



THE DOW CHEMICAL COMPANY

1803 BUILDING
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MIDLAND, MICHIGAN 48674

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ASBESTOS - THE LONG (LEGAL) FIBERS

While in Washington, I picked up a copy of the asbestos industry brief for appealing the EPA asbestos ban. I am sending Paul Wright the brief so that he can evaluate it.

Tim Hardy, a coauthor on this brief and a good friend of Dow on PCB, Dioxins, etc. was very pleased with this brief and thinks they have a fair chance of winning a remand back to EPA. The main argument is procedured, especially the lack of "substantial evidence," but they have covered most of the other points that one would expect.

The Dow reason for this note is two-fold:

- Gaskets may not be banned. We had no basis to fight this in the stuff that we put in the record, but AIA is going after everything.
- A remand could put the diaphragm back in the picture. This is doubtful, and Tim said that there was nothing in this 100-page document that would do it but it is important enough to have an infrequent check with Tim Hardy or Ed Warren. Our legal group has good relations with these people and should be able to drop a question now and then.


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hlb

P.S. I only scanned the brief, but they sure convinced me that EPA. has made some errors in procedure.

PLAINTIFF'S EXHIBIT

DOW-638

ST0073905

ASBESTOS GLOSSARY

- Abatement - Asbestos control beyond a special operations and maintenance program
- Abatement Supervisor - Person who supervises abatement projects; requirements: four day EPA approved course with hands-on training and exam, one day annual refresher training.
- Abatement Worker - Person who conducts abatement projects; requirements: three day EPA approved course with hands-on training and exam, one day annual refresher training.
- ABIH - American Board of Industrial Hygiene
- ACBM - Asbestos-Containing Building Material; encompasses surfacing ACM, thermal system insulation ACM, and miscellaneous ACM in or on interior parts of a school building (AHERA definition).
- ACGIH - American Conference of Governmental Industrial Hygienists: The organization that establishes voluntary guidelines (TLV) for worker safety.
- ACM - Asbestos-Containing Material - Any material or product which contains 1 percent or more of asbestos.
- Acoustical Insulation - The general application or use of asbestos for the control of sound due to its lack of reverberant surfaces.
- Acoustical Tile - A finishing material in a building usually found in the ceiling or walls for the purpose of noise control.
- Actinolite - An asbestiform of the amphibole variety which is grayish-green in hue, and occurs in radiate or columnar form. One of six naturally occurring asbestos minerals. It is not normally used commercially.

- Action Level - A level of airborne fibers specified by OSHA as a warning or alert level at which what action must be taken? It is 0.1 fibers per cubic centimeter of air, 8-hour time-weighted average, as measured by phase contract microscopy.
- Addenda - Changes made to working drawings and specifications for a building before the work is bid.
- Aggressive Sampling - Air sampling which takes place after final cleaning while the air is being physically agitated to produce a "worst case" situation.
- AHERA - Asbestos Hazard Emergency Response Act; regulations on asbestos removal for public and private schools K through 12.
- AIA - Asbestos Information Association
- AIA - American Institute of Architects
- AIA - American Insurance Association
- AIHA - American Industrial Hygiene Association
- AIHA Accredited Laboratory - An analytical laboratory that has been given a certification by the AIHA which states that it has successfully participated in the "Proficiency Analytical Testing" program for quality control as established by the National Institute for Occupational Safety and Health.
- Air Diffuser - A device designed to disperse an air stream throughout a given area.
- Air Lock - An opening in a polyethylene barrier with one polyethylene flap on each side which restricts air from passing through while allowing passage for people, equipment, etc. Most commonly used to connect the chambers of a decontamination enclosure system. Some agencies define airlock as an area enclosed by two such airlocks as described above which are at least three feet apart.
- Air Man - Slang for an industrial hygienist or other qualified individual who collects air samples and monitors the asbestos abatement worksite.

ST0081028

Air Monitoring
Sampling

- The process of measuring the airborne fiber concentration of a specific quantity of air over a given amount of time. Sampling is performed by drawing a measured volume of air through a filter which is then analyzed under a microscope to see how many fibers were collected.

Airborne Asbestos
Analysis

- Determination of the amount of asbestos fibers suspended in a given amount of air

Algorythm

- A formal numerical procedure for assessing suspect material; results are given in numerical score.

Alveolar Macrophages

- Highly specialized mobile cells in the lungs that attempt to engulf and digest such lung hazards as dusts or fibers.

Alveoli

- Located in clusters around the respiratory bronchioles of the lungs, this is the area in which true respiration takes place.

Amended Water

- Water to which a chemical wetting agent (surfactant) has been added to improve penetration into asbestos-containing materials that are being removed.

