



TRAINING MADE PERSONAL

ASBESTOS REGULATIONS

(720)441-5049

3900 S. Federal Blvd. Englewood, CO 80110

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TRAINING MADE PERSONAL

COLORADO DEPARTMENT OF
PUBLIC HEALTH & ENVIRONMENT
REGULATION NO.8 ASBESTOS
PART B

(720)441-5049

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Significant Changes to Regulation No. 8 Part B – Asbestos

Effective: March 17, 2021

•Section I.A.

- 2 ASTM Standards added – microvac sampling and wipe sampling

• Section I.B. added

- Asbestos-contaminated
- Business day
- Conflict of Interest
- Full containment
- General Abatement Contractor
- In poor condition
- Installation
- Inspection
- Leak – Tight
- Major asbestos spill
- Makeup air intake
- Minor asbestos spill
- Project
- Quantify
- Secondary containment

•Section I.B. removed

- Asbestos Abatement Contractor
- Friable Asbestos Containing Material

•Section I. clarified

- Airlock
- Amended water
- Area of Public Access
- Asbestos Abatement
- Asbestos Consulting Firm
- Asbestos Laboratory
- Asbestos Training Provider
- Asbestos-containing waste material
- Assessment
- Clean Room
- Critical Barrier
- Curtained Doorway
- Decontamination Unit
- Demolition
- Emergency
- Encapsulation

- Facility Component
- Functional Space
- Homogeneous Area
- Moveable objects
- Negative air machine
- Nonfriable
- Operations and maintenance program
- Project Design
- Public and Commercial Building
- Renovation
- School
- Secondary Containment
- Single-family residential dwelling
- Surfactant
- Waste load-out area
- Wet wiping

•Section II.

- II.A.1.(a). No certification or registration pursuant to this Section II will be issued to a person who has failed to pay in full a Division-assessed penalty
- II.C.4. Exams –failing to achieve a passing score will require taking remedial training – refresher or initial class
- II.D.3.a.i.(A). –The Commission added delineation of a major spill to the AMS curriculum
- II.F. Clarifications to instructor qualifications
- II.L II.M. –Any person performing or offering to perform ACF or Lab services must be registered

•Section III.

- III.A.1. Specifically states that suspect materials must be inspected or assumed. Inspections for renovations may be focused, inspections for demolition must be comprehensive
- III.A.1.d. More was added to the clarify the exemption section
- III.A.2.The inspection report is required to be onsite during renovation, abatement or demolition activities, within 72 hours for emergencies or unexpected discoveries
- III.A.3. Inspection section is all new, requiring the inspector to:
 - Quantify the amount of ACM
 - Assess the condition of the material
 - Provide a written report including the scope and purpose of the inspection
 - Summary of findings
- III.A.4.c. Composite analysis must be done by the laboratory
- III.A.4.c. Materials added onto drywall and other base materials must be sampled separately
- III.C.3. The PD must make site visit before developing the PD
- III.C.3.a.The PD must include an accurate and detailed scope of work including quantities
- Include work practices from a variance if applicable
- An accurate and detailed diagram that identifies locations of ACM to be abated

- Address ACM in the work area not being impacted
- Re-cleaning if the area fails to pass clearance sampling
- III.C.5. The GAC and the Supervisor must ensure the project is conducted in accordance with the PD
- III.D.1. The PM is responsible to assessing if variances are being followed. Communicating in writing all deviations to the building owner or operator, the GAC and, if applicable, the AMS. The Project Manager will notify the Division if the deviation is not corrected within 24 hours of notification
- III.E. A Division approved notice must be posted in a visible location at all times
- Section III.E was split into two subparts –one for Public and Commercial facilities, one for SFRDs
- III.e.1.e.(i).etc. A form was developed for requesting a waiver of the 10-working day notification period
- NESHAP and Reg. 8, Part B require a 10-working day notification period. Work can start on the 11th working day.

Example 1:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	0	1	2	3	4	
1	2	3	4	5	6	7
	5	6	7	8	9	
8	9	10	11	12	13	14
	10	11				
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

- **Red** – date of postmark or electronic application
- **Yellow** – required notification period
- **Green** – First possible work day
- III.E.1.e.(ii). and III.E.2.d.(ii) Failure to do a thorough inspection is not a cause for an unexpected discovery
- III.E.1.e.(iii). and III.E.2.d.(iii). Demolition following abatement
- III.E.2.d.(iv). Compelling circumstances for SFRDs
- Section III.E.3.c. The Opt-Out is not applicable if the homeowner plans to demolish the house, sell or rent or use as a place of business or if the work impacts an area of public access
- III.E.4. Allows for a Colorado licensed Professional Structural Engineer to sign for a structurally unsound building if no governmental person is available
- III.F. Variances will be reviewed within 45 days and the Division will provide a reason for denial
- III.G.3 Adding phases does not require waiting the 10-working day notification, but the phase must be approved before work begins
- III.H.2.9 Lockdown may only be applied after the visual inspection by the AMS is successful
- III.J.3. The manometer must be programmed with the current date/time and location and must have an audible alarm. The alarm function must be audible during active abatement

- III.N.1.a. Unless ACM flooring material is the only material being removed in the containment, at minimum one (1) layer of six-(6) mil polyethylene sheeting sealed to the walls, must cover the floor during all upper removal activity
- III.N.3 The innermost room of the waste loadout must be large enough to accommodate the cleaning of bagged/containerized debris and the largest sized debris and equipment
- III.N.3. The DECON must have self closing flaps
- III.O.1.a.(i).(B). Allows for different types of wetting equipment
- III.O.1.b.(iii). Specifies how chutes must be constructed
- III.O.1.c. Specifies alternative removal methods and requires additional engineering controls
- III.O.2 Does not require a containment if encapsulating ACM provided it is in good condition. The area must undergo a final air clearance
- III.P.1.a. An AMS must provide written notice to the GAC that a final clearance has passed
- III.P.3.b.(iii). PCM clearance samples require a minimum volume of 1199 L of air to be collected
- III.Q. When tearing down, a GAC must HEPA vac minimal dust discovered during the process
- III.R.2.b. The wording on warning signs was updated
- III.R.2.f.(i) Asbestos wastewater may not be used for wetting
- III.R.3.a. Transfer Stations may not accept ACWM unless approved by the HMWMD
- III.S.1.c. For renovation/demolition or abatement purposes, sheet vinyl flooring is considered friable unless removed under III.S.1.d.
- III.S.2.a. Asbestos cement products in amounts greater than the trigger levels must be removed prior to demolition
- III.T.1.a. An owner, operator or contractor who causes or discovers a major spill must report it to the Division
- III.T.1.b. An Asbestos Building Inspector who determines that a major spill is present must immediately inform the owner/operator or contractor and within 24 hours, notify the Division
- III.T.2.c. If done, an AMS must delineate a major spill
- III.T.2.d. Outlines the major spill response by the GAC
- III.T.2.e. the Division will put additional requirements in writing
- III.T.2.g. Additional gross removal is not part of the spill response
- III.W A minimum set of requirements for structurally unsound facilities was added

Regulation No. 8

Part B – Asbestos

Air Quality Control Commission



**Colorado Department
of Public Health
and Environment**

EMISSION STANDARDS FOR ASBESTOS

EXCERPTED FROM
REGULATION NO. 8

"The Control of Hazardous Air Pollutants"
Part B - Emission Standards for Asbestos

COLORADO AIR QUALITY CONTROL
COMMISSION

Effective: March 17, 2021

REGULATION NO. 8
The Control of Hazardous Air Pollutants
PART B
THE CONTROL OF ASBESTOS
5 CCR 1001-10, Part B

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Adopted:	December 14, 1978	Adopted:	December 21, 2007
Effective:	January 30, 1979	Effective:	January 30, 2008
Adopted:	October 16, 1986	Adopted:	January 22, 2021
Effective:	November 30, 1986	Effective:	March 17, 2021
Adopted:	March 16, 1989		
Effective:	April 30, 1989		
Adopted:	February 21, 1991		
Effective:	April 30, 1991		
Adopted:	May 20, 1993		
Effective:	June 30, 1993		
Adopted:	March 21, 1996		
Effective:	May 30, 1996		
Adopted:	September 19, 1996		
Effective:	November 30, 1996		
Adopted:	January 16, 2003		
Effective:	March 30, 2003		
Adopted:	December 18, 2003		
Effective:	March 1, 2004		
Adopted:	December 16, 2004		
Effective:	March 2, 2005		
Adopted:	June 21, 2007		
Effective:	August 30, 2007		

PART B Asbestos Control

I. Incorporated Materials, Definitions, and Acronyms

I.A. Incorporated Materials

Some documents are noted in this regulation as being incorporated by reference. Materials incorporated by reference are those in existence as of the dates indicated and do not include later amendments. The material incorporated by reference is available for public inspection during regular business hours at the Office of the Commission, located at 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530, or may be examined at any state publications depository library. Parties wishing to inspect these materials should contact the Technical Secretary of the Commission, located at the Office of the Commission. The materials incorporated by reference, except for the ASTM Standards, are also available through the Colorado Department of Public Health and Environment at www.colorado.gov/cdphe/asbestos.

The following materials are herein incorporated by reference:

- I.A.1. United States Environmental Protection Agency's Asbestos Hazard Emergency Response Act (AHERA), (2010) Subpart E, 40 C.F.R. Part 763, Section 1, and Appendix A to Subpart E.
- I.A.2. United States Environmental Protection Agency's Asbestos Hazard Emergency Response Act (AHERA) Model Accreditation Plan (MAP), 40 C.F.R. Part 763 (2011), Subpart E, Appendix C.
- I.A.3. United States Environmental Protection Agency's National Emission Standard for Asbestos, Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, And Spraying Operations, 40 C.F.R. Part 61 Section 150 (2011).
- I.A.4. United States Environmental Protection Agency's August 1994 Method EPA/600/R-93/116, "Method for the Determination of Asbestos in Bulk Building Materials".
- I.A.5. National Institute for Occupational Safety and Health (NIOSH) Method 7400 entitled "Asbestos and Other Fibers by PCM" published in the NIOSH Manual of Analytical Methods, 5th Edition, third supplement, June 2019.
- I.A.6. ASTM International Method D5755-09 (Reapproved April 2014), "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading."
- I.A.7. ASTM International Method D6480-19 (January 2019), "Standard Test Method for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy."

I.B. Definitions

All terms used in this Regulation Number 8, Part B, and that are not defined are given the same meaning as in the definitions in Regulation Number 8, Part A Section (I.D.), and the Common Provisions regulation:

- I.B.1. "Accessible" when referring to "asbestos containing material (ACM)" means that the material is subject to disturbance by school or building occupants or custodial or maintenance personnel in the course of their normal activities.
- I.B.2. "Act" means C.R.S. Sections 25-7-101 et seq., concerning the control of asbestos.
- I.B.3. "Adequately wet" means sufficiently mixed or penetrated with amended water to prevent the release of particulates. If visible emissions are observed coming from an asbestos-

containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

- I.B.4. "Air erosion" means the passage of air over friable ACM, which may result in the release of asbestos fibers.
- I.B.5. "Airlock" means a system of rooms or self-closing doorways permitting ingress and egress between contaminated and uncontaminated areas with a minimum of air movement. The airlock system must be installed to allow the flow of clean air into the area of contamination, but automatically self-close and prevent backflow (airborne contamination from exiting the contaminated area) in case of negative pressure system failure.
- I.B.6. "Air monitoring" means measuring the fiber content of a known volume of air collected over a known period of time.
- I.B.7. "Air Monitoring Specialist (AMS)" means a person who performs final visual clearance inspections, asbestos spill delineation, or any air monitoring referred to in this regulation.
- I.B.8. "Amended water" means a mixture of water and a chemical wetting agent (surfactant) to reduce surface tension that provides control of asbestos fiber release. Amended water means water to which a surfactant has been added to increase the ability of water to penetrate ACM.
- I.B.9. Area of Public Access
 - I.B.9.a. "Area of Public Access" means any building, facility, or property, or only that portion thereof, that any member of the general public can enter without limitation or restriction by the owner or lessee under normal business conditions; "Area of Public Access" includes any facility that charges the general public a fee for admission such as any theater or arena. "General Public" does not include employees of the entity that owns, leases, or operates such building, facility, or property, or such portion thereof, or any service personnel or vendors connected therewith. Except as provided in Section I.B.9.b. Area of Public Access includes any single-family residential dwelling.
 - I.B.9.b. Notwithstanding the provisions of Section I.B.9.a., a single-family residential dwelling shall not be considered an area of public access for purposes of this Regulation Number 8, Part B, if the homeowner who resides in the single-family residential dwelling that is the homeowner's primary residence requests, pursuant to Section III.E.2., that the single-family residential dwelling not be considered an area of public access.
- I.B.10. "Asbestos" means asbestiform varieties of chrysotile, amosite (cummingtonite-grunerite), crocidolite, anthophyllite, tremolite, and actinolite.
- I.B.11. "Asbestos Abatement" means any of the following:
 - I.B.11.a. The wrecking or removal of structural members that contain friable asbestos-containing material;
 - I.B.11.b. The following practices intended to prevent or control the escape of asbestos fibers into the atmosphere:
 - I.B.11.b.(i) Encapsulating coating, binding, or resurfacing of walls, ceilings, pipes, or other structures for the purpose of minimizing friable asbestos-containing material from becoming airborne;
 - I.B.11.b.(ii) Enclosing friable asbestos-containing material to make it inaccessible;

- I.B.11.b.(iii) Removing friable asbestos-containing material from any pipe, duct, boiler, tank, reactor, furnace, or other structural member.
- I.B.11.b.(iv) Removing facility components that are covered with or contain friable asbestos-containing material;
- I.B.11.b.(v) Conducting a major spill response.
- I.B.12. “Asbestos Consulting Firm (ACF)” means any person that performs or offers to perform any of the following activities, as required by Regulation Number 8, Part B, in the state of Colorado: asbestos building inspection and bulk sampling; development of asbestos management plans; air monitoring for asbestos fibers; development of asbestos project designs; and, project management. A Project Designer employed by a General Contractor (GAC) may create a project design for his/her employer without the GAC needing to register as an ACF.
- I.B.13. “Asbestos Laboratory” means any person that performs or offers to perform asbestos analysis of bulk or air samples, as required by Regulation Number 8, Part B, in the state of Colorado.
- I.B.14. “Asbestos Training Provider” means any person who performs or offers to perform asbestos training courses in any of the following asbestos disciplines in the state of Colorado: Worker, Supervisor, Project Designer, Building Inspector, Management planner or Air Monitoring Specialist.
- I.B.15. “Asbestos-containing building material (ACBM)” means surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a school building or state building.
- I.B.16. “Asbestos-containing material (ACM)” means material containing more than 1% asbestos.
- I.B.17. “Asbestos-containing waste material (ACWM)” means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this Regulation. This term includes, but is not limited to, asbestos waste from control devices, friable asbestos-containing waste material, spill debris, disposable equipment and containment components and clothing, and bags or other similar packaging contaminated with commercial asbestos fibers. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.
- I.B.18. “Asbestos-contaminated” means any material that has had contact with or been affected by an impacted or damaged material containing more than 1% asbestos. An accumulation of powder, dust or debris similar in appearance to an ACM can be used as evidence of contamination.
- I.B.19. “Asbestos debris” means pieces of ACM that can be identified by color, texture, or composition, or means dust, if the dust is determined by a certified Inspector to be ACM.
- I.B.20. “Asbestos mill” means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos-containing material is not considered a part of the asbestos mill.
- I.B.21. “Asbestos spill” means any release of asbestos fibers due to a breach of the containment barrier on an abatement project, or due to any cause other than asbestos abatement.
- I.B.22. “Asbestos tailings” mean any solid waste that contains asbestos and is a product of asbestos mining or milling operation.

