Asbestos is the generic name given to the fibrous variety of six naturally occurring minerals that have been used in commercial products. These minerals are made up of fibrous bundles. These fibers are long and thin, and they can be easily separated from one another. Asbestos minerals have physical properties (high tensile strength, flexibility, resistance to heat and chemicals, high electrical resistance, and the capability to be woven like fabric) that make them useful in many commercial products.

Asbestos Containing Material (ACM), a proven human carcinogen, exists in millions of buildings today in the United States. When those buildings are improperly renovated or demolished, asbestos fibers become airborne. This results in an occupational exposure to the workers involved, and when waste is generated or handled, an ambient air exposure to the environment which may endanger the public health. Therefore this disturbance is heavily regulated by both EPA and OSHA.

Asbestos is extensively used and has an extensive legacy. We have used asbestos commercially for about 130 years in the U.S. – as much as 800,000 tons per year. Most of it went into buildings – thousands of different products. Most of that is still in buildings. It is still installed legally today!

Why is asbestos found so commonly in building materials?
PROPERTIES OF ASBESTOS
- Heat Resistance
- Incombustibility
- Sound Absorption
- Friction Resistance
- Mechanical Strength
- Wearability
- Water Resistance
- Electrical Resistance
- Chemical Resistance
- Bacterial Resistance
- Biological Resistance

In addition to all that, it was the most inexpensive additive available to accomplish any or all of these needs!

HEALTH EFFECTS
- Verified Human Carcinogen
- Huge Populations Exposed in:
  - Manufacturing
  - Application
  - Construction / Demolition
- Many illness cases and death
  - by 1970
- Lawsuits
- Congressional Attention

DECLINE OF USE
- OSHA and EPA began regulating ACM about 1970
- EPA bans by 1978 (TSI & Spray-on)
- Property damage liability defined by about 1978
- Generally went out of use by 1980
- Remains in most buildings today
- Substantial health threat to the construction industry

LEVELS OF JURISDICTION
- Federal
- State
- County/Aqd
- Local

CONTRACT SPECIFICATIONS

40 CFR 61.145 Standard for Demolition and Renovation
(a) Applicability – who and what falls under this regulation
(b) Notification Requirements - what, when and how you determine that the activities at your facility are regulated
(c) Procedures for Asbestos Emission Control – methods that control the release of airborne asbestos fibers during the removal of Asbestos-Containing Materials (ACM)

40 CFR 61.150 Standards for Waste Disposal
(a) Requirements for containing and labeling waste ACM
(b) Timely disposal at an approved waste disposal site
For asbestos NESHAP applicability:

It must be a regulated facility.

There must be Regulated Asbestos-Containing Material (RACM).

There must be threshold amounts.

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

What is non-friable ACM?

Non-friable ACM is any material containing more than one percent asbestos (as determined by Polarized Light Microscopy) that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Under the Asbestos NESHAP, non-friable ACM is divided into two categories.

Category I non-friable ACM are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile (VAT)), asphalt roofing products, packings and gaskets. All other non-friable ACM are considered category II non-friable ACM.

Threshold amounts.

Regulated asbestos-containing material (RACM) means

(a) Friable asbestos material.
(b) Category I nonfriable ACM that has become friable.
(c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading.
(d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

At least 260 linear feet on pipes or at least 160 square feet on other facility components, or

35 cubic feet off facility components where the length or area could not be measured previously.
40 CFR 61.145 Standard for Demolition and Renovation

(a) Applicability – To determine which requirements of paragraphs (a) (b) and (c) of this section apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos.

The asbestos referred to here is:
- Regulated Asbestos Containing Material (RACM)
  - Category I nonfriable ACM
  - Category II nonfriable ACM

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated (owner) or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, (operator) or both.

DEMOLITION means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of a facility.

Removing a house, modular building or trailer from its foundation is considered a demolition.

RENOVATION means altering a facility or one or more facility components in any way, including the stripping or removal of Regulated Asbestos Containing Material (RACM) from a facility component.

Renovation = Removal of RACM

NESHAP Facilities

- All structures, installation or buildings, except single residential building having 1-4 units that are not part of an installation.
- Includes pipelines, waste sites, ships, and other facilities.

NESHAP Facilities

Institutional Buildings
Commercial Buildings
Public Buildings
Industrial Facilities
Churches
Hotels and Motels
Bridges
Public, Private and Charter Schools
Apartment buildings with > 4 units.
Condominium with > 4 units.