Ambient Air

- The surrounding air or atmosphere in a given area under normal conditions.

Amosite

- Brown Asbestos - an asbestiform mineral of the amphibole group. It is the second most commonly used form of asbestos in the U.S.

Amphibole

- One of the two major groups of minerals from which the asbestiform minerals are derived - distinguished by their chain-like crystal structure and chemical composition. Amosite and crocidolite are examples of amphibole minerals.

ANSI

- American National Standards Institute

Anthophyllite

- One of six naturally occurring asbestos minerals. It is of limited commercial value.

Approved Landfill

- A site for the disposal of asbestos-containing and other hazardous wastes that has been given EPA approval.

As-built drawings

- Drawings and specifications which reflect the way a building was actually constructed.

ST0081030

Asbestos Debris

- Pieces of ACM that can be identified by color, texture, or composition, including dust if the dust is determined by the accredited inspector to be asbestos-containing.

Asbestiform

- Fibrous minerals which, due to their crystal structures and chemical composition, can be classified as a form of asbestos.

Asbestos

- A generic name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible in air, and are separable into fibers. Asbestos includes the asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite-grunerite), anthophyllite, actinolite, and tremolite.

Asbestos Abatement

- Procedures to control fiber release from asbestos-containing materials in buildings.

Asbestos Abatement Contractor

- An employer who carries on the business of asbestos abatement on the premises of another individual or employer.

Asbestos Abatement Project Site

- The area involved in the demolition, renovation, or encapsulation of friable asbestos materials.

Asbestos Bodies

- Coated asbestos fibers often seen in the lungs of asbestos-exposure victims.

Asbestos Control

- Minimizing the generation of airborne asbestos fibers until a permanent solution is developed.

Asbestos Exposure Assessment System

- A decision tool which can be used to determine the extent of the asbestos hazard that exists in a building, and which can also be used to develop corrective actions.

Asbestos Standard

- Reference to the OSHA requirements in the general industry standards regarding asbestos exposure (29 CFR 1910.1001), and EPA National Emission Standard for Hazardous Air Pollutants (NESHAP).

Aspect Ratio

- The length of a fiber vs. its width.

Asbestosis

- A scarring of the lungs caused by exposure to asbestos. Continued exposure may lead to degeneration of lung function and death.

Atmosphere Supplying Respirators

- Respiratory protection devices which exclude work place air altogether and provide clean air from some independent source.

Atmospheres Immediately Dangerous to Life or Health

- A hazardous atmosphere to which exposure will result in serious injury or death in a matter of minutes or cause serious delayed effects.

Authorized Person

- Any person authorized by the employer and required by work duties to be present in regulated areas.

Bid

- A statement of the price at which a contractor will complete a given project.

"Blue Book"

- EPA publication of May 1985 titled, Asbestos Waste Management Guidance.

Breaching

- A duct which transports combustion gases from a boiler or heater to a chimney or stack. Also called a flue.

Bridging Encapsulant

- A type of a sealant coated on the surface of asbestos-containing material to prevent the release of asbestos fibers. Bridging encapsulants do not penetrate very deeply into the material to which they are applied.

Bronchi

- Primary branches of the trachea (windpipe).

Bronchogenic Cancer

- An abnormal cell growth in the primary branches of the trachea (windpipe).

Building Inspectors

- Persons who survey buildings for presence of ACM; requirements: three day EPA approved course with field work and exam, 1/2 day annual refresher training.

Bulk Samples

- Samples of bulk material, in the case of asbestos, suspect material.

Cancer

- A cellular tumor which normally leads to premature death of its host unless controlled.

Carbon Monoxide

- A highly toxic colorless and odorless gas.

Cementitious

- Asbestos-containing materials that are densely packed and non-friable, such as transite, plaster, etc.

Ceiling Concentration

- The maximum allowable level of toxic material that a person can be exposed to, even for short periods of time.

- CFM - Cubic feet per minute
- Chain-of-Custody - Formal procedures for tracking samples and ensuring their integrity.
- Change Order - A change to construction documents after a contract for construction has been signed.
- Chrysotile - White Asbestos; The only asbestiform mineral of the serpentine group. It is the most common form of asbestos used in buildings.
- CIH - An industrial hygienist who has been granted certification by the American Board of Industrial Hygiene.
- Cilia - Tiny hair-like structures in the windpipe and bronchi of the lung passages that help force undesirable particles and liquids up and out of the lungs.
- Claims-made Insurance - A form of insurance in which a claim is allowed only if the insurance is in effect when the claim is made, that is, when the injury or effect is observed.
- Claustrophobia - The fear of being in enclosed or narrow spaces.
- Clean Air - EPA recommended value of 0.01 fibers per cubic centimeter (f/cc) of air.
- Clean Area/Room - The first stage of the decontamination enclosure system in which workers prepare to enter the work area. (It is the room which opens to the outside.)
- Clerk of the Works - A person who coordinates and oversees all activities on an asbestos abatement job site.
- Closed Circuit SCBA - A self-contained respiratory protection device in which the air is rebreathed after the exhaled carbon dioxide has been removed and the oxygen content restored.
- Columns - The building components which support the structural beams.
- Competent Person - A person capable of identifying asbestos hazards and who has authority to eliminate hazards (OSHA definition). At least one competent person must be on site at all times when an abatement project is running.