- I.B.23. "Assessment", when used in reference to friable ACM means an evaluation of the condition of ACM or ACBM, or suspected ACM or ACBM, which determines the need for a response action.
- I.B.24. "Business day" means Monday through Friday, 8:00 a.m. to 5:00 p.m., excluding state holidays.
- I.B.25. "Category I nonfriable asbestos-containing material" means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in Appendix E, Subpart E, 40 C.F.R. Part 763, Section 1, polarized light microscopy (EPA 1995).
- I.B.26. "Category II nonfriable ACM" means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in Appendix E, Subpart E, 40 C.F.R. Part 763, Section 1, polarized light microscopy, (EPA 1995) that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- I.B.27. "Certified" means holding a certificate issued pursuant to this regulation.
- I.B.28. "Certified Industrial Hygienist (CIH)" means an individual who has been certified by the American Board of Industrial Hygiene to practice as a CIH.
- I.B.29. "Clean Room" means an uncontaminated area or room, which is a part of the decontamination unit with provisions for storage of street clothes and clean protective equipment. The clean room must be sized to accommodate the clothes and equipment of the work crew.
- I.B.30. "Commercial asbestos" means any material containing asbestos that is extracted from ore and has value because of its asbestos content.
- I.B.31. "Commission" means the Colorado Air Quality Control Commission.
- I.B.32. "Conflict of Interest" means any situation that has the potential to prevent impartiality or create bias.
- I.B.33. "Critical Barrier" means a single layer of 6-mil or greater polyethylene sheeting or an equivalent airtight barrier installed initially over all openings between the work area and non-work area (i.e. doors, windows, ventilation openings, drains, wall penetrations, etc.), as an additional measure to prevent air from escaping the workarea.
- I.B.34. "Curtained Doorway" means a device to allow ingress or egress from one room to another while permitting only minimal air movement between the rooms. The curtains must self-close should negative air pressure fail.
- I.B.35. "Cutting" means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.
- I.B.36. "Damaged friable miscellaneous ACM" means friable miscellaneous 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 its 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 the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACM in question may also indicate damage.
- I.B.37. "Damaged friable surfacing ACM" means friable surfacing ACM, which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is

inadequate or which has delaminated such that its 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 the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM. Asbestos debris originating from the ACM in question may also indicate damage.

- I.B.38. "Damaged or significantly damaged thermal system insulation ACM" means thermal system insulation ACM 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.
- I.B.39. "Decontamination unit" means a series of three (minimum) connected chambers, separated from the work area and from each other by air locks or curtained doorways, to allow for the decontamination of persons and equipment. The air locks or curtained doorways must self-close should negative air pressure fail. The decontamination unit must contain a shower equipped with hot and cold water adjustable at the tap.
- I.B.40. "Demolition" means the wrecking or removal of any load-supporting structural member of a facility together with any handling of debris related to the demolition, the intentional burning of any facility, or moving a facility from a permanent foundation.
- I.B.41. "Division" means the Colorado Air Pollution Control Division.
- I.B.42. "Emergency" means an unexpected situation or sudden occurrence of a serious and urgent nature that demands immediate action and that constitutes a threat to life, health or that may cause major damage to a property. Delay of a contract does not constitute an emergency, nor are demolition projects emergencies unless the facility has been declared in imminent danger of collapse by a governmental entity.
- I.B.43. "Encapsulation" means application of a liquid material to asbestos-containing material which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). Painting for purposes other than controlling asbestos fibers is not considered encapsulation.
- I.B.44. "Enclosure" means an airtight, impermeable, permanent barrier around ACM to minimize the release of asbestos fibers into the air.
- I.B.45. "Equipment room" means a contaminated chamber or room, which is part of the decontamination unit which provides for storage of contaminated clothing and equipment.
- I.B.46. "Fabricating" means any processing (e.g., cutting, sawing, drilling) of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, rebonding, grinding, sawing, drilling, or other similar operations performed as part of fabricating.
- I.B.47. "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), any ship; any railcar; and any active or inactive waste disposal site. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

- I.B.48. "Facility component" means any part of a facility, or an intact component from a previously renovated or demolished facility, including equipment.
- I.B.49. "Fiber release episode" means any uncontrolled or unintentional disturbance of ACM in school buildings resulting in visible emissions.
- I.B.50. "Final cleaning" means the cleaning of all dust and debris from the work area near the end of the active abatement phase, immediately prior to the final visual inspection.
- I.B.51. "Fixed object" means a piece of equipment or furniture in the work area (mounted or attached), which cannot be readily removed from the work area.
- I.B.52. "Friable" means that the material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. Friable includes previously nonfriable material after such previously nonfriable material becomes damaged or disturbed to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.
- I.B.53. "Full containment" means a pressurized system of airtight barriers constructed to isolate a work area to prevent cross-contamination and the release of asbestos fibers. This system must include, at minimum, the following items which are presented in more detail in Sections III.I. Critical Barrier Installation through Section III.N. Containment Components: Critical barriers, two (2) layers of six (6) mil polyethylene sheeting installed on the floor extending at least twelve (12) inches up the walls, two (2) layers of four (4) mil polyethylene sheeting installed on the walls extending at least twelve (12) inches beyond wall/floor joints, and, if a work area has a ceiling that will not be abated as part of the abatement work, one (1) layer of four (4) mil polyethylene installed on the ceiling extending at least twelve (12) inches beyond wall/ceiling joints. Additionally, a decontamination unit, a waste loadout area, a viewport, and negative air machines which maintain a pressure differential from the work area to the clean area at a minimum of -0.02 inches of water and exchanges air within the work area a minimum of four (4) times per hour are required.
- I.B.54. "Functional space" means a room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above), designated by a person certified under this regulation to inspect, prepare management plans, design abatement projects, or conduct response actions.
- I.B.55. "General Abatement Contractor (GAC)" means any certified person that performs or offers to perform asbestos abatement.
- I.B.56. "Glovebag" means a manufactured or fabricated device, typically constructed of six mil transparent polyethylene or polyvinylchloride plastic, consisting of two inward projecting long sleeves with attached gloves, an internal tool pouch, and an attached, labeled receptacle for asbestos waste.
- I.B.57. "Grinding" means to reduce to powder or small fragments and includes mechanical chipping or drilling.
- I.B.58. "HEPA filtration" means a filtering system capable of trapping and retaining at least 99.97 percent of all monodispersed particles 0.3 microns in diameter or larger.
- I.B.59. "HEPA vacuum" means a vacuum system approved by the manufacturer for use in asbestos applications equipped with HEPA filtration.
- I.B.60. "Homogeneous area" means an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color, texture, and, after due diligence on the part of the certified Asbestos Building Inspector, appears or has been confirmed, to have the same date of application, and is unlikely to consist of more than one type, or formulation, of material.

- I.B.61. "Independent" means that a person is not an employee, agent, representative, partner, joint venture, shareholder, parent or subsidiary company of another person.
- I.B.62. "In poor condition" means the binding of the material is losing its integrity as indicated by peeling, cracking, flaking, or crumbling of the material.
- I.B.63. "Installation" means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).
- I.B.64. "Inspection" means an activity undertaken to determine the presence or location, or to assess the condition of, friable or non-friable ACM or ACBM or suspected ACM or ACBM, whether by visual or physical examination, or by collecting samples of such material. This term includes reinspections of friable and non-friable known or assumed ACM or ACBM which has been previously identified. The term does not include the following: a) periodic surveillance of the type described in 40 CFR 763.92(b) and Regulation Number 8, Part B, Section IV.I.2. solely for the purpose of recording or reporting a change in the condition of known or assumed ACBM; b) inspections performed by employees or agents of Federal, State, or local government solely for the purpose of determining compliance with applicable statutes or regulations; or c) visual inspections of the type described in 40 CFR 763.90(i) or Section III.P.1. conducted solely for the purpose of determining completion of response actions.
- I.B.65. "Large contiguous facility complex" means a complex that has a single owner and has 3 or more buildings on a single property or adjoining properties.
- I.B.66. "Leak-tight" means that solids, dust or liquids cannot escape or spill out.
- I.B.67. "Local education agency (LEA)" means:
- I.B.67.a. Any local educational agency as defined in Section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381).
 - I.B.67.b. The operator of any nonpublic, nonprofit, elementary, or secondary school building.
 - I.B.67.c. The governing authority of any school building operated under the Defense Department's education system provided for under the Defense Department's Education Act of 1978 (20 U.S.C. 921, et seq.).
- I.B.68. "Major asbestos spill" means an asbestos spill involving the disturbance of friable, as defined in Section I.B.52., ACM in an amount greater than the trigger levels.
- I.B.69. "Makeup air intake" means a way to provide supplemental airflow into the work area. The opening must be installed through the polyethylene walls of the containment in order to facilitate the flow of additional clean air into that containment. Makeup air intakes must be fitted with a first stage (primary) filter and an interior mounted flap of 6-mil polyethylene which is larger than the filter by a minimum of 2" in all directions, and slightly weighted at the bottom so that if the containment loses pressure, the flap will self-close and air will not be released from inside of the containment. Where installed, air flow into the containment through the makeup air intake must be confirmed by the use of smoke tubes. If used, the makeup air intake must be installed prior to the removal of any ACM.
- I.B.70. "Manufacturing" means the combining of commercial asbestos -or, in the case of woven friction products, the combining of textiles containing commercial asbestos - with any other material(s), including commercial asbestos, and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.
- I.B.71. "Mini-containment" means any containment barrier small enough to restrict entry to the asbestos work area to no more than two workers, constructed around an area where

small-scale, short-duration asbestos abatement is to be performed.

- I.B. 72. "Minor asbestos spill" means an asbestos spill involving the disturbance of ACM in an amount less than or equal to the trigger levels.
- I.B.73. "Miscellaneous ACM" means miscellaneous material that is ACM.
- I.B.74. "Miscellaneous material" means building material on components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.
- I.B. 75. "Movable objects" means pieces of free-standing equipment or furniture, not mounted or attached in the work area which can be readily removed from the work area. Movable objects remaining in the work area which cannot be readily removed from the area must be protected pursuant to Section III.M, Covering Fixed Objects and must be able to be moved in the work area to clean under such items and to facilitate final clearance.
- I.B. 76. "Negative air machine (NAM)" means a portable exhaust system specifically manufactured for use in the asbestos abatement industry that is equipped with HEPA filtration and capable of maintaining a constant high velocity air flow out of the contaminated area, resulting in a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas.
- I.B. 77. "Nonfriable" means material which, when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure. Damaged nonfriable material or nonfriable materials in poor condition may become friable.
- I.B. 78. "Operations and maintenance program" means a program of work practices developed by a certified management planner to maintain friable ACM or ACBM in good condition, ensure clean-up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACM or ACBM disturbance or damage.
- I.B. 79. "Particulate asbestos material" means finely divided particles of asbestos or material containing asbestos.
- I.B. 80. "Person" means any individual, any public or private company, corporation, partnership, association, firm, trust, or estate, the state or any department, institution, or agency thereof, any municipal corporation, county, city and county, or other political subdivision of the state, or any other legal entity, which is recognized by law as the subject of rights and duties.
- I.B. 81. "Phase Contrast Microscopy (PCM)" is an analytical technique used for the counting of fibers on a filter of an air sample. This technique is not specific for asbestos.
- I.B. 82. "Polarized Light Microscopy (PLM)" is an analytical technique used for identifying types of asbestos fibers in bulk material samples.
- I.B. 83. "Porous" means capable of trapping, retaining or holding asbestos fibers even during aggressive cleaning methods such as wet washing, wiping and HEPA vacuuming.
- I.B. 84. "Potential damage" means circumstances in which:
- I.B. 84.a. Friable ACM or ACBM is in an area regularly used by building occupants including maintenance personnel, in the course of their normal activities.
 - I.B. 84.b. There are indications that there is a reasonable likelihood that the material or its covering will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

- I.B. 85. "Potential significant damage" means circumstances in which:
- I.B. 85.a. Friable ACM or ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities.
 - I.B. 85.b. There are indications that there is a reasonable likelihood that the material or its covering will become significantly damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.
 - I.B. 85.c. The material is subject to major or continuing disturbance, due to factors including, but not limited to, accessibility or, under certain circumstances, vibration or air erosion.
- I.B. 86. "Pre-cleaning" means the cleaning of surfaces inside the work area of visible dust and debris prior to active abatement.
- I.B. 87. "Preventive measures" mean actions taken to reduce disturbance of ACBM or otherwise eliminate the reasonable likelihood of the materials becoming damaged or significantly damaged.
- I.B.88. "Project" means planned work or activity that will be finished over a period of time and is intended to achieve a particular purpose. Calculation to determine if activities required under Regulation Number 8, Part B, will exceed trigger levels is done by summing up all quantities of ACM present in the building that will be directly impacted/damaged by the planned work that will occur during a particular project. Building owners or contractors may not avoid the requirements of Regulation Number 8, Part B by breaking up a project to remain below trigger levels.
- I.B.89. "Project Design" means plans, specifications, project procedures, containment design/placement, descriptions of engineering controls, and shop drawings for an asbestos abatement project or response action. The project design must be written and amended by a certified Project Designer and be specific and unique to each project.
- I.B.90. "Public and Commercial Building" means any facility, which is not a school building. Single-family residential dwellings are excluded from this definition. Common areas of multi-unit dwellings including, but not limited to, hallways, entryways and boiler rooms are considered to fall under this definition of a public and commercial building. This definition includes all industrial buildings.
- I.B.91. "Quantify" means to measure or count or otherwise determine, to the extent practicable, the amount of ACM.
- I.B.92. "Regulated asbestos-containing material (RACM)" means (a) friable asbestos-containing 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 or (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 regulation.
- I.B.93. "Removal" means the taking out or the stripping of ACM or ACBM from a damaged area, a functional space, or a homogeneous area in or on a facility.

