material without a CDL with the Hazardous Materials endorsement. The vehicle shall display the Class 9 placards.

ACM will be disposed of within 35 days of removal. During the time frame between actual removal and disposal at an approved landfill, the containers of asbestos will be secured.

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(Date)

Respiratory Protection Training

I certify that the below employees have received respiratory protection training which included: a: why a respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator; b: what the limitations and capabilities of the respirator are; c: how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions; d: how to inspect, put on and remove, use, and check the seals; e: the procedures for maintenance and storage of the respirator; and f: how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators. Training was interactive and given by a competent person.

(Print name of competent person)

(Signature)

_____ on _____.
(Insert location) (Date)

(PRINT NAME)

(SIGNATURE)

_____	_____
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Robert Evans
Respiratory Protection Program Administrator