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Compressed Oxygen
Cylinder Type Closed
Circuit SCBA

- A self-contained respiratory protection device in which air is supplied from a compressed air cylinder. The exhaled air is filtered to remove carbon dioxide, and additional oxygen is provided.

Concrete-like
Asbestos

- Hard, non-friable asbestos-containing material requires a mechanical force to penetrate its surface (cementitious).

Confined Space

- Any enclosure or area that has limited access, such as storage tanks, tank cars, boilers, sewers, etc.

Containment

- Isolation of the work area from the rest of the building to prevent escape of asbestos fibers.

Contaminated Items

- Any objects that have been exposed to airborne asbestos fibers without being sealed off or isolated.

Continuous Flow
Airline Device

- A respirator that maintains a constant airflow to the wearer.

Contract Documents

- Legally binding building drawings and specifications. Also called construction documents.

Contract
Specifications

- A set of guidelines that a contractor must follow when conducting an asbestos abatement job.

CPSC

- Consumer Product Safety Commission

Criteria Document

- NIOSH publications that address toxic materials analytical methods, personal protective equipment, etc. Criteria documents usually become the basis of future regulation.

Crocidolite

- Blue Asbestos - strongest of asbestos minerals. An asbestiform mineral of the amphibole group. It is of minor commercial value in the U.S.

Damaged Friable
Surfacing (Misc.)
Material

- Friable surfacing ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that the bond to the substrate (adhesion) is inadequate or which for any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation of ACM from the substrate; flaking, blistering, or crumbling of ACM surface; water damage; significant or repeated water stains, scrapes, gouges,

marks or other signs of physical injury on the ACM. Asbestos debris originating from the ACM in question may also indicate damage (AHERA definition).

Damaged or
Significantly Damaged
Thermal System
Insulation

- Thermal System insulation on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water-stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges, or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints. Asbestos debris, originating from the ACM in question may also indicate damage (AHERA definition).

Decontamination

- Cleaning of contaminated areas. Decontamination chambers are used in ACM abatement projects.

Decontamination
Enclosure System

- A series of connected rooms usually with polyethylene curtained doorways, for the purpose of preventing contamination of areas adjacent to the work area.

Deferred Action

- No initial asbestos abatement action is taken, but the area is periodically inspected for changes until action is necessary.

Demand Airline Device

- A respirator in which air enters the facepiece only when the wearer breathes in.

Design Professionals

- Persons who design abatement projects and write contract specifications for abatement work; requirements: Three day EPA approved course with field work and exam, or abatement supervisor course, one day annual refresher training.

Designated person

- A person appointed by a local education agency to be in charge of the asbestos control program (AHERA definition).

Direct Costs

- The costs of an ACM response action reflected by the action itself, temporary relocation of people and equipment, and related needs.

Dirty Area

- Any area within an enclosure in which the concentration of airborne asbestos fibers exceeds 0.01 f/cc, or where there is visible asbestos residue.

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- Dispersion Staining - Coloration added to asbestos samples for the purpose of making the sample more visible and easier to identify under the microscope.
- Dose-Response Effect - The relationship between the amount of pollutant a person is exposed to (dose) and the increase risk of disease (effect). Usually the greater the dose, the greater the effect.
- DOT - Department of Transportation
- Dust Mask - Single use or disposable dust respirator having very little protective value.
- Duct Tape - Heavy gauge tape capable of sealing joints or adjacent sheets of polyethylene.
- Electrical Systems - The system of wires, lights, power generation equipment, and related facilities to produce, convey, and utilize electrical power in a building.
- Electron Microscopy - A method of asbestos sample analysis which utilizes an electron beam to differentiate between fibers.
- Employee Notification - Informing employees or building occupants if asbestos is present in the building, also informing them of the hazards associated with asbestos exposure, what is being done to eliminate the problem, whether they have been overexposed etc.
- Employer's Liability - Legal responsibility imposed on an employer requiring him/her to pay damages to an injured employee.
- Encapsulant (sealant) - A substance applied to asbestos-containing material which controls the release of airborne asbestos fibers by sealing them together.
- Encapsulation - The use of an agent to seal the surface (bridging encapsulant) or penetrate and seal the bulk (penetrating encapsulant) of ACM.
- Encasement - The process of affixing a hard shell around ACM in order to reduce the release of fibers in the air.