- I.B.94. "Renovation" means altering in any way one or more components in or on a facility. Operations in which load-supporting structural members are wrecked or removed are demolitions. Examples of renovation work include replacement or repair of mechanical ventilation systems, pipes, ceilings, walls, flooring (including floor tiles), and insulating materials. Renovation may also include the construction of additions or the modification of existing components where tie-ins, joints or other intersection may occur.
- I.B.95. "Repair" means returning damaged ACM or ACBM to an undamaged condition or to an intact state so as to prevent fiber release.
- I.B.96. "Resilient Floor Tile" means tile, which may include vinyl asbestos tile (VAT), asphalt tile, and rubber tile. Tile often appears as 9" x 9" or 12" x 12" floor tile squares. This material may be found in schools, offices and residential applications. Not all resilient floor tile contains asbestos.
- I.B.97. "Response action" means a method, including removal, encapsulation, enclosure, repair, operations and maintenance that protect human health and the environment from friable ACM or ACBM.
- I.B.98. "Roadways" mean surfaces on which vehicles travel. This term includes public and private highways, roads, streets, parking areas, and driveways.
- I.B.99. "Routine maintenance area" means an area, such as a boiler room or mechanical room that is not normally frequented by building occupants and in which maintenance employees or contract workers regularly conduct maintenance activities.
- I.B.100. "Sampling Area" means any area, whether contiguous or not, within a building which contains friable material that is homogeneous.
- I.B.101. "School" means any institution that provides elementary or secondary education (this includes all schools, public and private, not for profit in grades K-12).
- I.B.102. "School building" means:
- I.B.102.a. Any structure suitable for use as a classroom, including a school facility such as a laboratory, library, school eating facility, or facility used for the preparation of food.
 - I.B.102.b. Any gymnasium or other facility, which is specially designed for athletic or recreational activities for an academic course in physical education.
 - I.B.102.c. Any other facility used for the instruction or housing of students or for the administration of educational or research programs.
 - I.B.102.d. Any maintenance, storage, or utility facility, including any hallway, essential to the operation of any facility described in this definition of "school building" under Sections I.B.87.a, b, or c.
 - I.B.102.e. Any portico or covered exterior hallway or walkway of any facility described in this definition of "school building" in Sections I.B.102.a, b, c, or d.
 - I.B.102.f. Any exterior portion of a mechanical system used to condition interior space of any facility described in this definition of "school building" in Sections I.B.102.a, b, c, or d.

- I.B.103. "Secondary Containment" means a system of airtight barriers to isolate the work area to prevent the uncontrolled migration of air from the work area. This system must include, at minimum, critical barriers and the use of a HEPA filtered vacuum or similar HEPA filtered ventilation unit to exhaust air from inside the secondary containment. Air flow into the containment must be documented using smoke tubes. Secondary containment systems are distinct from full containment systems in that they do not require the installation of a decontamination unit, a waste loadout area or a viewport, though some or all of these components may be included at the discretion of the individual(s) performing the work.
- I.B.104. "Sheet Vinyl Flooring" means material that is usually found in 6 ft., 9 ft., and 12 ft., width sheets. It often consists of three or more laminated layers. The upper layers are comprised of a wear layer and design feature. The bottom layer may be an asbestos-containing backing. Sheet vinyl flooring may be installed in an adhered or loose-laid manner. Other possible applications for this material include countertops and wall coverings. Not all sheet vinyl flooring has an asbestos-containing backing.
- I.B.105. "Shower room" means a chamber between the clean room and the equipment room in the decontamination unit suitably arranged for complete showering during decontamination.
- I.B.106. "Significantly damaged friable miscellaneous ACM" means damaged friable miscellaneous ACM or ACBM where the damage is extensive and severe.
- I.B.107. "Significantly damaged friable surfacing ACM" means damaged friable surfacing ACM or ACBM in a functional space where the damage is extensive and severe.
- I.B.108. "Single-family residential dwelling or unit" means any structure or portion of a structure whose primary use is for housing of a family. Residential portions of multi-unit dwellings such as apartment buildings, condominiums, duplexes and triplexes are also considered to be, for the purposes of this Regulation Number 8, Part B, single-family residential dwellings. The following are not considered to be part of a single-family residential dwelling: common areas of multi-unit dwellings including, but not limited to, hallways, entryways, and boiler rooms.
- I.B.109. "Staging area" means either the holding area or an area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.
- I.B.110. "State-owned or state-leased buildings" means structures occupied by any person which are either owned by the state or utilized by the state through leases of one year's duration or longer.
- I.B.111. "Strip" means to take off RACM from any part of a facility or facility components.
- I.B.112. "Structural member" means any load-supporting member of a facility, such as beams and load supporting walls; or any non-load-supporting member, such as ceilings and non-load-supporting walls.
- I.B.113. "Surfacing ACM" means surfacing material that is ACM.
- I.B.114. "Surfacing material" means material that is sprayed on, 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, or other purposes.

- I.B.115. "Surfactant" means a commercially available product specifically designed to be mixed with water for use in wetting of asbestos-containing materials to reduce surface tension and improve water penetration.
- I.B.116. "Thermal system insulation" means material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.
- I.B.117. "Thermal system insulation ACM" means thermal system insulation that is ACM.
- I.B.118. "Transmission Electron Microscopy (TEM)" is an analytical technique used for the definitive identification of asbestos. This technique can be used for both air and bulks sample analyses as allowed by this regulation.
- I.B.119. "Trigger levels" means amounts of material as follows:
- I.B.119.a. With regard to single-family residential dwellings, the trigger levels are 50 linear feet on pipes, 32 square feet on other surfaces, or the volume equivalent of a 55-gallon drum.
- I.B.119.b. With regard to all areas other than single-family residential dwellings, the trigger levels are 260 linear feet on pipes, 160 square feet on other surfaces, or the volume equivalent of a 55-gallon drum.
- I.B.120. "Vibration" means the periodic motion of friable ACM or ACBM, which may result in the release of asbestos fibers.
- I.B.121. "Visible emission" means any emissions, which are visually detectable without the aid of instruments, coming from asbestos containing material, asbestos debris or asbestos containing waste material.
- I.B.122. "Waste load-out area" means a specially constructed airlock system utilized as a short-term storage area for bagged or barreled waste and as a port for removing waste and equipment from the containment. This area must be separate from the decontamination unit.
- I.B.123. "Wet wiping" means removing dust and debris from surfaces or objects in the work area by using cloths, mops, or other cleaning utensils, which have been dampened with amended water.
- I.B.124. "Work area" means a room, group of rooms, or contiguous area sealed or contained by polyethylene barriers and/or walls for the purpose of eliminating air exchange between another room, group of rooms, or contiguous areas.
- I.B.125. "Working day" means Monday through Friday and including holidays that falls on any of the days Monday through Friday.

I.C. Acronyms

I.C.1.	ABIH	American Board of Industrial Hygiene, 600 5 West St. Joseph, Suite 300 , Lansing, MI 48917-4876
I.C.2.	ACBM	asbestos-containing building material
I.C.3.	ACGIH	American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Drive, Cincinnati, OH 45240-4148
I.C.4.	ACM	asbestos-containing material
I.C.5.	ACWM	asbestos-containing waste material
I.C.6.	ASHERA	Asbestos Hazard Emergency Response Act
I.C.7.	AIHA	American Industrial Hygiene Association, 3141 Fairview Park Dr., Suite 777, Falls Church, VA 22042
I.C.8.	AMS	Air Monitoring Specialist
I.C.9.	ANSI	American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, DC 20036
I.C.10.	APCD	Air Pollution Control Division
I.C.11.	ASHARA	Asbestos School Hazard Abatement Reauthorization Act
I.C.12.	ASTM	American Society for Testing and Materials 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959
I.C.13.	AQCC	Air Quality Control Commission
I.C.14.	CCR	Code of Colorado Regulations
I.C.15.	CDPHE	Colorado Department of Public Health and Environment
I.C.16.	CFM	cubic feet per minute
I.C.17.	CFR	Code of Federal Regulations
I.C.18.	CIH	Certified Industrial Hygienist
I.C.19.	C.R.S.	Colorado Revised Statutes
I.C.20.	EPA	Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460
I.C.21.	f/cc	fibers per cubic centimeter
I.C.22.	f/cm3	fibers per cubic centimeter
I.C.23.	f/m3	fibers per cubic meter
I.C.24.	GAC	General Abatement Contractor
I.C.25.	G.E.D.	General Equivalency Diploma
I.C.26.	HEPA	high efficiency particulate air
I.C.27.	HVAC	heating, ventilation and air conditioning
I.C.28.	LCF	large contiguous facility [complex]
I.C.29.	LEA	local education agency
I.C.30.	LPM	liters per minute
I.C.31.	MAAL	Maximum Allowable Asbestos Level in air
I.C.32.	MAP	Model Accreditation Plan (EPA)
I.C.33.	NAM	negative air machine
I.C.34.	NBS	National Bureau of Standards
I.C.35.	NESHAP	National Emissions Standards for Hazardous Air Pollutants, (40 C.F.R. Part 61) (EPA), Subparts A (General Provisions), and M (National Emission Standard for Asbestos)
I.C.36.	NIOSH	National Institute for Occupational Safety and Health, 395 E. St., SW, Suite 9200, Washington, DC 20201
I.C.37.	NIST	National Institute of Standards and Technology, 100 Bureau Drive, Gaithersburg, MD 20899-3460
I.C.38.	NVLAP	National Voluntary Laboratory Accreditation Program, National Institute of Standards and Technology 100 Bureau Drive, MS 2140 Gaithersburg, Maryland 20899-2140
I.C.39.	O&M	Operations and Maintenance

I.C.40.	OSHA	Occupational Safety and Health Administration, 200 Constitution Avenue, NW, Washington, D.C. 20210
I.C.41.	PAT	Proficiency Analytical Testing
I.C.42.	PCM	Phase Contrast Microscopy
I.C.43.	PLM	Polarized Light Microscopy
I.C.44.	PPE	personal protective equipment
I.C.45.	PSI	pounds per square inch
I.C.46.	RACM	regulated asbestos-containing material
I.C.47.	RFCI	Resilient Floor Covering Institute, 115 Broad St. Suite 201, La Grange, GA 30240
I.C.48.	s/mm ²	structures per square millimeter
I.C.49.	SFRD	single-family residential dwelling
I.C.50.	TEM	Transmission Electron Microscopy
I.C.51.	TSCA	Toxic Substances Control Act, 15 U.S.C. section 2601 et seq. TSCA TITLE II means the 1986, amendments to TSCA found at 15 U.S.C. section 2641 et seq.
I.C.52.	TSI	thermal system insulation
I.C.53.	TWA	time weighted average
I.C.54.	VAT	vinyl asbestos [floor] tile
I.C.55.	VCT	vinyl composition tile

II. Certification Requirements

II.A. General Requirements

II.A.1. Persons required to be certified as a General Abatement Contractor, Building Inspector, Management Planner, Project Designer, Worker, Supervisor or Air Monitoring Specialist must obtain the appropriate certification from the Division in accordance with this Section II.

II.A.1.a. No certification or registration pursuant to this Section II. will be issued to a person who has failed to pay in full a Division-assessed penalty for violating any provision of this Regulation Number 8, Part B, or to any person who has otherwise failed to comply with any order of the Division, unless the penalty or order is under appeal before the Air Quality Control Commission.

II.A.2. Photo IDs and Certificates

Each individual certified under this regulation must have their state certification photo identification (ID) card or state certificate available at each work site so that Division representatives may check their credentials.

Each individual trained under this regulation must have a copy of their most recent training or refresher certificates available at each work site so that Division representatives may check their credentials.

II.A.3. Reserved

II.A.4. Ownership of Training Certificates

Training certificates are considered to be the property of the accredited individual. Training providers must give duplicate original training certificates to the accredited individual upon request. Training providers may charge a reasonable fee for replacement of training certificates.

II.A.5. Falsification of Training Certificates

Falsification of training certificates or licenses used to obtain state certification is considered to be a violation of these regulations, and will be sufficient reason for the denial of an application for certification, and may result in disciplinary action being taken against an applicant submitting such falsified training certificates or licenses.

II.A.6. An individual may hold more than one certification.

II.B. General Abatement Contractor Certificates

II.B.1. Certificate Duration

General Abatement Contractor (GAC) certificates are valid for a period of one, two or three years.

II.B.2. Application Procedures

A person applying for a General Abatement Contractor (GAC) certificate, renewal of existing certification or reinstatement of expired certification must submit an application on a form specified by the Division and, pay the applicable fee as specified in the table below:

Certification	Amount		
	1 year	2 years	3 years
GAC (initial)	\$2,000.00	N/A	N/A
GAC (renewal)	\$1,000.00	\$2,000.00	\$3,000.00

II.B.3. Training Requirements

No training is required for GACs.

II.B.4. GAC Responsibilities

GACs must ensure that all Workers and Supervisors are appropriately certified in accordance with this Section II (Certification Requirements). The GAC must ensure that it employs at least one Colorado state-certified Supervisor who must be on-site at all times when abatement work is proceeding.

II.C. Worker, Supervisor, Building Inspector, Management Planner, Project Designer Certificates

II.C.1. Certificate Duration

Worker, Supervisor, Building Inspector, Management Planner, and Project Designer certificates will be issued for a period of one, three, or five years and will be valid only while the provisions of Sections II.C.3. (Training Requirements), II.C.4. (Examinations) and II.C.5. (Refresher Training Requirements) are met.

II.C.2. Application Procedures

Anyone applying for a Worker, Supervisor, Building Inspector, Management Planner, or Project Designer certificate, renewal of an existing certificate or reinstatement of an expired certificate must submit an application on a form specified by the Division and, pay the applicable fee as specified in the table below:

Certification	Amount		
	1 year	3 years	5 years
Worker	\$125.00	\$375.00	\$625.00
Supervisor	\$250.00	\$750.00	\$1250.00
Building Inspector	\$175.00	\$525.00	\$875.00
Management Planner	\$175.00	\$525.00	\$875.00
Project Designer	\$250.00	\$750.00	\$1250.00

II.C.3. Training Requirements

Each individual seeking certification as a Worker, Supervisor, Building Inspector, Management Planner or Project Designer must complete Division-approved training.

II.C.4. Examinations

An individual seeking certification, renewal of an existing certificate or reinstatement of an expired certificate in a specific discipline must pass, on an annual basis, a Division-administered closed book examination for that discipline. Each examination will cover the topics included in the training course for that discipline. The Division will determine the testing schedule and procedures.

II.C.4.a. If an applicant fails to achieve a passing score on a certification exam, on the 1st attempt, the applicant must take a refresher class in the applicable discipline before the applicant may retake the certification exam. After completion of the refresher course, the applicant must submit to the Division the refresher certificate and a new application, including payment of a retesting fee of \$125.00.

II.C.4.b. If an applicant fails to achieve a passing score on the 2nd attempt, or any attempt thereafter, the applicant must take an initial course in the applicable discipline before the applicant may retake the certification exam. After completion of the initial course, the applicant must submit to the Division the initial certificate and a new application, including payment of a retesting fee of \$125.00.

II.C.4.c. For Section II.C.4.a., an applicant will only be required to retake the portion of the exam that the applicant fails for any two-part exam (Supervisor or Project Designer). For Section II.C.4.b., an applicant must retake both portions of the exam.

II.C.5. Refresher Training Requirements

II.C.5.a. Workers, Supervisors, Building Inspectors, Management Planners or Project Designers who are certified according to this regulation must take an annual refresher-training course from a Division-approved training provider. Prior to the commencement of refresher training, the course provider is required to verify the authenticity of the initial training course certificate and all refresher-training certificates. Individuals not in possession of a valid training certificate must not be given refresher training.