Pipelines
Active and inactive waste sites
Buildings intentionally burned for fire training by fire departments
Single family residences that are part of a larger project, such as redevelopment, or highway development; even if the houses are separated by several miles, located on different parcels of land, and cross into different city or county boundaries.
NESHAP Facilities

Single family residence that are used in whole or part for commercial business.

Two or more single family residences which are being demolished or renovated by the same entity, government body, owner or developer.

Burning

Demolition by burning greatly increases the potential of asbestos fiber release into the air.

Asbestos containing materials (category I & II) are rendered friable (regulated) during burning due to the heat generated during a fire destroys the matrix which holds the fibers together, but does not destroy the asbestos fibers.

If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable asbestos-containing materials must be removed in accordance with the NESHAP before burning.

40 CFR 61.145(c)(10)

Notification Requirements

Must be filed with the agency at least 10-working days prior to project start date.

Delivery of the notification to ADEQ is by US mail, commercial, or hand delivery is acceptable.

Details on owner, operator, type of operation, site location & description amounts of ACM, start/finish dates, description of work, waste transporter, waste disposal, compliance statements.

Working Day: Monday through Friday, including holidays.

Why are asbestos surveys required by law?

The Clean Air Act (CAA) requires the U. S. Environmental Protection Agency (EPA) to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health.

In accordance with Section 112 of the CAA, EPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP) to protect the public.

Asbestos was one of the first hazardous air pollutants regulated under Section 112. On March 31, 1971, EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA first promulgated the Asbestos NESHAP in 40 CFR Part 61.

What is a notification?

A notification is a written notice of intent to renovate or demolish. Notifications must contain certain specified information, including but not limited to, the scheduled starting and completion date of the work, the location of the site, the names of operators or asbestos removal contractors, methods of removal and the amount of asbestos, and whether the operation is a demolition or renovation. See Section 61.145(b) of the Asbestos NESHAP regulation.
Whom do I notify?

You should notify the Appropriate Agency in your area of the demolition or renovation operations subject to NESHAP. See contact information for proper submittal of notification form.

How do I notify?

The completed notification form may be submitted by mail, hand or commercial delivery service to the Appropriate Agency – ADEQ, Maricopa County, Pima County, Pinal County, or US EPA for Tribal Land.

Who is responsible for submitting a notification -- the owner of the building, which is being demolished or renovated, or the contractor?

The NESHAP regulation states that either the owner of the building or operator of the demolition or renovation operation can submit the notification. Usually, the two parties decide together who will notify. If no adequate notice is provided, one or both parties can be held liable.

When I notify regarding a renovation, what date do I consider the start date?

For a renovation, the start date is the day that the removal of asbestos-containing material, or any other asbestos-handling activities, including pre-cleaning, construction of containment, or other activities that could disturb the asbestos, will begin.

Is there a form for notifications?

Yes, there is a form for notification. You can obtain a form, and instructions on how to fill it out, from the Appropriate Agency.

Can a demolition and a renovation be notified on the same notification form?

Yes. The notification form should include information for both the renovation and demolition. For example, start/finish dates, contractors, waste disposal site(s), etc.

Does the 10-day notification requirement refer to “calendar” days or “working” days?

The asbestos regulations specify “working days.” A “working day” is Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

United States Environmental Protection Agency, Region IX
75 Hawthorne St. San Francisco, CA  94105
Kingsley Adeduro
Region IX Asbestos NESHAP Coordinator
Phone:  (415) 972-4182
Fax:  (415) 947-3579
adeduro.kingsley@epa.gov

Jurisdiction: Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations
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Arizona Department of Environmental Quality
1110 W. Washington St. Phoenix, AZ  85007
Asbestos NESHAP Program
Brian Jones
Inspector
Phone:  (602) 771-2333
jones.brian@azdeq.gov
County Jurisdiction: Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Mohave, Navajo, Santa Cruz, Yavapai, and Yuma
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Maricopa County Air Quality Department
1001 N. Central Ave., Ste. 125 Phoenix, AZ  85004
Air Quality Hotline for Maricopa County only: (602) 372-2703, (602) 506-6010
Scott MacDonald
Asbestos NESHAP Coordinator
(602) 506-6708
 smacdonald@mail.maricopa.gov
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Pima Department of Environmental Quality
33 N. Stone Ave., Suite 700, Tucson, AZ  85701
(520) 724-7400
Dustin Fitzpatrick
Air Compliance Manager
Phone:  (520) 724-7322
dustin.fitzpatrick@pima.gov
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Pinal County Air Quality Control District
31 N. Pinal St. #F, Florence, AZ  85132 (520) 866-6929
Joshua DeZeeuw
Environmental Program Supervisor
Phone: (520) 866-6960
joshua.dezeeuw@pinalcountyaz.gov
Is the 10 working days in the waiting period ever reduced?
No. The reduction of the waiting period is not allowed in the asbestos regulations.