- Enclosure - An airtight, impermeable, permanent barrier constructed around ACM to prevent the release of asbestos fibers into the air. The term should not be confused with a vacuum-sealed area which is impossible to access.
- EPA - Environmental Protection Agency
- EPA Regulations - Regulatory standards which cover emissions into the outside environment from a work-place and disposal of hazardous wastes from job sites.
- Epidemiology - The study of causes, occurrence and distribution of disease throughout a population.
- Equipment Room or Dirty Room - The last stage or room of the worker decontamination system before entering the work area.
- Errors and Omissions Insurance - A type of insurance which protects professionals from mistakes they may make in contracted plans and recommendations.
- Eye piece - A component of a full facepiece respirator which is a gas-tight transparent window through which the wearer may see.
- F/CC - Fibers per cubic centimeters of air.
- Facepiece - The portion of a respirator which covers the wearer's nose, mouth, and eyes in a full facepiece.
- Fallout - The intermittent release of fibers which occurs as a result of weakened bonds in the material, or because of deterioration.
- FEV₁ - Forced Expiratory Volume - one second. The maximum volume of air that can be forced from an individual's fully inflated lungs in one second.
- Fiber - A particulate form of asbestos, tremolite, anthophyllite, or actinolite, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1 (NIOSH definition).
- Fiber Containment - Enclosing or sealing off an area having airborne asbestos fibers present so that the fibers will not migrate resulting in contamination of other areas.

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<u>Fiber Control</u>	- Minimizing the amount of airborne fiber generation through encapsulation or enclosure of the material.
<u>Fiber Release Episodes</u>	- The uncontrolled or unintentional disturbances of ACM.
<u>Fiber Releasability</u>	- The potential for generation of airborne fibers from an asbestos-containing source.
<u>Fiber Reynolds Number</u>	- Refers to the diameter of a fiber.
<u>Fibrosis</u>	- A condition of the lungs caused by the inhalation of excessive amounts of fibrous dust marked by the presence of scar tissue.
<u>Fibrous</u>	- Composed almost entirely of fibers.
<u>Fibrous Aerosol</u>	- A portable survey instrument with the capability of providing instantaneous airborne fiber concentration readings.
<u>Fireproofing</u>	- Spray-applied or trowel-applied fire resistant materials.
<u>Friable</u>	- Material that can be crumbled or reduced to powder by hand pressure.
<u>Friable Asbestos</u>	- Any materials that contain more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder by hand pressure.
<u>Full Facepiece Respirator</u>	- A respirator which covers the wearer's entire face from the hairline to below the chin.
<u>Functional Space</u>	- The basic unit (most often an individual room) for collecting data on the physical condition of materials during an asbestos building inspection. Functional spaces are spatially distinct units within a building and contain different populations of building occupants.
<u>FVC</u>	- Forced Vital Capacity. The measured quantity of air that can be forcibly exhaled from a person's lungs after full inhalation.
<u>General Liability Insurance</u>	- A type of insurance which covers the insured for damage to property and person caused by his or her own negligence.

ST0081038

Glovebag
(Also-Glovebox)

- A plastic bag type enclosure with gloves incorporated into it used for asbestos removal on pipes or other small items.

Grade D Air

- Breathing air which has between 19.5% - 23% oxygen, no more than 5mg/m³ of condensed hydrocarbons, no more than 20 ppm of carbon monoxide, no pronounced odor, and a maximum of 1000 ppm carbon dioxide.

Ground Fault
Circuit Interrupter

- A circuit breaker that is sensitive to very low levels of current leakage from a fault in an electrical system. It protects people by automatically de-energizing any high voltage system component which has developed a fault in the ground line.

Half Mask-
High Efficiency

- A respirator which covers one-half of the wearer's face across the nose and cheeks and below the chin and is equipped with filters capable of screening out 99.97% of all particles larger than 0.3 microns.

Hazard Assessment

- The interpretation and evaluation of physical assessment data in order to set abatement priorities and rank areas for response actions.

Heat Cramps

- Painful spasms of heavily used skeletal muscles such as hands, arms, legs, and abdomen which are sometimes accompanied by dilated pupils and weak pulse resulting from depletion of the salt content of the body.

Heat Exhaustion

- A condition resulting from dehydration and/or salt depletion, or lack of blood circulation which is usually accompanied by fatigue, nausea, headache, giddiness, clammy skin, and a pale appearance.