Applicants are ineligible for refresher training if their most recent training certificate has lapsed for a year or longer, in which case the applicant must retake the initial training. During the period in which the individual's training certificate has expired, the state certificate is not valid. State certification becomes valid once the required training has been completed and state certification requirements have been met.

II.C.5.b. The length of annual refresher courses must be as follows:

Certification	Length
Worker	One full day (Eight (8) hours)
Supervisor	One full day (Eight (8) hours)
Project Designer	One full day (Eight (8) hours)
Building Inspector	One half day (Four (4) hours)
Management Planner	One half day Building Inspector and one half day Management Planner

II.C.5.c. All courses, at a minimum, must cover the following topics:

- Changes in Federal and State laws, regulations and requirements;
- Developments and/or changes in state-of-the-art procedures;
- Review of the key aspects of the course; and
- Pertinent developments in the particular discipline or the industry as a whole.

Testing of applicants to determine knowledge gained in the refresher course may be done at the discretion of the course provider.

II.C.6. Combined Certificates

At the request of the applicant, the Division may issue a combined Supervisor/Project Designer or combined Inspector/Management Planner certificate. The applicant must submit an application on a form specified by the Division and pay the applicable fee as specified in the table below:

Certification	Amount		
	1 year	3 years	5 years
Supervisor / Project Designer	\$275.00	\$825.00	\$1375.00
Building Inspector / Management Planner	\$275.00	\$825.00	\$1375.00

II.D. Air Monitoring Specialist Certificates

Any Individual who performs a final visual inspection or performs any air monitoring referred to in this regulation must be Colorado certified as an Air Monitoring Specialist (AMS).

II.D.1. Certificate Duration

AMS certificates will be issued for a period of one, three, or five years and will be valid only while the Training (II.D.3.a.(i)) and Examination (II.D.3.a.(iv)) requirements are met.

II.D.2. Application Procedures

Anyone applying for an AMS certificate, renewal of existing certification or reinstatement of an expired certificate must submit an application on a form specified by the Division and pay the applicable fee as specified in the table below:

Certification	Amount		
	1 year	3 years	5 years
Air Monitoring Specialist	\$250.00	\$750.00	\$1250.00

II.D.3. Initial Certification Requirements

II.D.3.a. New AMS Applicants

Each Individual seeking certification as an AMS must satisfy the training, experience and education requirements set forth below:

II.D.3.a.(i) Training

Each individual seeking certification as an AMS must successfully complete a Division-approved Air Monitoring Specialist course. An individual certified by the American Board of Industrial Hygiene as a Certified Industrial Hygienist (CIH) is not required to attend those portions of the AMS course that instruct students exclusively on air-monitoring techniques (e.g., pump calibration, cassette placement, cassette handling, etc.).

II.D.3.a.(i)(A) All initial courses required under this Section II.D.3.a. (New AMS Applicants), must, at a minimum, cover the following topics:

- Roles and responsibilities of an AMS
- Characteristics of asbestos and asbestos-containing materials
- Federal and state laws, regulations and requirements
- Understanding building construction and building systems
- Asbestos abatement contracts, specification and drawings
- Response Actions and abatement practices
- Asbestos abatement equipment
- Personal protective equipment
- Air monitoring strategies
- Safety and Health issues other than asbestos-containing material
- Conducting visual inspections
- Legal responsibilities and liabilities of an AMS
- Record keeping and report writing
- Hands-on activities
- Spill delineation

The course provider must test the applicants to determine knowledge gained in the course.

II.D.3.a.(ii) Experience

Each individual seeking certification as an Air Monitoring Specialist must perform the following on-the-job training activities prior to becoming certified:

II.D.3.a.(ii)(A) Under the direct observation of a certified Air Monitoring Specialist, participate in a minimum of 6 final visual inspections and 6 final air clearances on Division permitted asbestos abatement projects.

II.D.3.a.(ii)(B) Under the supervision of a certified Air Monitoring Specialist, successfully perform a minimum of 80 hours of ambient air monitoring.

II.D.3.a.(ii)(C) The Air Monitoring Specialist applicant must provide documentation of this experience on a form specified by the Division. The form will not be complete until signed by the certified Air Monitoring Specialist(s) who supervised and observed the training. This form must be submitted to the Division at the time of application for certification.

II.D.3.a.(iii) Education

Anyone seeking certification as an Air Monitoring Specialist must possess a high school diploma or General Equivalency Diploma (G.E.D.).

II.D.3.a.(iv) Examination

Each individual seeking certification as an Air Monitoring Specialist or renewal of an existing certificate or reinstatement of an expired certificate must pass, on an annual basis, a Division-administered closed book examination. Each examination will cover the topics included in the training course for the discipline. The testing schedule and procedures will be determined by the Division.

II.D.3.a.(iv)(A) If an applicant fails to achieve a passing score on a certification exam on the 1st attempt, the applicant must take a refresher class in the applicable discipline before the applicant may retake the certification exam. After completion of the refresher course, the applicant may retake the exam after submitting to the Division the refresher certificate and a new application, including payment of a retesting fee of \$125.00.

II.D.3.a.(iv)(B) If an applicant fails to achieve a passing score on the 2nd attempt, or any attempt thereafter, the applicant must take an initial course in the applicable discipline before the applicant may retake the certification exam. After completion of the initial course, the applicant must submit to the Division the initial certificate and a new application, including payment of a retesting fee of \$125.00.

II.D.3.a.(iv)(C) For Section II.D.3.a.(iv)(A), an applicant will only be required to retake the portion of the exam that the applicant failed for this two-part exam. For Section II.D.3.a.(iv)(B), an applicant must retake both portions of the exam.

II.D.3.a.(v) Permissible Activities for AMS Applicants

Any individual seeking certification as an Air Monitoring Specialist who does not yet meet all the requirements for certification, may perform the following activities prior to becoming certified:

II.D.3.a.(v)(A) Air Monitoring

Under the supervision of a certified Air Monitoring Specialist, an individual attempting to obtain the necessary experience to fulfill the Air Monitoring Specialist requirements may collect ambient air monitoring samples on behalf of a certified Air Monitoring Specialist to determine compliance with Section III.U.1. (Maximum Allowable Asbestos Level). The certified Air Monitoring Specialist overseeing the sampling is, responsible for compliance with Section III.U.1. (Maximum Allowable Asbestos Level).

II.D.3.a.(v)(B) Final Visual Inspection and Final Air Clearance

Under the direct observation of a certified Air Monitoring Specialist, anyone attempting to obtain the necessary experience to fulfill the Air Monitoring Specialist requirements must participate in final visual inspections and final clearance air monitoring on Division permitted asbestos abatement projects. The certified Air Monitoring Specialist observing the final visual inspection and final clearance air sampling is responsible for ensuring compliance with Section III.P. (Clearing Abatement Projects).

II.D.4. Recertification Requirements

II.D.4.a. Air Monitoring Specialists who are certified according to this regulation must take an annual refresher-training course from a Division-approved training provider. Prior to the commencement of refresher training, the course provider is required to verify the authenticity of the initial training course certificate and all refresher-training certificates. Individuals not in possession of a valid training certificate must not be given refresher training. The length of the Air Monitoring Specialist refresher course must be one-half day (four (4) hours).

Applicants are ineligible for refresher training if their most recent training certificate has lapsed for a year or longer, in which case the applicant must retake the initial training. During the period in which the individual's training certificate has expired, the state certificate is not valid. State certification becomes valid once the required training has been completed and state certification requirements have been met.

II.D.4.b. All refresher courses required under this Section II.D.4. (Recertification Requirements), at a minimum, must cover the following topics:

- Changes in Federal and State laws, regulations and requirements;
- Developments and/or changes in state-of-the-art procedures;

- Review of the key aspects of the course; and
- Pertinent developments in the particular discipline or the industry as a whole.

Testing of applicants to determine knowledge gained in the refresher course may be done at the discretion of the course provider.

II.E. Training Provided Application Procedures

- II.E.1. Any person wishing to offer courses in disciplines for which training or certification is required must be registered as an Asbestos Training Provider. Applicants must apply to the Division for approval, except for the training referenced in Appendix C. Applicants seeking approval for initial training or refresher training courses must submit their request to the Division on a form specified by the Division along with the written course materials and a fee of \$250.00 per discipline in which they wish to offer courses.
- II.E.1.a. After the initial course approval, Applicants must submit their renewal request to the Division on a form specified by the Division along with a fee of \$100.00 per discipline in which they wish to offer courses.
- II.E.2. In order for a course to be approved it must adequately address the topics and format contained in the United States Environmental Protection Agency's Asbestos Model Accreditation Plan (MAP), 40 C.F.R. Part 763 (2019), Subpart E, Appendix C. The Commission recommends the use of audiovisual materials to complement lectures in these courses, where appropriate.
- II.E.3. After reviewing the application for course approval, and if the submission meets the requirements in Section III.E.2., the Division will provide a response on the application no more than 90 days after receiving a complete application packet from the Training Provider. In the case of disapproval, a letter describing the reasons for disapproval will be sent to the applicant. Prior to disapproval, the Division may, at its discretion, work with the applicant to address inadequacies in the application. If the Division disapproves a Training Provider's application, the applicant may reapply at anytime.
- II.E.4. If an applicant has been informed that the course is approved, the course is considered to have contingent approval, and the applicant may begin offering courses in the State. Final approval of the course will not be granted until the Division has audited the course and determined that the course meets the requirements of this regulation.
- II.E.5. After contingent approval has been granted by the Division, the applicant must make application, if necessary, with the Department of Higher Education, Division of Private Occupation Schools (DHE/DPOS), for approval as an occupational education course. Failure to follow the DHE/DPOS regulations or failure to obtain or retain DHE/DPOS approval may result in the de-certification of the course by the Air Pollution Control Division (APCD).
- II.E.6. Applicants who wish to offer courses already approved by the Environmental Protection Agency or by a state whose training requirements are at least as stringent as the Commission's and whose asbestos certification program has been approved by EPA will be granted reciprocity to teach classes in Colorado. The approval granted to such course provider will be at the same level as that already approved by EPA or another state. The applicant will be subject to all requirements outlined in this regulation.

- II.E.7. Any substantive change to the approved initial course curriculum or agenda, daily schedule or audiovisual materials must be approved by the Division prior to being implemented.

II.F. Instructor Qualifications

Qualified instructors must teach all courses. The minimum qualifications for instructors must be:

- II.F.1. A high school diploma or GED;
- II.F.2. AHERA training and Colorado certification for the discipline being taught must be current at the time a course is taught by the instructor. Variances for out-of-state instructors will be considered on a case-by-case basis;
- II.F.3. Three (3) years of field experience in the discipline being taught. This may be obtained by any of the following combinations:
 - II.F.3.a. Actual field experience in the discipline being taught, such as; performing abatement activities as a Worker or Supervisor; or performing inspection and/or management planning activities; or performing project design activities; or performing Air Monitoring Specialist activities.
 - II.F.3.b. Teaching, as a Division approved assistant instructor in the discipline being taught, under the direct supervision of a Division-approved full instructor, with one (1) month of teaching equal to one (1) month of experience.
 - II.F.3.c. Collegiate or seminar-type classes, relevant to the discipline in which the individual wishes to receive instructor status (e.g., NIOSH 582, 7400 courses, etc.) with one (1) week of training equal to one (1) month of experience.
- II.F.4. Applicants seeking approval as an instructor must submit their request to the Division on a form specified by the Division along with documentation of experience claimed or instruction received. This must include submission of a resume with telephone numbers, and references, that are provided to allow for verification by the Division.
- II.F.5. After reviewing the application for instructor approval and if the submission meets the requirements in Sections III.F.1 - 3. the Division will provide a response on the application no more than 90 days after receiving a complete application packet. In the case of disapproval, a letter describing the reasons for disapproval will be sent to the applicant. Prior to disapproval, the Division may, at its discretion, work with the applicant to address inadequacies in their application. If the Division disapproves an application, the applicant may reapply at any time.
- II.F.6. The Division will inform the applicant in writing whether or not they have contingent approval as a full instructor or as an assistant instructor. The applicant may then begin instructing asbestos courses in Colorado. An instructor's contingent approval will expire two years from the date of issuance, unless they have received final approval.
- II.F. 7. Final approval will be granted once the Division has audited an instructor's course(s) and determined that the instructor is able to effectively communicate and teach the principles and practices of the discipline(s) being taught. The Division will inform the applicant in writing when they have final approval as a full instructor or as an assistant instructor.

II.F.7.a. Full instructor means an individual who meets the minimum qualifications under subsection II.F. (Instructor Qualifications). A full instructor may deliver all of the training material for the course and supervise an assistant instructor.

II.F.7.b. Assistant instructor means an individual who does not meet the minimum experience qualifications under Section II.F.3. An assistant instructor may instruct one or more specific course topics if qualified and under the direct supervision of a full instructor. An assistant instructor must have at least one (1) year of field experience or a minimum of one thousand two hundred and fifty (1,250) hours in the discipline being taught. Topics of instruction will be identified by the Division.

II.F.7.c. Guest speaker means an individual who is not a full instructor or assistant instructor, but is qualified on the basis of professional expertise to address a specific topic of an approved training course. A guest speaker must provide written documentation detailing the speaker's experience training and/or academic credentials to the training provider, prior to conducting training.

II.F.8. After approval, full instructors and assistant instructors must register with the Division on an annual basis. Applicants seeking to be registered must submit their request to the Division on a form specified by the Division.

II.F.9. All instructors must meet the requirements both at the time of course submission for approval and at the time the course is being taught.

II.G. Training Course Notifications

II.G.1. On a form specified by the Division, training providers must notify the Division in writing of scheduled courses at least two weeks (10 working days) prior to the offering of the course. Notification of course cancellations must be provided to the Division by 5:00 p.m. the day prior to the course offering.

II.G.2. For any course in which training or certification is required, the Training Provider must submit, on a form specified by the Division, a list of students who took the course and a fee of \$10.00 per student to the Division no later than 30 calendar days after the conclusion of the course.

II.G.3. On each course notification, the training provider must show what portions of the course will be taught by each full instructor, assistant instructor or guest speaker.

II.H. Training Course Audits

The Division may audit any training course given for the purpose of preparing individuals for State certification. Any significant omissions or deficiencies may result in the de-certification of a course or the disapproval of an instructor. There will be no charge to the Division for auditing a training course.