Is the 10-day waiting period required on all asbestos projects?
No. An emergency renovation or ordered demolition are the only projects where the 10-day waiting period is not required for notification.

What constitutes an emergency renovation?
An emergency renovation is a renovation that was not planned, but results from a sudden, unexpected event that either immediately produces unsafe conditions, or that, if not quickly remedied, could be reasonably foreseen to result in an unsafe or detrimental effect on health or is necessary to protect equipment and avoid unreasonable financial burden. The term includes renovations necessitated by non-routine equipment failures. For example, the explosion of a boiler in a chemical plant might require emergency renovations, since such an explosion would disrupt normal operations. However, renovations involving routine repairs are not emergencies.

Under what conditions must I notify for emergency renovations? When must I notify?
First, inspect the facility and determine the amount of RACM that may have to be removed or disturbed to repair the facility. (If you don’t have the time to have samples analyzed, you should assume that all insulation is RACM.) Then, if the amount of RACM is in excess of the threshold amount, you should mail or deliver a notification as soon as possible, but certainly no later than the following workday.

A notification, which is postmarked more than one working day after the emergency, will be considered in violation of the notification requirements.

When does a notification need to be revised?
A notification must be revised if information contained in the original notice has changed.

For example, you must revise the notification if you change the start date of an operation.

If the change relates to the amount of RACM involved, you need only revise the notification if the amount changes by more than 20 percent.

§ 61.145 (b) (2) Update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent.

When do I submit a revised notification?
Telephone the Administrator as soon as possible after you realize the revision is necessary, and mail or hand deliver a written notice. If you delay the start date of a project, the Appropriate Agency must receive the revised notification no later than the original start date. If you plan to begin work before the date specified in the original notice, the Appropriate Agency must receive the revised notice at least 10 working days before the revised start date.

§ 61.145 (b) (3) (iv) (A) (1) Notify the Administrator of the new start date by telephone as soon as possible before the original start date, and

§ 61.145 (b) (3) (iv) (A) (2) Provide the Administrator with a written notice of the new start date as soon as possible before, and no later than, the original start date. Delivery of the updated notice by the U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

If a facility is being demolished under an order of a State or local government because the facility is structurally unsound, and therefore unsafe, do all the normal regulations covering demolitions apply?
No. The applicable regulations are specified in section 61.145 (a)(3) of 40 CFR subpart M (Asbestos NESHAP).
How much asbestos must be present before the Asbestos NESHAP work practice standards apply to renovation projects?

Asbestos NESHAP regulations must be followed for all renovations of facilities with at least 80 linear meters (260 linear feet) of regulated asbestos-containing materials (RACM) on pipes, or 15 square meters (160 square feet) of regulated asbestos-containing materials on other facility components, or at least one cubic meter (35 cubic feet) off facility components where the amount of RACM previously removed or fallen from pipes and other facility components can not be measured in linear or square feet. These amounts are known as the "threshold" amounts.

Are facilities constructed in the past 10 years subject to the asbestos regulations?

Yes. There is no waiver of the Asbestos NESHAP based on the date a structure is built. All notification, inspection and work practice standards mandated by the regulation must be followed regardless of the date the structure was built.

Old City Hall. Built 1929

Rosson House Museum. Built 1895

San Xavier Mission. Construction of the current church began in 1783 and was completed in 1797.
By 1182, approximately 85 to 100 people lived at Wupatki Pueblo but by 1225, the site was permanently abandoned.

If I renovate several two-family units, are the units defined as a "facility?"

Single residential buildings which have four or fewer dwelling units are not considered "facilities" unless they are part of a larger installation (for example, an army base, company housing, apartment or housing complex, part of a group of houses subject to condemnation for a highway right-of-way, an apartment which is an integral part of a commercial facility, etc.).

More than one residential building on a single property is regulated by the Asbestos NESHAP.

Are mobile homes or mobile structures regulated by the Asbestos NESHAP?

Mobile homes used as single-family dwellings are not subject to Asbestos NESHAP unless part of a larger installation. Mobile structures used for non-residential purposes are subject to NESHAP for renovation purposes.

Are Federal facilities regulated by the Asbestos NESHAP?

Yes.

Are homes that are demolished or renovated to build non-residential structures regulated by the Asbestos NESHAP?