Heat Stress

- A number of bodily disorders associated with exposure to excessive heat.

Heat Stroke

- The most severe of the heat stress disorders resulting from the loss of the body's ability to sweat which is characterized by hot dry skin, dizziness, nausea, severe headache, confusion, delirium, loss of consciousness, convulsion, and coma.

HEPA

- High Efficiency Particulate Air (Air Filter)

HEPA Filter

- A high efficiency particulate air (HEPA) filter device capable of trapping and retaining 99.97% of all particles larger than 0.3 microns.

Holding Area

- The airlock between the shower room and the clean room in a worker decontamination system.

Homogeneous

- Evenly mixed and similar in appearance and texture throughout.

Homogeneous Areas

- An area which appears similar throughout in terms of color, texture, and date of material application.

Hose Masks

- Respirators that supply air from an uncontaminated source through a strong, large diameter hose to the facepiece which does not use compressed air or have any pressure regulating devices.

HVAC System

- Heating, Ventilation, and Air Conditioning - The system of pipes, ducts, and equipment (air and air conditioners, chillers, heaters, boilers, pumps, fans) used to heat, cool, move and filter air in a building. HVAC systems are also known as mechanical systems.

Impact

- Direct contact with a material or surface that may cause vibration or movement.

Indemnify

- To pay for or pay back. Indemnification clauses in contracts are intended to cover the cost of judgments and/or legal defenses in the event of litigation.

Indirect Costs

- The costs of an ACM response action reflected by productivity losses due to disruption and business interruption.

Industrial Hygienist

- A professional qualified by education, training, and experience to recognize, evaluate and develop controls for occupational health hazards.

Joists

- The structural building component on which the flooring or roof rests.

Landfill

- A Class II landfill is required for asbestos waste.

Latency Period

- The time between first exposure to a disease-causing agent and the appearance of the disease.

LEA

- Local Education Agency

<u>Liability</u>	- Being subject to legal action for one's behavior.
<u>Local Exhaust Ventilation</u>	- The mechanical removal of air contaminants from a point of operation.
<u>Lockdown</u>	- Immobilization of remaining fibers with encapsulant after abatement.
<u>Logbook</u>	- An official record of all activities which occurred during a removal project.
<u>Lung Cancer</u>	- A malignant growth of tissue in the lungs, specifically of the bronchi covering.
<u>Make-up Air</u>	- Supplied or recirculated air to offset that which has already been exhausted from an area.
<u>Management Plan</u>	- A plan for each LEA to control and manage ACBM (AHERA definition).
<u>Management Planners</u>	- Persons who conduct hazard assessments and who advise school administrators on management options; requirements: Three-day building inspector's course plus two additional days and exam, one-day annual refresher training.
<u>MCEF</u>	- Mixed Cellulose Ester Filter which is one of several different types of media used to collect asbestos air samples.
<u>Mechanical Filter Respirator</u>	- A respiratory protection device which offers protection against airborne particulate including dusts, mists, metal fumes and smokes.
<u>Mechanical Systems</u>	- See HVAC systems.
<u>Medical Examination</u>	- An evaluation of a person's health status conducted by a medical doctor.
<u>Medical History</u>	- A record of a person's past health condition, including all the hazardous materials that they have been exposed to and also any injuries or illnesses which might dictate their future health status.
<u>Medical Surveillance</u>	- A periodical examination of all employees exposed to ACM above the OSHA permissible exposure limit, or of those who wear a respirator during work.

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- Mesothelioma - A rare cancer of the lining around the lungs (pleura) or the abdomen (peritoneum). It is almost always caused by exposure to asbestos and has no known cure.
- Method 7400 - NIOSH sampling and analytical method for fibers using phase-contrast microscopy. Replaces method P&CAM 239.
- Micron - One Millionth of a meter.
- Miscellaneous ACM - Includes a wide variety of materials in buildings, such as vinyl flooring, fire-resistant gaskets and seals, and asbestos cement.
- Mil - Prefix meaning one-thousandth
- Millimeter - One-thousandth of a meter
- Mineral Wool - A commonly used substitute for asbestos
- Miscellaneous Material - Interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles. This does not include surfacing material or thermal system insulation (AHERA definition).
- MSDS - Material Safety Data Sheet
- MSHA - Mine Safety and Health Administration
- Negative Air Machine - Similar to a large vacuum with a HEPA filter designed to be used in conjunction with containment areas. Three main purposes: clean the air inside the enclosure; create negative air pressure in enclosure to contain fibers; bring in fresh cool air. Recommended standards: 0.02" of water-four room-area air changes per hour.
- Negative Pressure - An atmosphere created in a work area enclosure such that airborne fibers will tend to be drawn through the filtration system rather than leak out into the surrounding areas. The air pressure inside the work area is less than that outside the work area.
- Negative Pressure Respirator Check - A form of qualitative fit testing in which the wearer covers the filters of a negative pressure, air-purifying respirator to check for leaks around the face seal.