II.I. Reciprocity

- II.I.1. An individual who has a valid AHERA training certificate, from another state, District of Columbia or other territory of the United States, or other Division-approved national entity which has a certification and testing program that has been approved by the EPA, which is at least as stringent as the Commission's and is compliant with Colorado requirements, may apply for Colorado certification by submitting an application on the form specified by the Division, along with their training documents and the applicable fee. Applicants must successfully pass a Division-administered closed book examination for the discipline in which they are seeking reciprocity before Colorado certification will be issued.
- II.I.2. Those individuals applying under this Section II.I. (Reciprocity) for Colorado certification as a Supervisor or project designer must also successfully pass a Division-administered closed book examination on state laws and regulations before Colorado certification will be issued.
- II.I.3. Those individuals applying under this Section II.I. (Reciprocity) for Colorado certification as an Air Monitoring Specialist must also:
 - II.I.3.a. provide documentation to the Division of training which is at least as stringent as the training required in Section II.D.3.a.(i);
 - II.I.3.b. provide documentation to the Division showing that they have been certified to and have been conducting Air Monitoring Specialist activities for at least 1 year, and
 - II.I.3.c. pass the written examination as described in Section II.D.3.a.(iv) (examinations).
- II.I.4. After receiving Colorado certification, the applicant will be subject to all requirements outlined in this regulation regarding training and application for renewal of Colorado certification, including testing requirements.
- II.I.5. The applicant must provide documentation to the Division as may be necessary to allow the Division to determine if a reciprocal certificate should be issued.
- II.J. Project Manager Qualifications
 - II.J.1. There is no Project Manager certification requirement. Where a Project Manager is required pursuant to this Regulation Number 8, Part B, the Project Manager must satisfy the certification, academic training, experience, and educational requirements set forth below:
 - II.J.1.a. Certification as a Project Designer in accordance with this Section II. Project Managers must have proof of this certification with them on the project site.
 - II.J.1.b. Successful completion of a Division-approved Air Monitoring Specialist course. A 4-year college degree in industrial hygiene, a degree in environmental health with a major concentration in industrial hygiene, or the possession of a certified industrial hygienist (CIH) certificate given by the American Board of Industrial Hygiene (ABIH), may be substituted for the Air Monitoring Specialist course. Project Managers must have proof of the required training with them on the project site.
 - II.J.1.c. A minimum of one (1) year of experience supervising, overseeing or monitoring asbestos abatement projects.
 - II.J.1.d. Possession of a high school diploma or G.E.D.

II.K. Denial, Suspension, Revocation, or Refusal to Renew Certification

The Division may deny, suspend, revoke, or refuse to renew certifications in accordance with the provisions of § 25-7-508, C.R.S.

II.L. Asbestos Consulting Firm Registration

Any person performing or offering to perform asbestos consulting firm activities as defined in this regulation must be registered as an Asbestos Consulting Firm. Applicants seeking to be registered must submit their request to the Division on a form specified by the Division along with an annual fee of \$500.00. Cities, counties, municipalities or any other governmental entity employing appropriately trained and certified personnel will be exempt from registering and paying this fee.

II.M. Asbestos Laboratory Registration

Any person performing or offering to perform asbestos laboratory activities as defined in this regulation must be registered as an Asbestos Laboratory. Applicants seeking to be registered must submit their request to the Division on a form specified by the Division along with an annual fee of \$250.00.

II.N. Exemptions

The following sections of the regulation contain exemptions from certain requirements. Please refer to the indicated section for the specific details of the exemption.

- Certified Industrial Hygienists are exempted from certain training requirements. See Sections II.D.3.a. and Section II.J.

III. Abatement, Renovation and Demolition

III.A. Inspection

III.A.1. Prior to any renovation or demolition in an area of public access which may disturb greater than the trigger levels of suspect asbestos-containing material (ACM), the facility component(s) to be affected by the renovation or demolition must either be assumed to be ACM or must be inspected to determine if abatement is required. Inspections conducted prior to renovation may be focused on the suspect ACM to be affected by the renovation. Inspections conducted prior to demolition must comprehensively identify all ACM in and on the facility or on the component(s) affected by the demolition.

III.A.1.a. Individuals performing these inspections must be a Building Inspector certified in accordance with this regulation.

III.A.1.b. The inspection, sampling and assessments of the suspect ACM must be performed as required in Section III.A.3. and III.A.4. of this regulation.

III.A.1.c. The analysis of samples collected during these inspections must be performed as required in Section III.A.4. of this regulation.

- III.A.1.d. Buildings, or those portions thereof, that were constructed after October 12, 1988 will be exempt from this inspection requirement if, after due diligence, the architect or project engineer responsible for the construction of the building, or a Colorado certified Asbestos Building Inspector, completes a form specified by the Division that no ACM was used as a building material in the initial construction of the building or subsequent renovations (if applicable). NOTE: The Division recommends that all buildings be inspected prior to any renovation or demolition activities, regardless of the date of construction.
- III.A.1.e. To prevent any real or potential conflicts of interest, Building Inspectors identifying ACM must be independent of the GAC that will subsequently abate the ACM identified. Inspectors need not be independent of the GAC if both the certified Inspector and the certified GAC are employees of the building owner.
- III.A.2. During renovation or abatement activities which will impact suspect materials in quantities greater than the trigger levels or during demolition activities, the asbestos inspection report must be available onsite at all times. The inspection report is not required to be on site during the first seventy-two (72) hours of abatement activities if the abatement is being conducted under situations addressed in Sections III.E.1.e.(i), III.E.1.e.(ii), III.E.2.d.(i). and III.E.2.d.(ii).
- III.A.3. For each area of public access inspected to determine the presence of ACM, the certified asbestos building inspector must:
 - III.A.3.a. Identify, quantify and categorize homogenous areas of suspect ACM.
 - III.A.3.b. Touch all suspect ACM to determine whether the material is friable.
 - III.A.3.c. Either assume homogeneous areas are ACM or collect, in a random manner representative of the homogeneous area, bulk samples of suspect ACM as follows:
 - III.A.3.c.(i) Surfacing material. Additional information on sampling surfacing materials can be found in the EPA "Pink Book," Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials (1985).
 - III.A.3.c.(i)(A) At least three bulk samples must be collected from each homogenous area that is 1,000 square feet or less.
 - III.A.3.c.(i)(B) At least five bulk samples must be collected from each homogenous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
 - III.A.3.c.(i)(C) At least seven bulk samples must be collected from each homogenous area that is greater than 5,000 square feet.
 - III.A.3.c.(i)(D) Surfacing material added onto base materials (e.g. sprayed or troweled on materials, textures, paints, etc.) must be sampled and analyzed separately from the base material.
 - III.A.3.c.(ii) Thermal system insulation. Additional information on sampling thermal system insulation can be found in the EPA "Purple Book." Guidance for Controlling Asbestos-containing Materials in Buildings (1985).

- III.A.3.c.(ii)(A) At least three bulk samples from each homogenous area of thermal system insulation.
- III.A.3.c.(ii)(B) At least one bulk sample from each homogenous area of patched thermal system insulation that is less than 6 square or linear feet.
- III.A.3.c.(ii)(C) In a manner sufficient to determine whether the material is ACM, collect bulk samples from mechanical system fittings such as tees, elbows, or valves.
- III.A.3.c.(ii)(D) Bulk samples are not required where the certified asbestos building inspector has determined the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACM insulation.
- III.A.3.c.(iii). Miscellaneous
 - III.A.4.c.(iii)(A) In a manner sufficient to determine whether the material is asbestos-containing, collect bulk samples from each homogeneous area. A minimum of two samples of each homogeneous area of miscellaneous material must be collected.
- III.A.3.d. Provide an assessment of the condition of all friable ACM which must include:
 - III.A.3.d.(i) The location and quantity or volume of the ACM.
 - III.A.3.d.(ii) The condition of the ACM, including: type of damage or significant damage, severity of damage, and extent or spread of damage over the homogenous area including the quantity of damaged ACM and if a major asbestos spill is present.
- III.A.3.e. Provide a written report of the asbestos inspection findings. The report must include:
 - III.A.3.e.(i) The name and address or location of the structure(s) and the location in the structure of the facility component(s) inspected.
 - III.A.3.e.(ii) The certified asbestos building inspector's name, signature, certification number, and asbestos consulting firm name and registration number.
 - III.A.3.e.(iii) A description of the scope and purpose of the inspection.
 - III.A.3.e.(iv) A physical description of the facility component(s) inspected. The description must also include:
 - III.A.3.e.(iv)(A) The location and quantity or volume of each homogenous area of all suspect ACM.
 - III.A.3.e.(iv)(B) A blueprint or diagram clearly illustrating sample locations, and each homogenous area determined or assumed to be ACM.

III.A.3.e.(iv)(C) A description of the manner used to determine sampling locations. Additional information on sampling surfacing materials can be found in the EPA "Pink Book," asbestos in buildings: Simplified Sampling Scheme for Friable Surfacing Materials (1985). Additional information on sampling thermal system insulation can be found in the EPA "Purple Book," Guidance for Controlling Asbestos-containing Materials in Buildings (1985).

III.A.3.e.(v). The assessment of friable ACM as required in Section III.A.3.d. The Inspector shall classify the ACM and materials assumed to be ACM into one of the following categories:

III.A.3.e.(v)(A) Damaged or significantly damaged thermal system insulation ACM.

III.A.3.e.(v)(B) Damaged friable surfacing ACM.

III.A.3.e.(v)(C) Significantly damaged friable surfacing ACM.

III.A.3.e.(v)(D) Damaged or significantly damaged friable miscellaneous ACM.

III.A.3.e.(v)(E) ACM with potential for damage.

III.A.3.e.(v)(F) ACM with potential for significant damage.

III.A.3.e.(v)(G) Any remaining friable ACM or friable suspected ACM

III.A.3.e.(vi) The certified asbestos building inspector's summary of findings.

III.A.3.e.(vii) A copy of the analytical report including the name and address of the laboratory performing the analysis, the laboratory's registration and accreditation, the chain of custody form, the date of analysis, the name and signature of the person performing the analysis, the method of analysis, and the results of the analysis.

III.A.4. Analysis

III.A.4.a. Bulk samples collected under Section III.A.3.c. and submitted for analysis must be analyzed for asbestos using laboratories accredited by the National Institutes of Standards and Technology (NIST). Laboratories must also be registered as required in subsection II.M.

III.A.4.b. Bulk samples must be analyzed for asbestos content by PLM, using the United States Environmental Protection Agency's August 1994 Method EPA/600/R-93/116, "Method for Determination of Asbestos in Bulk Building Materials."

III.A.4.c. With the exception of drywall systems (drywall, tape, and joint compound), bulk samples must not be composited for analysis. Drywall and associated joint compound utilized to fill seams and nail holes may be composited utilizing the procedures given in the January 5, 1994 Federal Register, Volume 59, No. 3. Any composite analysis must be performed by the laboratory who analyzed the bulk sample. Materials added onto drywall and other base materials (e.g. sprayed or troweled on materials, textures, paints, etc.) must be sampled and analyzed separately.

III.A.4.d. If the asbestos content of a sample of friable ACM is estimated to be 1% or less but greater than 0% by a method other than point counting, either the analytical process must be repeated by the accredited laboratory using the point counting technique utilizing PLM or the material will be assumed to be asbestos containing. If a result obtained by point count is different from a result obtained by visual estimation, the point count result must be used. Non-friable samples do not have to be point counted.

III.A.4.e. Interpreting Bulk Sample Results

III.A.4.e.(i) A homogeneous area is considered not to contain ACM only if the results of all samples required to be collected from that area show asbestos in amounts of one percent or less.

III.A.4.e.(ii) A homogeneous area will be determined to contain ACM based on a finding that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than one percent.

III.A.4.f. The name and address of each laboratory performing an analysis, the laboratory registration and accreditation, the date of analysis, and the name and signature of the person performing the analysis be submitted to the person requesting the asbestos building inspection and analysis.

III.A.5. Abatement in accordance with Regulation Number 8, Part B is required prior to renovation if the amount of ACM to be disturbed in connection with the renovation: 1) is friable or will be made friable; 2) is in an area of public access or will impact an area of public access; and 3) exceeds the trigger levels.

III.A.6. Abatement in accordance with Regulation Number 8, Part B is required prior to demolition if the amount of ACM to be disturbed in connection with the demolition: 1) is friable or will be made friable; 2) is in an area of public access or will impact an area of public access; and 3) exceeds the trigger levels.

III.B. Use of Certified and Required Personnel

III.B.1. Any person who conducts asbestos abatement other than abatement performed in a school building must obtain Colorado certification as a General Abatement Contractor (GAC) if the amount of asbestos to be abated exceeds the trigger levels on any occasion.

III.B.1.a. A GAC must employ at least one state-certified Supervisor who must be on-site at all times when asbestos abatement work is proceeding. Asbestos Workers must have access to a certified Supervisor throughout the duration of the abatement project.

III.B.1.b. For abatement projects where a GAC is required, all abatement Workers and Supervisors must be certified in accordance with the provisions of Section II (Certification Requirements). GACs must ensure that all asbestos abatement Workers and Supervisors are properly certified.

III.B.1.c. The requirements of this Paragraph III.B.1 will not apply to any homeowner who performs asbestos abatement on the single-family residential dwelling where they reside and that is the homeowner's primary residence.

III.B.2. Any person who inspects any facility or facility component for the presence of asbestos must be Colorado certified as a Building Inspector in accordance with this regulation.

III.B.3. With respect to school buildings, any individual who develops an asbestos management plan, supervises asbestos abatement activities, performs asbestos abatement, or designs asbestos abatement projects must be certified for the specific activity they are engaged in if the amount of asbestos-containing material exceeds, on any occasion, 3 linear feet on pipes, or 3 square feet on other surfaces.

III.B.3.a. The Local Education Agency (LEA) or its contractor must ensure that at least one state-certified Supervisor is on-site at all times when asbestos abatement work is proceeding. Asbestos Workers must have access to certified Supervisors throughout the duration of the abatement project.

III.B.4. Any individual who develops an asbestos management plan, develops an operations and maintenance program, supervises asbestos abatement activities, performs asbestos abatement, or designs asbestos abatement projects must be certified for the specific activity in which they are engaged if the amount of asbestos-containing material exceeds, on any occasion, the trigger levels.

III.B.5. Any individual who performs a final visual inspection or performs any air monitoring referred to in this regulation must be Colorado certified as an Air Monitoring Specialist.

III.B.6. Project Manager

A project manager must be used on all asbestos abatement projects in which the amount of friable asbestos-containing material to be abated exceeds 1,000 linear feet on pipes, or 3,000 square feet on other surfaces.

III.B.6.a. Waiver of the Project Management Requirements

Building owners who seek to have the project manager requirement waived must submit the request, on a form specified by the Division as part of the notification required in III.E.1 (Notices).

III.B.6.a.(i) Waiver requests will be approved by the Division if the project is performed by a GAC with a non-compliance history of fewer than two (2) Division-issued compliance determinations with a finding of noncompliance during the past two (2) years prior to the start of the project.

III.B.6.a.(ii) If the project is conducted by a GAC with a non-compliance history of two (2) or more Division-issued compliance determinations with a finding of noncompliance during the past two (2) years, the building owner must, on a form specified by the Division, demonstrate to the satisfaction of the Division that compliance with the project manager requirements is overly burdensome or not feasible.

III.B.6.b. The GAC must notify the building owner during bid proposals as to whether or not a project manager would be required.

III.C. Project Design

III.C.1. Prior to the start of any asbestos abatement in an area of public access of a non-school facility, in which the amount of ACM to be abated exceeds 1,000 linear feet on pipes, or 3,000 square feet on other surfaces, a written project design must be developed by a Project Designer certified under these regulations.