Yes. For example, the Asbestos NESHAP regulates multiple residential structures that are demolished as part of an urban renewal project, a highway construction project, or a project to develop a shopping mall.

A single home which is converted into a non-residential structure is also regulated by the Asbestos NESHAP. For example, if someone buys a house and converts it into a store, the renovation is subject to the Asbestos NESHAP.

Does the NESHAP regulation require air monitoring during renovation/removal or demolition?

No.
Is visible asbestos-containing debris on the ground outside a removal job considered a "visible emission," and a violation of the NESHAP?

Yes. Dry friable asbestos insulation on the ground violates the "adequately wet" requirement, and can be considered evidence of a visible emission.

Does an inspector have the right to enter any facility and the containment area?

Yes. All inspectors have the right under the Clean Air Act to inspect any facility and the containment area. Inspectors are trained and equipped to do this safely.

Is it appropriate for a NESHAP inspector to open any bags outside the designated contaminated area?

Yes. The inspector may open any bags outside the designated contaminated area to inspect them. The inspector may use a glovebag or other control techniques. The inspector will then properly reseal the bag, or request that the operator do so.

Manholes are part of a facility and should be thoroughly inspected prior to any work being done on the manhole. Manholes would be considered facility components to a facility – the pipeline.

How should I label asbestos-containing waste that is being taken away from the facility?

You should label the containers or wrapped materials with the name of the waste generator and the location at which the waste was generated. An OSHA warning label must also be used.
What will happen if I violate the Asbestos NESHAP?

Sanctions vary. In some cases, Notices of Correction (NOC) -- written warnings -- or Notices of Violation (NOV’s) are issued to owners or operators who violate notification requirements. Or, depending upon the offense, fines up to $10,000 per day per violation.

Violators of the work practice or disposal standards may be subject to either written warnings, administrative orders or civil penalties up to $10,000 per day per violation, depending upon the seriousness of the violation.

EPA may also bring criminal charges against violators. Some owners and operators who have knowingly violated the Asbestos NESHAP have been sentenced to prison terms.

Would ADEQ regulate the demolition and replacement of the US / Mexico border fence?

“Do products currently for sale and available to the common public in America contain asbestos?”
CSI fingerprint investigation kit

1st example: Planet Toys CSI Fingerprint Investigation Kit, made in China. This toy is based on a popular television show. The kit contained 5 suspect materials: white fingerprinting powder, black fingerprinting powder, day-glow green fingerprinting powder, black ink, and invisible ink. Asbestos was found in the white fingerprinting powder. That test found tremolite asbestos in the white powder at a concentration of 7.24%.

DAP “33” window glazing

Example #2: DAP “33” glazing compound. Manufactured in the USA and available in most home repair centers frequented by “do-it-yourselfers.” This material is recommended for sealing windows and other applications. Eight ounce buckets from national retailers were tested, but one-gallon buckets are available. Asbestos was identified throughout the material. The sample bucket was tested and asbestos quantified at 0.13% chrysotile and 2.60% tremolite for a total of 2.73%.

DAP “Crack Shot” spackling paste

Example #3: DAP “Crack Shot” spackling paste. This caulk or spackling putty is recommended for joints, cracks, and other applications in drywall or similar material, and is available in many home repair centers. Crack Shot is made in the USA. Eight-ounce buckets from national retailers were tested, but one-gallon buckets are available. Asbestos was identified throughout the material. The sample bucket was tested and asbestos quantified at 0.066% chrysotile and 0.98% tremolite for a total of 1.050%.

Gardner “Leak Stopper” roof patch

4th example: Gardner “Leak Stopper” roof patch or tar. Manufactured in the USA, this product is available in many discount department and hardware stores for sale to the general public. Abundant asbestos was found in the gallon-sized buckets purchased from national retailers. Note that Gardner Leak Stopper has two nearly indistinguishable varieties available: one labeled as containing “Chrysotile Mineral Fiber” in fine print, and the other with a small label reading “Asbestos Free Product.” A follow-up survey of national retail store shelves found both products available in many stores, with no clearly visible difference other than the fine print on the back of the can confirmed the chrysotile presence, and calculated a concentration of 11% asbestos.

Scotch Duct Tape

5th example: Scotch brand Duct Tape. Sold in many different stores, this “Contractor Grade,” “High Performance” tape differs little in appearance from “ordinary” duct tape. The product samples were found and purchased from a national retailer and were labeled as products of Canada. Asbestos was repeatedly found in all reductions of fabric and adhesive. Analysis reported 0.050% tremolite asbestos.

Compliance Inspections

What’s Inspected?