- Negative Pressure Respirators - Respirators which function by the wearer breathing in air through a filter.
- NESHAP - National Emission Standards for Hazardous Air Pollutants -- EPA Regulation 40 CFR, subpart M, part 61.
- NIOSH - The National Institute for Occupational Safety and Health which was established by the Occupational Safety and Health Act of 1970.
- NIOSH/MSHA - The official approving agencies for respiratory protective equipment who test and certify respirators.
- Numerical Value - Refers to the types and percentages of asbestos present in a given sample.
- Occurrence Insurance - A form of insurance in which a claim is allowed regardless of when the claim is filed. For asbestos insurance, the "occurrence" could be the time of first exposure.
- Oilless Compressor - An air compressor that is not oil lubricated, which does not allow carbon monoxide to be formed in the breathing air.
- Open Circuit SCBA - A type of self-contained breathing unit which exhausts the exhaled air to the atmosphere instead of recirculating it.
- Operations and Maintenance Plan (OMP) - A plan for an O&M program, which is designed to clean up asbestos contamination, minimize future fiber release, and maintain ACM in good condition. Referred to as "preventative measures" under AHERA regulations.
- "Orange Booklet" - EPA publication issued in March 1979 titled: Asbestos-Containing Materials in School Buildings: A Guidance Document, parts I and II.
- OSHA - The Occupational Safety and Health Administration which was created by the Occupational Safety and Health Act of 1970; serves as the enforcement agency for safety and health in the work-place environment.
- Oxygen Deficient Atmosphere - Any atmosphere containing less than 19.5% oxygen.

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P&CAM 239

- A NIOSH sampling and analytical method for measuring airborne fibers using phase-contrast microscopy.

PAPR

- Powered Air Purifying Respirator; either a full facepiece, helmet, or hooded respirator that has the air powered to the wearer after it has been purified through a filter.

PAT Samples

- Proficiency Analytical Testing of asbestos samples conducted through NIOSH for laboratories involved with the analysis of asbestos samples.

Particulate Contaminants

- Minute airborne particles given off in the form of dusts, smokes, fumes, or mists.

PCM

- Phase Contrast Microscopy: a microscopic technique used for the counting of fibers in air samples, but which does not distinguish between fiber types.

PEL

- Permissible Exposure Limit as stated by OSHA. 0.2 Fibers per cubic centimeter TWA.

Penetrating Encapsulant

- Liquid material applied to asbestos-containing material to control airborne fiber release by penetrating into the material and binding its components together.

Peritoneum

- The thin membrane that lines the surface of the abdominal cavity.

Permissible Exposure Level (PEL)

- A level of airborne fiber concentration specified by OSHA as an occupation exposure standard for asbestos. It is 0.2 fibers per cubic centimeter of air, 8-hour time-weighted average, as measured by phase contract microscopy.

Personal Protective Equipment (PPE)

- Any material or device worn to protect a worker from exposure to, or contact with, any harmful material or force.

Personal Sample

- An air sample taken with the sampling pump directly attached to the worker with the collecting filter placed in the worker's breathing zone.

Personnel Protection

- Notification and instruction of all workers prior to the beginning of a project as to the hazards associated with the job and what they can do to protect themselves from these hazards.

- Phase Contract Microscopy (PCM) - A method of analyzing air samples for fibers using a light microscope.
- Physical Assessment - Assessing suspect material to determine the current condition of the material and the potential for future disturbance.
- Pipe Lagging - The insulation or wrapping around a pipe.
- Pleura - The thin membrane surrounding the lungs, and which lines the internal surface of the chest cavity.
- PLM - Polarized Light Microscopy; a microscopic technique used to distinguish between different types of asbestos fibers by their shape and unique optical properties.
- Plenum - A horizontal space designed to transport air in a building. Plenums are commonly the space between a suspended ceiling and the floor above.
- Plumbing System - The system of pipes, valves, fittings and related components designed to convey liquid or gas fluids throughout a building. Some piping may also be part of the HVAC system.
- Pneumoconiosis - A condition in the lungs which is a result of having inhaled various dusts and particles for a prolonged period of time.
- Polarized Light Microscopy (PLM) - A method of analyzing bulk samples for asbestos in which the sample is illuminated with polarized light (light which vibrates in only one plane) and viewed under a light microscope.
- Polyethylene - Plastic sheeting which is often used to seal off an area in which asbestos removal is taking place for the purpose of preventing contamination of other areas.
- Positive Pressure Respirators - Respirators which function by blowing air or providing pressurized air to the wearer.
- Positive Pressure Respirator Check - A form of qualitative fit testing in which the wearer covers the exhalation valve of a negative pressure, air-purifying respirator to check for leaks around the face seal.
- Posting - Refers to caution or danger signs which should be posted in any area where asbestos removal is taking place, or where airborne fiber levels may present a health hazard.