III.C.2. Prior to the start of any asbestos abatement in a school building in which the amount of friable ACM to be abated exceeds 3 linear feet on pipes, or 3 square feet on other surfaces, a written project design must be developed by a Project Designer certified under these regulations, in accordance with Section IV.G.7 of this regulation.

III.C.3. Based on a site visit, the Colorado certified project designer must develop a written project design which must include:

III.C.3.a. An accurate and detailed written scope of work, which must quantify the square or linear footage or volume of ACM to be abated and the work practices from an approved variance, if applicable;

III.C.3.b. An accurate and detailed diagram of each abatement work area that identifies type(s) of ACM, location(s) of ACM subject to the abatement action, the decontamination unit, the waste load-out, the negative air machines, air intake and exhaust, and emergency exit(s) where applicable.

III.C.3.c. A plan to address any known ACM within the abatement work area which is not the subject of the abatement action;

III.C.3.d. A description of the removal methods and engineering controls, including air exchange calculations;

III.C.3.e. A statement that re-cleaning of the abatement work area will occur if it fails to meet the clearance requirements in Section III.P;

III.C.3.f. The printed name, signature, company name and telephone number of the project designer, a copy of the project designer's current certification as a project designer, and the date(s) of the on-site visit(s);

III.C.3.g. Modifications to the project design must be made by a certified project designer and documented in writing, dated, and signed by the project designer before implementation.

III.C.4. A signed copy of the project design must be available on-site at all times once the abatement activities have begun.

III.C.5. The General Abatement Contractor and certified Supervisor must ensure that the project is conducted in accordance with the project design.

III.D. Project Management

III.D.1. The project manager is responsible for:

- assessing that the project is conducted in accordance with this regulation.
- assessing that the project design is followed.
- assessing whether any approved variance is followed.
- assessing that the abatement project is cleared in accordance with this regulation.
- assessing that the asbestos waste generated by the project is properly manifested and disposed of in accordance with this regulation.
- immediately communicating in writing all deviations from the requirements to the building owner or operator, the GAC and, if applicable, the AMS. The Project Manager will notify the Division if the deviation is not corrected within 24 hours of notification.

III.D.2. Project managers must be independent of the GAC and work strictly on behalf of the building owner to the extent feasible, unless the abatement is being performed in-house.

III.D.3. Project managers must sign the original copy of the permit for the permit to be valid.

III.E. Notifications

Any person intending to either abate asbestos-containing materials (ACM) in any amount greater than the trigger levels, or demolish a facility or portion thereof must, on a form specified by the Division, provide notification in writing of the intent to conduct asbestos abatement, renovation or demolition. When a permit is required under Section III.G.1. (Permits), this notification will serve as the permit application referred to in Section III.G.1. False, inaccurate or misleading information contained in the notification is cause for the Division to revoke a permit issued pursuant to Section III.G.1. (Permits) and/or to initiate an enforcement action pursuant to §25-7-508, C.R.S. Any modification to the notification must be received on a form specified by the Division on the first business day preceding the change. No person may commence an abatement or demolition project without first obtaining the appropriate approval notice (i.e. an asbestos approval notice or a demolition approval notice) from the Division. The Division approved notice must be posted in a visible location at the work site at all times. Approval notices are valid for a maximum of one year. A new notice must be obtained for projects lasting longer than one year.

III.E.1. Notifications for facilities other than single-family residential dwelling. Notifications required under this section are subject to the following conditions:

- III.E.1.a. The notification must be postmarked or delivered to the Division at least 10 working days before commencing an abatement project or demolition project, except as provided in Section III.E.1.e. Any fees required under this Section III.E.1. (Notices) or III.G.1 (Permits) must accompany the notice for the notice to be accepted by the Division.

- III.E.1.b. If the project is not one for which a permit is required pursuant to Section III.G.1. (Permits), a processing fee of \$80.00 must be submitted to the Division for each notice. For abatement projects that occur in non-public access areas, the Division may charge the person submitting this notice a fee for site inspections and any necessary monitoring for compliance with applicable sections of this regulation. The fee shall be assessed at a rate of \$80.00 per hour.
- III.E.1.c. For large contiguous facility complexes, if the project is not one for which a permit is required pursuant to III.G.1. (Permits), an annual fee in the amount of \$80.00 per abatement project that will be undertaken that year shall be submitted to the Division. If over the course of the year should more than the anticipated number of projects occur, an additional \$80.00 per notice must be submitted to the Division. At the end of one year the Division will refund fees for projects that have not been performed, less a \$80.00 processing fee.
- III.E.1.d. For demolition projects, a base fee of \$50.00 is required plus an additional \$5.00 per one thousand square feet, or any portion thereof, of structure footprint.
- III.E.1.e. Waiver of the 10-Working Day Notification Period.

There are three situations where the Division will consider a waiver of the 10- working day notifications. They are:

III.E.1.e.(i) Emergencies

In the event of an emergency, as defined in Section I.B.42. in which asbestos abatement work must commence at once, the GAC must submit a written notification on a form specified by the Division prior to commencing the emergency abatement. The notification must be accompanied by a form specified by the Division requesting a waiver of the 10-day notification.

III.E.1.e.(ii) Unexpected Discovery

An unexpected discovery occurs when ACM is found behind a wall, above a ceiling, beneath a floor or was otherwise inaccessible without significantly damaging part of the structure. Should the building owner wish to seek a waiver of the 10- working day notification, the GAC or building owner must request the waiver from the Division by the end of the next State business day following the unexpected discovery. The request must be on a form specified by the Division requesting a waiver of the 10-day notification. Identifying ACM if a thorough inspection in accordance with Section III.A. has not been conducted does not constitute an unexpected discovery.

III.E.1.e.(iii) Demolition Following Abatement

In the event where a facility is to be demolished following a noticed or permitted asbestos abatement project where the 10-working day notification period was already imposed, the Division may waive the notification period if the completed demolition approval notice is filed with the Division within the 10-working day period following the completion of the abatement. No waiver of the notification period will be granted for incomplete applications, for applications received more than 10-working days after the completion of the abatement or where the Division requires further confirmation that all Regulated Asbestos Containing Material has been removed from the facility.

III.E.2 Notifications for Single-Family Residential Dwellings Regarding Abatement and Demolition. Notifications required under Sections III.E.2 and III.E.3 are subject to the following conditions:

III.E.2.a. The notification must be postmarked or delivered to the Division at least ten (10) working days before commencing an abatement project or demolition project, except as provided in Section III.E.2.d. Any fees required under Sections III.E. (Notices) or III.G.1. (Permits) must accompany the notice for the notice to be accepted by the Division.

III.E.2.b. If the project is not one for which permit is required pursuant to Section III.G.1. (Permits), a processing fee of \$80.00 must be submitted to the Division for each notice.

III.E.2.c. For demolition projects, a base fee of \$50.00 is required plus an additional \$5.00 per one thousand square feet, or any portion thereof, of structure footprint.

III.E.2.d. Waiver of the 10-Working Day Notification Period. There are four situations where the Division will consider a waiver of the 10-working day notification. They are:

III.E.2.d.(i) Emergencies

In the event of an emergency, as defined in Section I.B.41., in which asbestos abatement work must commence at once, the GAC must submit a written notification on a form specified by the Division prior to commencing the emergency abatement. The notification application must be accompanied by a form specified by the Division requesting a waiver of the 10-day notification.

III.E.2.d.(ii) Unexpected Discovery

In the event of an unexpected discovery of ACM behind a wall, above a ceiling, beneath a floor or otherwise hidden in such a way as to preclude access to it without significantly damaging part of the structure, should the building owner wish to seek a waiver of the normal 10-working day notification, the GAC or building owner must notify the Division by the end of the next regular State business day following the unexpected discovery. The request must be on a form specified by the Division requesting a waiver of the 10-day notification. Identifying ACM if a thorough inspection in accordance with Section III.A. has not been conducted does not constitute an unexpected discovery.

III.E.2.d.(iii) Demolition Following Abatement

In the event a single-family residential dwelling is to be demolished following a noticed or permitted asbestos abatement project where the 10-working day notification period was already imposed, the Division may waive the waiting period provided the completed demolition approval notice is filed with the Division within the 10-working day period following the completion of the abatement. No waiver of the notification period will be granted for incomplete applications, for applications received more than 10-working days after the completion of the abatement or where the Division requires further confirmation that all RACM has been removed from the facility.

III.E.2.d.(iv) Compelling Circumstances

In the event there is a compelling circumstance that makes providing a 10-day working notice too onerous, the Division may waive the waiting period provided the homeowner, on a form specified by the Division, submits documentation of the compelling circumstance. No waiver of the notification period will be granted for incomplete applications or where the Division requires additional information.

III.E.3. Notifications for Single-Family Residential Dwellings Regarding Opt-Out

III.E.3.a. A homeowner of a single-family residential dwelling may provide notification of their decision to opt-out of the area of public access requirements of this regulation for the abatement of asbestos-containing material in excess of the trigger levels if:

III.E.3.a.(i) The homeowner resides in the single-family residential dwelling;

III.E.3.a.(ii) The single-family residential dwelling they are opting out of is the homeowner's primary residence; and

III.E.3.a.(iii) The homeowner or GAC submits the form titled "Single-Family Residential Dwelling Area of Public Access Opt-Out Form" as specified by the Division.

III.E.3.b. A single-family residential dwelling will revert to being subject to the area of public access requirements: 1) at the end of the project; 2) when the homeowner no longer owns the single-family residential dwelling; or, 3) if the dwelling ceases being the homeowner's primary residence, whichever is first.

III.E.3.c. The single-family residential dwelling opt-out is not applicable for homeowners who have plans to demolish the home, plan to sell or rent the home at the conclusion of the project, if the renovation will impact an area of public access, or if the renovation will impact an area to which members of the general public will have access to for business purposes.

III.E.4. Notifications for facilities that are structurally unsound and in danger of imminent collapse.

For facilities that are declared structurally unsound and in danger of imminent collapse by a qualified (through training, education or experience) State or local governmental representative, or, if no qualified governmental representative is available, a Colorado Licensed Professional Structural Engineer, the GAC must, on a form specified by the Division, provide written notice of the intent to conduct asbestos abatement and demolition and comply with subsection III.W. (Structurally Unsound Facilities).

III.F. Alternative Procedures and Variances

The Division may, at its discretion, grant a variance from this Regulation allowing use of an alternative procedure for the clearance of an asbestos abatement project or the control of emissions from an asbestos abatement project provided that the GAC or ACF submits the alternative procedure in writing to the Division along with a \$50.00 review fee, and demonstrates to the satisfaction of the Division that compliance with the regulation is neither practical nor feasible, or that the proposed alternative procedures provide equivalent control of asbestos.

Within forty-five (45) days of the receipt of the request the Division will notify the applicant in writing of its decision to either grant or deny the variance. If the variance is denied, the Division will provide a reason for the denial to the applicant. No person may begin abatement using such a procedure until a variance has been requested, and approved in writing. Any violation of any condition of the variance will be considered a violation of this Regulation.

III.G. Permits

III.G.1. Permit Applications

III.G.1.a. No person may commence an abatement project in which the amount of friable asbestos-containing material exceeds the trigger levels in an area of public access without first obtaining an asbestos abatement permit from the Division. Only the GAC in whose name the permit is issued may conduct the abatement project.

III.G.1.b. Permit fees for large contiguous facility complexes must be paid annually to the Division in the amount of \$1,200.00 plus \$80.00 for each anticipated project. This fee must accompany the permit application for the application to be accepted. At the end of the permit year, the Division will refund fees for projects that have not been conducted, less a \$80.00 processing fee.

III.G.1.c. For any project other than those on large contiguous facility complexes, the permittee will be assessed a fee for the permit. The fee must accompany each permit application. The fee schedule is as follows:

Project Length	Permit Fee for Projects	
	Applies to ALL facilities including single-family residential dwellings	Applies ONLY to single-family residential dwellings
	Greater than 260 linear feet/160 square feet/55 gallon drum	Greater than 50 linear feet/32 square feet/55 gallon drum but less than or equal to 260 linear feet/160 square feet/55 gallon drum
1-30 days	\$400.00	\$180.00
31-90 days	\$800.00	\$300.00
91-365 days	\$1,200.00	\$420.00

Any inspections in excess of one for a 30-day permit, two for a 90-day permit, or three for a one-year permit will be assessed at a rate of \$80.00 per hour.

Permits are valid for a maximum of one year. A new permit must be obtained for projects lasting longer than one year.

III.G.2. Project Modification

Whenever there is a modification in the project, the applicant must provide notification of all changes on a form specified by the Division. A project modification occurs when there is a change in the scope of work, the scheduled work dates or times, or project personnel (Project Manager, Project Designer or Air Monitoring Specialist). The applicant must notify the Division prior to implementing the modification(s).

III.G.3. Multiple-Phase Projects

Buildings owned by the same person, which are at different locations, must be permitted separately unless they are part of the same project. Buildings owned by the same person, which are at the same location, must be covered by one multiple-phase permit. When applying for a permit for abatement to be performed in more than one building or in more than one area within a single building, the applicant must provide, on a form specified by the Division, additional information regarding the multiple-phase project

III.G.3.a. Additional phases that are to be added after the start of a multi-phase project must be submitted on a new application covering the additional phase or phases prior to the start of the first additional phase. No person may commence work on any additional phase(s) without first obtaining approval from the Division for the additional phase(s) to their permit. There is a \$80.00 fee for each additional phase after the initial permit approval.

III.G.4. The Division approved permit must be posted in a visible location at the work site at all times.

III.G.5. Asbestos abatement permits are required for asbestos abatement projects in single-family residential dwellings for which the amount of asbestos-containing materials to be abated exceeds the trigger levels, unless either of the following conditions applies:

III.G.5.a. The homeowner has requested that the single-family residential dwelling not be considered an area of public access pursuant to Section III.E.3; or

III.G.5.b. The individual is performing the abatement project himself/herself in a single-family residential dwelling that the individual resides in and is the individual's primary residence.

III.G.6. Transferring a Permit

Should a GAC wish to transfer a permit to another GAC, the GAC who will perform the abatement project must submit a new permit application and pay the Division a \$55.00 processing fee.

III.G.7. No permit to conduct asbestos abatement will be issued to a person who has failed to pay in full a Division-assessed penalty for violating any provision of this Regulation Number 8, Part B or to any person who has otherwise failed to comply with any order of the Division, unless the penalty or order is under appeal before the Air Quality Control Commission.

III.G.8. Permits issued on projects requiring project managers will not be valid until the project manager signs the original copy of the permit.

III.H. Abatement Sequence

This Section III.H. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

III.H.1. Pre-Abatement

Pre-abatement is the time period covering the commencement of construction of the containment and all other preparations (including any necessary pre-cleaning) taking place prior to the actual abatement of ACM. This abatement phase does not include the transport of materials and equipment to the job site. The transport of materials and equipment to the job site is the only activity that is allowed prior to the permit start date.

Following are the steps for the pre-abatement phase of the project. Please note that steps 1 through 6, where applicable, are mandatory, and the exact sequence shown is mandatory.