- All facilities undergoing renovation and demolition projects are subject to a compliance inspection.
- Inspect facilities before, during or after a renovation or demolition activities.
- Verify the accuracy of asbestos surveys and NESHAP notifications.
- May conduct sampling of disturbed and or suspect asbestos-containing materials.
- Inspect renovation (abatement) and demolition activities when in progress.
Compliance Inspections

On Site Trained Representative
At least one on-site trained representative is present when threshold amounts of RACM is stripped, removed, handled, or disturbed. Evidence of training shall be posted on-site and available for inspection. The AHERA Contractor/Supervisor Training Course meets the requirements of 40 CFR 61.145(c)(8)

Compliance Inspections

Adequately Wet RACM
During renovation or demolition activities adequately wet all RACM exposed.

- When a facility component is covered with RACM. 40 CFR 61.145 (c)(2)(i)
- When RACM is stripped from a facility component. 40 CFR 61.145 (c)(3)
- Ensure that RACM remains wet. 40 CFR 61.145 (c)(6)(i)

Compliance Inspections

RACM removed without a water source

Visible Emissions Observed

When visible emissions are observed coming from a renovation or demolition activity, then the material(s) has not been adequately wetted.

Compliance Inspections

RACM removed with a water source

RACM is adequately wetted

No Visible Emissions

Compliance Inspections

Asbestos-Containing Waste

Adequately Wetted
Material looks wet
Material feels wet
Bag is cool to the touch
Bag feels heavy
Condensate is on the bag
Water supply is on site

Compliance Inspections

Leak-Tight Wrapping
40 CFR 61.150 (a)(1)(iii)

After wetting, seal all RACWM in leak-tight containers while wet. For materials that will not fit into containers, put materials into leak-tight wrapping.
Compliance Inspections

OSHA warning labels and waste generator / location labels are required

40 CFR 61.150 (a) (1) (iv) 
61.150 (a) (1) (v)

Compliance Inspections

ACWM remain wet, contained, and labeled until disposal.

Compliance Inspections

Warning signs must be displayed at all entrances and at intervals of 330 square feet or less along the property line of the site OR along the perimeter of the sections of the site where the asbestos-containing waste material is deposited. 40 CFR 61.154 (1)(i)(ii)(iii)

Compliance Inspections

Waste Shipment Records

40 CFR 61.150 (d)(1)

Landfills that accept RACWM must retain all Waste Shipment Records (WSR) for at least two years. These WSR are compared to NESHAP notifications submitted to ADEQ.

Compliance Inspections

After the Inspection

✔ Inspector may request additional information that was not at the site.
✔ Samples are sent for analysis.
✔ Inspection report issued at time of inspection, when possible.
✔ Compliance assessment with Asbestos NESHAP Regulations.
  • Either facility is determined to be in-compliance, or
  • Actions are needed to return facility to compliance.
✔ May use compliance enforcement tools if non-compliance is determined.
  • Notices of Opportunity to Correct (NOC)
  • Notices of Violation (NOV)
  • Administrative Orders
  • Penalties

Compliance Inspections

✔ Review of Thorough Asbestos Inspection Report
✔ Review of NESHAP Notification
✔ Review of Asbestos Work Practices
  • Trained workers
  • Wetted materials
  • Control of visible emissions
  • Containment and labeling
  • Waste handling and shipment records
✔ Inspection Report and Compliance Assessment
✔ Use of Compliance Enforcement Tools if in Non-Compliance
• Vintage box of fireproof asbestos snow decoration. While not all products may have been distinctly labeled to contain "asbestos", the highly fibrous material in this antique cardboard container is 100% pure chrysotile asbestos.

Directions on the side of the carton indicate:

"FOR BEST EFFECT-- sprinkle on tree after it has been completely decorated. Easily removed from rugs and carpet with vacuum cleaner. Can be used over and over again."

Not all asbestos products are plainly labeled to indicate asbestos content; the fake snow material in this antique cardboard box is comprised of nearly 95% amosite asbestos, with just a smidgen of mica flakes.

Due to close proximity to elements of heat around holiday decorations and displays (hot wiring, candles, hot light bulbs, etc.) using fibrous fireproof asbestos was apparently a natural decorative-snow application for the "magic mineral" material.

• Asbestos was not only used in building materials. It was also used in a range of consumer products.

• It was widely used as fake snow in films such as the Wizard of Oz.
Kent Cigarettes even produced cigarettes with a blue asbestos (Crocidolite) filter –

smoking really does kill!

Only 200 copies of Ray Bradbury’s novel Fahrenheit 451 were printed with an asbestos cover.