ST0081044

<u>Potential Damage</u>	- Friable ACM in an area regularly used by building occupants in course of normal activities and reasonable likelihood that material will become damaged, etc.
<u>Potential Significant Damage</u>	- Friable ACM in an area regularly used by occupants in course of normal activities and reasonable likelihood of significant damage, etc.
<u>Pre-Construction Conference</u>	- A meeting held before any work begins between the contractor and the building owner at which time the job specifications are discussed and all details of the work agreed upon.
<u>Pre-Employment Physical</u>	- Complete medical examination of an employee before the job begins to determine whether or not he/she is fit to perform the functions of their employment.
<u>Present Value</u>	- The value of future expenditures in terms of today's dollars.
<u>Pressure Demand Airline Devices</u>	- A respiratory protection device which has a regulator and valve design such that there is a continuous flow of air into the facepiece at all times.
<u>Prevalent Levels</u>	- Levels of airborne contaminants occurring under normal conditions.
<u>Prevalent Samples</u>	- Air samples taken under normal conditions (background samples).
<u>Preventative Measures</u>	- Response actions taken to reduce the potential for ACM disturbance, usually within the context of the O & M program.
<u>Progress Payments</u>	- A pre-work agreement whereby the building owner pays the contractor after completion of certain phases of the project.
<u>Protection Factor (PF)</u>	- A number which reflects the degree of protection provided by a respirator. It is calculated by dividing the concentration of contaminant outside the mask by the concentration inside the mask.
<u>Protective Clothing</u>	- Protective, lightweight garments worn by workers performing asbestos abatement to keep gross contamination off the body.
<u>Pulmonary</u>	- Pertaining to, or affecting, the lungs or some portion thereof.

- Pulmonary Function Test - A test of breathing ability given as part of a medical surveillance program.
- PVC - Polyvinyl Chloride
- Qualitative Fit Test - Testing the fit of a respirator by a subjective evaluation for leaks around the face seal.
- Quality Assurance - A program for collecting and analyzing additional samples of suspect material to check on the reliability of procedures.
- Quantitative Fit Testing - Testing the fit of a respirator by calculating concentrations of contaminants inside and outside the mask. This requires the use of instruments.
- Rales - Cracking sounds in the lower half of the lung; symptomatic of progressing asbestosis.
- Random Sample - A sample drawn in such a way that there is no set pattern and designed to give a true representation of the entire population or area.
- Recordkeeping - Detailed documentation of all program activities, decisions, analyses, and any other pertinent information relating to a project.
- Regulated Area - An area established by the employer to demarcate areas where airborne concentrations of asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals exceed, or can reasonably be expected to exceed, the permissible exposure limit.
- Resolution - The ability to distinguish between individual objects, as with a microscope.
- Respirable - Breathable.
- Respiration - The exchange of gases in the lungs.
- Respiratory Tract - The organs of the body which convey air to the blood, allow exchange of gases, and remove carbon dioxide.
- Respiratory Protection Program - A set of procedures and equipment required by OSHA if employees wear negative pressure respirators or if fiber levels are above the PEL.
- Response Actions - Actions specified in the management plan to control ACM; includes repair, O&M, and the various methods of abatement.

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<u>Resuspension</u>	- The secondary dispersal or re-entrainment of settled fibers which have previously been released by impact or fallout.
<u>Removal</u>	- Scraping, vacuuming, or otherwise taking ACM out of the building and disposing of it.
<u>Repair</u>	- Restoration of damaged or deteriorated ACM to intact condition.
<u>Respirator Program</u>	- A written program established by an employer which provides for the safe use of respirators on job sites.
<u>Rip-Out</u>	- The actual removal of asbestos-containing materials from a building.
<u>Risk</u>	- The likelihood or probability of developing a disease, or being hurt, as the result of exposure to a contaminant or a condition.
<u>Safety Glasses</u>	- Protective eye equipment.
<u>Sawyer Algorhythm</u>	- A numerical system for evaluating the degree of asbestos exposure hazard in a given area.
<u>SCBA</u>	- Self-Contained Breathing Apparatus, supplied air respirator in which a tank worn on one's back contains the air.
<u>SEM</u>	- Scanning Electron Microscopy, a method of microscopic analysis which utilizes an electron beam directed at the sample and then collects the beams that are reflected to produce an image from which fibers can be identified and counted.
<u>Serpentine</u>	- One of the two major groups of minerals from which the asbestiform minerals are derived, distinguished by their tubular structure and chemical composition. Chrysotile is a serpentine mineral.
<u>Shop Drawings</u>	- Detailed drawings of selected items used in the construction of a building.
<u>Shower Room</u>	- A room between the clean room and the equipment room in a worker decontamination system in which workers take showers when leaving the work area.
<u>Significant Damage</u>	- Where friable ACM or its covering is significantly damaged, deteriorated, or delaminated; i.e. >10% overall damage of >25% localized damage.