- 1) Install critical barriers (pursuant to Section III.I, Critical Barrier Installation)
- 2) Establish negative pressure (pursuant to Section III.J, Air Cleaning and Negative Pressure Requirements)
- 3) Construct the decontamination area (pursuant to Section III.K, Decontamination Area)
- 4) Pre-clean surfaces (pursuant to Section III.L, Pre-cleaning of Surfaces)
- 5) Cover fixed objects (pursuant to Section III.M, Covering Fixed Objects)
- 6) Construct the containment (pursuant to Section III.N, Containment Components)

III.H.2. Active Abatement

Active abatement means the time period beginning with the completion of the pre-abatement phase and ending when the area has passed final clearance air monitoring and the critical barriers have been completely removed.

The active abatement phase includes the actual “gross” removal of ACM and all aspects of “final cleaning” that are conducted prior to the areas being pronounced ready for a final visual inspection: The final visual inspection, final clearance air monitoring, and the removal of critical barriers are the last activities included in the active abatement phase.

Following are the steps for the active abatement phase of the project. Please note that steps 7, 8, 10, and 11, are mandatory, and the exact sequence shown is mandatory.

- 7) Conduct abatement (pursuant to Section III.O, AbatementMethods)
- 8) Conduct final visual inspection (pursuant to Section III.P.1., FinalVisual Inspection)
- 9) If a coating material is to be applied to surfaces in the containment it may only be applied after the final visual inspection has been successfully completed. This coating must be completely dry to the touch before final clearance air sampling may commence.
- 10) Conduct final clearance air monitoring (pursuant to Section III.P.3., Final Clearance Air Monitoring)
- 11) Conduct the tear-down (pursuant to Section III.Q, Tear-down)

III.H.3. Post-Abatement

Post abatement means any point in time following the termination of the active abatement phase. Following is the step for the post-abatement phase of the project. Please note that step 12 is mandatory.

- 12) Any handling of waste during post-abatement or, if necessary, during active abatement must be completed pursuant to Section III.R, Waste Handling.

III.I. Critical Barrier Installation

This Section III.I. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material that will be abated exceeds the trigger levels.

All openings between the work area and clean areas including, but not limited to, windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers and skylights must be sealed with a minimum of one layer of 6-mil polyethylene sheeting.

III.J. Air Cleaning and Negative Pressure Requirements

This Section III.J. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material that will be abated exceeds the trigger levels.

III.J.1. Negative Air Machines and HEP A Filters

- III.J.1.a. Negative air machines (NAMs) must be operated continuously from the time of critical barrier construction through the time that acceptable final clearance air monitoring results are obtained in accordance with Section III.P (Clearing Abatement Projects).

III.J.1.b. The General Abatement Contractor (GAC) who is required to use air cleaning must properly install, use, operate, and maintain all air-cleaning equipment authorized by this Section III.J (Air Cleaning and Negative Pressure Requirements).

III.J.1.c. The GAC who is required to use air cleaning must use a HEPA filter to clean the air, except as noted below:

III.J.1.c.(i) Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

III.J.1.c.(ii) If the use of a filter creates a fire or explosion hazard, the Division may authorize as a substitute the use of wet collectors designed to operate with a NAM contacting energy of at least 9.95 kilopascals (40 inches of water gauge pressure).

III.J.1.c.(iii) The Division may authorize the use of filtering equipment other than HEPA filters if EPA has previously approved it and if it can be demonstrated to the Division's satisfaction that it is equivalent to the described equipment in filtering particulate asbestos material.

III.J.1.d. These NAMs must exhaust filtered air to the outside of the building when the length of exhaust duct required to do so does not overburden the negative air machine. If air must be exhausted to the interior of the building, it must be done in accordance with Section III.U.1.b. (During Abatement).

III.J.2. Air Exchange Rates

The GAC who is required to use air cleaning must maintain sufficient air cleaning equipment in operation at all times to ensure that the air within the work area is exchanged a minimum of four (4) times per hour.

III.J.3. Pressure Differential

At all times the differential of the work area to the clean area must be, at a minimum, -0.02 inches of water. A manometer or pressure gauge must be set up on the outside of the containment area so that the pressure differential between the work area and the clean area may be determined. At all times the differential of the work area to the clean area must be recorded using a strip chart recorder or its equivalent. The manometer must be programmed with the current date, time and location, and must have an audible alarm that will sound when pressure drops below the minimum -0.02 inches' water column. The alarm function must be audible during active abatement.

III.J.4. Air Flow Direction

At all times airflow direction must be from the exterior of the containment barriers into the interior of the containment barriers. In addition, smoke tubes must be readily available on the outside of the containment barriers at all times so that airflow direction and verification of air movement within the work area may be determined.

III.K. Decontamination Unit

This Section III.K. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

III.K.1. Construction

A decontamination unit must be constructed to provide a means to decontaminate asbestos-exposed personnel and equipment before such personnel and equipment leave the work area. The decontamination unit must consist of the following three stages, which must be separated by three offset flaps in a “Z” pattern or an equivalent system of barriers that will self-close should negative air pressure fail:

III.K.1.a. Clean Room

The clean room must be sized to accommodate the clothes and equipment of the work crew. Clean work clothes, clean disposable clothing, replacement filters for respirators, towels and other necessary items must be provided in the clean room. No asbestos-contaminated items may enter this room. Workers must use this area to suit up, store street clothes, and don respiratory protection on their way to the work area, and to dress in clean clothes after showering.

III.K.1.b. Shower

Except for small-scale abatement projects where glovebag methods or mini-containment methods are used, a portable shower must be used to permit the employees to clean themselves after exposure to asbestos. Each showerhead must be supplied with hot and cold water adjustable at the tap, and a drain equipped with a filtration system to filter asbestos from the shower wastewater to a fiber size of five (5) microns prior to discharging the wastewater into a sanitary sewer. The shower room must contain one or more showers to accommodate all personnel. The shower enclosure must be constructed to ensure against leakage of any kind and must be kept clean of all visible dust and debris.

III.K.1.c. Equipment (Dirty) Room

The equipment room must be used for storage of equipment and tools at the end of a shift after decontamination using a HEPA filtered vacuum or wet cleaning techniques. A labeled six-(6) mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated footwear must be stored in this area for reuse.

III.K.2. Entry and Exit

The following procedures must be used for work area entry and exit unless there is an emergency situation immediately dangerous to life or health:

III.K.2.a. All personnel and authorized visitors must enter and exit the work area through the decontamination unit and not the waste load-out.

III.K.2.b. All personnel must remove street clothes and don disposable coveralls, head covering and foot covering prior to entering the work area. To prevent contamination from leaving the work area, all personnel entering the work area must wear disposable coveralls in sizes adequate to accommodate movement without tearing. The coveralls (Tyvek® or other material equally effective in preventing gross ACM from contacting the individual's body) must include head and foot covers (unless head and foot covers are provided separately).

III.K.2.c. Before leaving the work area, all personnel must remove gross contamination from the outside of respirators and dispose of protective clothing in containers labeled for disposal in accordance with Section III.R.2.b. (Labeling). Personnel must proceed to the shower area and then shower and shampoo to remove residual asbestos contamination. After showering, personnel must proceed to the clean room.

III.L. Pre-Cleaning of Surfaces

This Section III.L. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material that will be abated exceeds the trigger levels.

Pre-cleaning of surfaces contaminated with visible dust or debris must be conducted prior to the commencement of any abatement project. The following procedures must be conducted in the order in which they appear:

- III.L.1. HEPA vacuum or wet wipe all surfaces contaminated with visible dust or debris. All movable objects must be cleaned of dust and debris by HEPA vacuum or wet wiped before removal from the work area;
- III.L.2. Dispose of all dust and debris, filters, mop heads and other contaminated waste as ACWM pursuant to Section III.R (Waste Handling);
- III.L.3. Pre-cleaning of dirt floors must be conducted in accordance with Section III.S.5 (Asbestos-Contaminated Soil).

III.M. Covering Fixed Objects

This Section III.M. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material that will be abated exceeds the trigger levels.

At a minimum, all fixed objects in the work area must be covered with one (1) layer of six-(6) mil polyethylene sheeting, secured in place.

III.N. Containment Components

This Section III.N. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

Construction of the containment components may commence only after adequate negative pressure is established. Polyethylene sheeting must be used in the construction of containment barriers in order to isolate the work area during abatement projects. Spray poly may be substituted for polyethylene sheeting.

III.N.1. Wall, Floor and Ceiling Polyethylene

Polyethylene sheeting must be used in thicknesses and number of layers as specified in Sections III.N.1.a., b., c., and d. below, and must be used to seal all windows, doors, ventilation systems, and wall penetrations, and to cover ceilings, walls, and floors in the work area. Duct tape or spray adhesive must be used to seal the edges of the plastic and to seal any holes in the containment. Polyethylene sheeting must be attached using any combination of duct tape or other waterproof tape, furring strips, spray glue, staples, nails, screws or other effective materials capable of sealing adjacent sheets of polyethylene and capable of sealing polyethylene to dissimilar finished or unfinished surfaces under both wet and dry conditions.

III.N.1.a. Laying Polyethylene on Floors

At a minimum, floors must be covered with sheeting consisting of two (2) layers of six-(6) mil polyethylene sheeting, unless spray poly is used. Floor sheeting must extend up sidewalls at least twelve (12) inches and be sized to minimize seams. No seams may be located along wall/floor joints. If ACM flooring material is being removed in conjunction with other ACM(s), a minimum of one (1) layer of six-(6) mil polyethylene sheeting sealed to the walls must cover the flooring to be removed during all upper removal activity.

III.N.1.b. Hanging Polyethylene on Walls

If a work area has walls that will not be abated as part of the abatement work, at a minimum, walls must be covered with sheeting that must consist of two (2) independent layers of four (4) mil or thicker polyethylene, unless spray poly is used. It must be installed to minimize seams and must extend beyond wall/floor joints at least twelve (12) inches. No seams may be located along wall/wall joints.

III.N.1.c. Hanging Polyethylene Sheeting on Ceilings

If a work area has a ceiling that will not be abated as part of the abatement work, at a minimum, the ceiling must be covered with sheeting that must consist of one (1) layer of four (4) mil or thicker polyethylene, unless spray poly is used. It must be installed to minimize seams and must extend beyond wall/ceiling joints at least twelve (12) inches. No seams may be located along wall/ceiling joints.

III.N.2. View Port

A clear view port with a minimum size of 12" × 12" must be installed to allow a view of the interior of the work area. If a view port cannot be installed, an explanation must be made on the notification form stating that it will not be installed and the reason why.

III.N.3. Waste Load-out Area

A full containment must be constructed to include a waste load-out area. This area must be separate from the decontamination unit, may be used as a temporary storage area for bagged waste and must be used as the port for transferring waste out of the work area. The innermost room must be large enough to accommodate the cleaning of bagged/containerized debris and the largest sized debris and equipment. All waste load-out areas must have a minimum of two separate rooms separated by three offset flaps in a "Z"-pattern or an equivalent system of barriers that will self-close should negative air pressure fail. The "Z"- pattern flaps must function as a self-closing system as each container is passed through the flaps. The flaps must not be held open except when items are being removed from containment and only because the item is causing the flaps to open.

III.N.4. Secondary Containment

III.N.4.a. For glovebag removals (see III.V.1) the General Abatement Contractor (GAC) in lieu of full containment must erect secondary containment barriers where the amount of ACM to be removed in a functional space exceeds three (3) linear or three (3) square feet.

III.N.4.b. For facility component removals (see III.V.2) in lieu of full containment the use of a secondary containment to facilitate the required air clearance monitoring is recommended, but not required.

III.O. Abatement Methods

This Section III.O applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

The three methods of asbestos abatement are listed below. Any additional requirements using these methods, other than those already specified in this regulation, are detailed in Sections II.O.1., 2., and 3., below.

III.O.1. Removal

III.O.1.a. Controlling Airborne Fiber Release/Emissions

III.O.1.a.(i) Wetting

III.O.1.a.(i)(A) Amended Water

Amended water must be used to adequately wet ACM and ensure that it remains wet until collected and contained or treated in preparation for disposal. Surfactants must be a commercially available product specifically designed to be mixed with water for use in wetting of asbestos-containing materials.

III.O.1.a.(i)(B) Wetting Equipment

Airless sprayers, or alternative spray equipment such as hand pump garden sprayers or misting bars that operate with an adjustable nozzle pressure which does not exceed fifteen hundred (1500) PSI must be used when applying amended water or encapsulant to ACM except:

III.O.1.a.(i)(B)(1) A hose, equipped with a mixing box to facilitate the addition of surfactant, may be used to apply amended water on structurally unsound buildings or debris piles. The hose must be equipped with an adjustable nozzle and backflow preventer. The amended water must be applied at a pressure that does not generate dust or splattering at the point of contact.

III.O.1.a.(i)(C) Cold Temperature Wetting

When the temperature at the point of wetting is below freezing (0°C/32°F):

III.O.1.a.(i)(C)(1) The General Abatement Contractor (GAC) must apply for a variance from the Division in accordance with the requirements of Section III.F. (Alternative Procedures and Variances); or

III.O.1.a.(i)(C)(2) Remove facility components coated or covered with friable ACM as units or in sections in accordance with Section III.V.2. (Removing of Facility Components).

III.O.1.a.(ii) HEPA Vacuuming

All vacuuming of contaminated surfaces must be done with a HEPA filter-equipped vacuum.

III.O.1.a.(iii) Wet Wiping

Wet wiping of contaminated surfaces prior to disassembly of containment barriers must be done using rags and a bucket of clean or amended water.

III.O.1.b. Removal of Asbestos from Elevated Heights

For friable ACM that will be removed or stripped:

III.O.1.b.(i) Adequately wet the materials to ensure that they remain wet until they are collected and contained or treated in preparation for disposal in accordance with Section III.R. (Waste Handling);

III.O.1.b.(ii) Carefully lower the materials to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the materials;

III.O.1.b.(iii) Transport the materials to the ground via leak-tight chutes or containers if they have been removed or stripped more than 50 feet above ground level and were not removed as units or in sections.

III.O.1.b.(iii)(A) Leak-tight chutes must be constructed with a structural frame, the interior of which must be covered with a hard, rigid surface. The interior of the chute must be covered with a minimum of 2 layers of 6-mil polyethylene or spray poly according to Section III.N.1. Wall, Floor and Ceiling Polyethylene. The chute is part of the containment and must be maintained under a minimum negative pressure of 0.02 inches of water column and cleaned and cleared according to Section III.P. Clearing Abatement Projects.

III.O.1.c. Alternative Removal Methods

III.O.1.c.(i) Aggressive removal methods such as bead blasting, wet media blasting, hydro blasting, grinding, dry ice removal, etc. that pulverize, grind, blast the ACM or its substrate during removal must implement additional engineering controls.

III.O.1.c.(i)(A) Hydro blast (spin jet), grinders, dry ice, beadblast.

III.O.1.c.(i)(A)(1) Air exchanges must be increased to a minimum of 6 per hour;

III.O.1.c.(i)(A)(2) Negative air pressure must be maintained at least -.004 inches' water column; and

III.O.1.c.(i)(A)(3) Airless sprayers or foggers must be used at the point of contact for general dust suppression.