- Significantly Damaged Friable Surfacing Material - Friable surfacing ACM in a functional space where damage is extensive and severe (AHERA definition).
- Small-Scale, Short-Duration Activities - Maintenance or abatement activities which may contact ACBM but do not represent a major ACMB disturbance.
- Specifications - A written set of standards, procedures, and materials for the construction to be performed on a building.
- Spirometer - An instrument which measures the volume of air being expired from the lungs.
- Steel Beams - Building components which support the joists.
- STEM - Scanning Transmission Electron Microscopy, a combination of a transmission electron microscope with scanning and focusing coils so that a beam of electrons can be scanned over the sample or pinpointed in a particular area.
- Structural Member - Any load-supporting member such as beams and load supporting walls of a facility.
- Structural Steel - A building component which is designed to support other structural members in a building.
- Substrate - The material or existing surface located under or behind the asbestos-containing material.
- Supplied Air Respirator - A respirator that has a central source of breathing air which is supplied to the wearer by way of an airline.
- Surfacing Material - Material in a school building that is sprayed-on, troweled-on, or otherwise applied to surface, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes (AHERA definition).
- Surfactant - An agent added to water to decrease surface tension and thus increase water's ability to "wet" or penetrate bulk material.
- Synergistic - The combination of two effects which is greater than the sum of the two independent effects.

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TEM

- Transmission Electron Microscopy, a method of microscopic analysis which utilizes an electron beam that is focused onto a thin sample. As the beam penetrates (transmits) through the sample, the difference in densities produces an image on a fluorescent screen from which samples can be identified and counted.

Thermal System
Insulation

- Material applied to pipes, fittings, boilers, breachings, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

TLV

- Threshold Limit Value, Levels of contaminants established by the American Conference of Governmental Industrial Hygienists to which it is believed that workers can be exposed to with minimal adverse health effects.

Tort

- A legal wrong, sometimes referred to as negligence.

Transite

- A trade name for asbestos cement wallboard and pipe.

Treated Cellulose

- An insulation material made of paper or wood products which has fire-retarding materials such as asbestos added to it.

Tremolite

- One of six naturally occurring asbestos minerals which was often used in the laboratory for filtering chemicals.

Tumor

- A swelling or growth of cells and tissue in the body which does not serve a useful purpose.

TWA

- Time-Weighted Average, as in air sampling.

Type B Reader

- A physician with specialized training in reading x-rays, specifically in recognizing lung disorders.

Type C Respirators

- Powered air purifying respirator in which outside air is compressed, purified, and delivered to the wearer.

Type C Supplied-
Air Respirator

- A respirator designed to provide a very high level of protection which supplies air to the wearer through an airline from an outside source such as a compressor.

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- TyvekTM - Brand name for disposable clothing suitable for asbestos removal.
- USEPA - United States Environmental Protection Agency
- Vandalism - Malicious destruction of property.
- Vermiculite - A micaceous mineral that is sometimes used as a substitute for asbestos and is lightweight and highly water-absorbent.
- Visible Emissions - Airborne fibers given off from an asbestos-containing source that are visible to the human eye.
- Visual Inspection - A post-abatement walk-through type inspection of the work area to detect incomplete work, damage, or inadequate clean-up of a worksite.
- Washroom - A room between the work area and the clean room in the decontamination enclosure system where workers shower.
- Waste Load-Out Area - Area where asbestos waste is stored until it can be properly transferred to a landfill.
- Water Damage - Deterioration or delamination of ceiling or wall materials due to leaks from plumbing or cracks in the roof.
- WBGT - Wet Bulb Globe Temperature.
- Wet Cleaning - The process of eliminating asbestos contamination from surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.
- Wetting Agents - Materials that are added to water which is used for wetting the asbestos-containing material in order for the water to penetrate more effectively.
- Workmen's Compensation - A system of insurance required in some states by law, financed by employers, which provides payments to employees or their families for occupational injuries, illnesses, or fatalities resulting in loss of wage or income incurred while at work.
- Working Drawings - A set of drawings which reflect the intended construction and appearance of the building. Also known as building plans.