III.O.1.c.(i)(B) Wet media blaster

- III.O.1.c.(i)(B)(1) Air exchanges must be increased to a minimum of 6 per hour;
- III.O.1.c.(i)(B)(2) Negative air pressure must be maintained at least -.04 inches' water column;
- III.O.1.c.(i)(B)(3) Airless sprayers or foggers must be used at the point of contact for general dust suppression;
- III.O.1.c.(i)(B)(4) Floor poly must be installed to minimize seams. Any seams must have a 6-inch overlap; and
- III.O.1.c.(i)(B)(5) If floor seams are present they must be covered with an impermeable sealant, e.g., roofing sealant or tar.

III.O.1.c.(i)(C) Other alternative aggressive methods

Aggressive alternative removal methodologies not listed in this subsection shall be evaluated by the Division prior to approval and implementation for use.

III.O.2. Encapsulation

- III.O.2.a. When spray-applying encapsulants they must be applied using only airless spray equipment with nozzle pressure adjustable between four hundred (400) and fifteen hundred (1500) PSI and in accordance with the manufacturer's recommendations for the particular encapsulant. A containment need not be erected when spraying an encapsulant provided that the ACM is well adhered and will not be disturbed during the encapsulation process. The abatement area must still be cleared as required by subsection III.P.

III.O.3. Enclosure

- III.O.3.a. If enclosure is chosen as the abatement technique, a solid structure (airtight walls and ceilings) must be built around the facility component to prevent the release of ACM into the area beyond the enclosure and to prevent disturbance of ACM by casual contact during future maintenance operations. A containment barrier need not be erected when constructing an enclosure provided that the ACM will not be disturbed during the building of the enclosure. The abatement area must still be cleared as required by subsection III.P. Such a permanent (i.e., for the life of the building) enclosure must be built of new construction materials and must be impact resistant and airtight. Before constructing the enclosure, the person conducting the asbestos abatement must move all active electrical conduits, telephone lines, recessed lights, and pipes out of the area to be enclosed in order to ensure that the enclosure will not have to be reopened later for routine or emergency maintenance.
- III.O.3.b. The master floor plans must indicate the exact location and condition of the enclosed asbestos and this plan must be kept in a separate asbestos file with the building superintendent, engineer or owner.

III.P. Clearing Abatement Projects

This Section III.P applies to asbestos abatement projects in areas of public access, other than school buildings, where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels. For clearance requirements in school buildings, see Section IV.G.9. (Completion of Response Actions).

The General Abatement Contractor (GAC), certified Air Monitoring Specialist, and the building owner must ensure that all abatement projects are completed as described below.

All air monitoring and final visual inspections-required under this regulation must be performed by a Colorado certified AMS who works for a registered Asbestos Consulting Firm. The AMS must be independent of the GAC to avoid possible conflict of interest.

III.P.1. Final Visual Inspection

At the conclusion of any abatement action and with only critical barriers still in place, the certified AMS, who is independent of the GAC, must visually inspect each work area where such action was conducted, and behind the critical barriers, to determine whether all dust and debris has been removed. If any such dust or debris is found, the area must be re-cleaned until no dust or debris is found. If a critical barrier is removed for cleaning purposes, the area behind the critical barrier must be cleaned and the critical barrier immediately replaced.

III.P.1.a. The AMS must provide written notification to the GAC that the abatement work area has met final visual clearance standards and passed final air clearance sampling, as required in Sections III.P.1 and III.P.3. The Final Clearance Report must include:

III.P.1.a.(i) The name and address or location of the structure(s) and the exact location in the structure of the work area that was cleared, the permit number, and phase of abatement (if a multi-phase permit applies).

III.P.1.a.(ii) Date and time final clearance standards were met.

III.P.1.a.(iii) The certified asbestos air monitoring specialist's name, signature, certification number, asbestos consulting firm name, contact information and registration number.

III.P.1.a.(iv) The analyst's name and signature. The asbestos laboratory's name, contact information and registration number (if applicable).

III.P.1.a.(v) Date of analysis, sample numbers, and fiber or structure concentrations of each sample.

III.P.2. [Reserved]

III.P.3. Final Clearance Air Monitoring and Sample Analyses

III.P.3.a. Sample Collection

III.P.3.a.(i) Once the area has passed a final visual inspection and no dust or debris has been found, the certified AMS must collect air samples using aggressive sampling as described in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010), to monitor air for clearance after each abatement project; except that fans and leaf blowers must not be directed toward any known friable ACM remaining in the work area.

III.P.3.a.(ii) The total number of clearance air samples required to determine compliance with Section III.P. (Clearing Abatement Projects) for a state-permitted abatement project involving greater than the trigger levels of ACM is indicated in the following table:

For each work area within the project where the amount of ACM is:	State-Permitted Project in Non-School Building		Response Action in School Building	
	Minimum # of samples to clear each of the following:		Minimum # of samples to clear each of the following:	
	Work area	Project	Work Area	Project
Less than 3 square feet/3 linear feet	1	5	5	5
From 3 square feet/3 linear feet up to 32 square feet/50 linear feet/volume equivalent of a 55-gallon drum	2	5	5 PCM or 13 TEM	5 PCM or 13 TEM
Greater than 32 square feet/50 linear feet/volume equivalent of a 55-gallon drum up to 160 square feet/260 linear feet/volume equivalent of a 55-gallon drum	5	5	5 PCM or 13 TEM	5 PCM or 13 TEM
Greater than 160 square feet/260 linear feet/volume equivalent of a 55-gallon drum	5	5	13 TEM	13 TEM

III.P.3.b. Clearance Criteria

III.P.3.b.(i) Transmission Electron Microscopy (TEM)

Except as provided in Section III.P.3.b.iii., an abatement action will be considered complete when the average concentration of asbestos of five air samples collected within the abatement work area and analyzed by the TEM method in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010), is not statistically significantly different, as determined by the Z-test calculation as found in that Appendix A, from the average asbestos concentration of five air samples collected at the same time outside the abatement work area and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in that Appendix A, is below the filter background level of 70 structures per square millimeter (70 s/mm²).

III.P.3.b.(ii) An action will also be considered complete if the volume of air drawn for each of the five samples collected within the abatement work area is equal to or greater than 1,199 L of air for a 25-mm filter, or equal to or greater than 2,799 L of air for a 37-mm filter, and the average concentration of asbestos as analyzed by the TEM method in 40 C.F.R. Part 763 Appendix A to Subpart E (EPA 2010), for the five air samples does not exceed the filter background level of 70 s/mm², as defined in that Appendix A. If the average concentration of asbestos of the five air samples within the abatement work area exceeds 70 s/mm², or if the volume of air in each of the samples is less than 1,199 liters of air for a 25-mm filter, or less than 2,799 L of air for a 37-mm filter, the action shall be considered complete only when the requirements of Sections III.P.3.b.i, or III.P.3.b.iii, of this Section III.P (Clearing Abatement Projects) are met.

III.P.3.b.(iii) Phase Contrast Microscopy (PCM)

An action will also be considered complete if the volume of air drawn for each sample is equal to or greater than 1,199 L of air for a 25-mm filter. A minimum number of samples must be collected within each work area and per project as defined in the chart in Section III.P.3.a.(ii). The laboratory may analyze air-monitoring samples collected for clearance purposes by PCM to confirm completion of removal, encapsulation, or enclosure of ACM. The action will be considered complete when the results of samples collected in the abatement work area and analyzed by PCM using the NIOSH Method 7400 entitled "Asbestos and other Fibers by PCM" published in the NIOSH Manual of Analytical Methods, 5th Edition, Third Supplement, June 2019, show that the concentration of fibers for each of the samples is less than or equal to a limit of quantification for PCM (0.01 fibers per cubic centimeter, 0.01 f/cm³, 10,000 f/m³). Each analyst doing said analysis must either be a successful participant in their company's American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program or in the Asbestos Analysts Registry (AAR) Program.

III.P.3.c. Laboratory Accreditation

III.P.3.c.(i). The air samples collected under this Section III.P, must be analyzed for asbestos using laboratories accredited by the National Institute of Standards and Technology to conduct such analysis using TEM or, under circumstances permitted in this Section III.P. (Clearing Abatement Projects), laboratories showing successful participation in the American Industrial Hygiene Association Proficiency Analytical Testing (PAT) Program for PCM.

III.P.3.c.(ii). Whenever on-site satellite labs are used for PCM analysis for air monitoring required under this regulation, all persons conducting said analysis must be properly trained as an analyst pursuant to the AIHA Laboratory Quality Assurance Program and must follow all quality control and quality assurance guidelines as set forth in the NIOSH Method 7400 entitled "Asbestos and other Fibers by PCM" published in the NIOSH Manual of Analytical Methods, 5th Edition, Third Supplement, June 14, 2019. Satellite labs must be owned and under the direct control of a properly accredited laboratory pursuant to the requirements set forth in Section III.P.3.b. (Clearance Criteria).

III.Q. Tear-Down

This Section III.Q. applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material that will be abated exceeds the trigger levels.

The following tasks must be performed during the tear-down portion of the abatement project:

- Removal of the critical barriers
- Removal of negative air machines (NAMs)
- Disassembly of the decontamination unit
- Disassembly of the waste load-out area
- HEPA vacuum any minimal dust or debris discovered

III.R. Waste Handling

This Section III.R applies to asbestos abatement projects in areas of public access and non-public access areas where the amount of asbestos-containing material (ACM) which has been removed exceeds the trigger level. Except for situations addressed under III.R.2.c., all asbestos-containing waste material (ACWM) must be removed from the abatement site at the conclusion of the project.

III.R.1. Disposal Containers

Disposal containers must be leak-tight and waterproof when sealed. Disposable bags must be at least six-(6) mil polyethylene.

III.R.2. Handling Waste Material

Each person handling ACWM shall:

- III.R.2.a. Seal all ACWM in leak-tight containers while wet and label the containers in accordance with Section III.R.2.b (Labeling), below.

Appropriate containers and procedures must be used to prevent all breakage, rupture or leakage during loading, shipping, transportation and storage of ACWM.

- III.R.2.b. Affix warning labels to all ACWM or to their containers, with the following warnings:

Danger
Contains Asbestos Fibers
May Cause Cancer
Causes Damage to Lungs
Do Not Breathe Dust
Avoid Creating Dust

- III.R.2.c. Following an abatement project, temporary storage of ACWM must be limited to 500 (five hundred), 55-gallon barrels, or the volumetric equivalent thereof, prior to disposal. Storage is permitted only on property owned or operated by the General Abatement Contractor (GAC) or building owner. Temporary storage must not exceed a time period of more than 6 months following the completion of the abatement action.
- III.R.2.d. Discharge no visible emissions during the collection, processing (including incineration), packaging, transportation, or deposition of any ACWM generated by the source.
- III.R.2.e. Dispose of ACWM in accordance with Colorado Department of Public and Environment Health, Hazardous Materials and Waste Management Division regulations.
- III.R.2.f. All asbestos-containing wastewater must be filtered to five (5) micrometers prior to discharge and must be discharged to a sanitary sewer.
 - III.R.2.f.(i) Asbestos-containing wastewater may not be used for wetting on the abatement project.
- III.R.3. Follow the waste shipment procedures in accordance with the provisions of 40 C.F.R. Part 61 Section 150 (EPA 2011).
 - III.R.3.a. Solid waste transfer stations may only accept asbestos waste after receiving approval from the Hazardous Materials and Waste Management Division and the local governing body.

III.S. Abatement of Special Materials

This Section III.S applies to projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

III.S.1. Resilient Floor Tile and Sheet Vinyl Flooring

- III.S.1.a. Pursuant to Section III.E. (Notification), the person conducting the project must notify the Division of the intent to demolish, renovate, or perform asbestos abatement in any building, structure, facility or installation, or any portion thereof, which contains asbestos in any amount that exceeds the trigger levels whether friable or not.
- III.S.1.b. Resilient floor tile, and associated flooring adhesive which contain asbestos, are nonfriable unless the material is damaged to the extent that when dry it can be crumbled, pulverized or reduced to powder by hand pressure.
- III.S.1.c. Sheet vinyl flooring which contains asbestos is nonfriable unless the material is damaged to the extent that when dry it can be crumbled, pulverized or reduced to powder by hand pressure. For renovation, demolition or abatement purposes, unless removed as required by Section III.S.1.d., sheet vinyl flooring with a fibrous asbestos containing backing must be removed as a friable material.

III.S.1.d. Provided that the requirements of Appendix B are followed as required, the following sections do not apply: Section II (Certification Requirements), Section III, Sections III G. (Permits), III.H. (Abatement Sequence), III.I. (Critical Barrier Construction), III.J. (Additional Engineering Controls), III K. (Decontamination Area), III.L. (Pre-cleaning of Surfaces), III.M. (Covering Fixed Objects), III.N. (Containment Components), III.O. (Abatement Methods), .III.P. (Clearing Abatement Projects), and III.Q. (Tear-Down).

If a person grinds, mechanically chips, drills, sands, bead blasts, sandblasts, mechanically powders the material or otherwise damages such material to render it friable, and the amount of the material exceeds the trigger levels, then the following sections do apply: Sections I. (Definitions), II. (Certification Requirements) and III. (Abatement, Renovation and Demolition Projects).

III.S.1.e. Sheet Vinyl Flooring

If utilizing the work practices set forth in Appendix B for the removal of sheet vinyl flooring, any Workers removing the flooring must have successfully completed an 8-hour employee training course which meets the training requirements for flooring Workers set forth in Appendix C to this regulation; furthermore, individuals supervising the removal of sheet vinyl flooring materials must have successfully completed the 8-hour employee training course and an additional training course for Supervisors which meets the training requirements for flooring Supervisors set forth in Appendix C to this regulation. Provided that the requirements of Appendix B are followed as required, the following sections do not apply: section II (Certification Requirements), section III, subsections III G. (Permits), III.H. (Abatement Sequence), III.I. (Critical Barrier Construction), III.J. (Additional Engineering Controls), III K. (Decontamination Area), III.L. (Pre-cleaning of Surfaces), III.M. (Covering Fixed Objects), III.N. (Containment Components), III.O. (Abatement Methods), .III.P. (Clearing Abatement Projects), and III.Q. (Tear-Down).

III.S.2. Asbestos Cement Products

Asbestos cement roofing shingles, siding and other asbestos cement products that are nonfriable and will remain nonfriable during removal are subject to the requirements of Section III.E. (Notifications). The asbestos cement roofing shingles, siding, or other asbestos cement products must be removed in accordance with Section III.S.4. (Other Nonfriable Asbestos-Containing Materials). If the asbestos roofing shingles, siding, other asbestos cement products become friable during removal, then Sections I. (Definitions), II. (Certification Requirements), and III. (Abatement, Renovation and Demolition Projects) apply.

III.S.2.a. Asbestos cement products in an amount greater than the trigger levels must be removed prior to demolition.

III.S.3. Asphaltic Materials

Tar impregnated roofing felts, asphalt-roofing tiles, roofing asphalts, roofing mastics, asphaltic or bituminous coatings and asphaltic pipeline coatings that are nonfriable and will remain nonfriable during removal are exempt from this regulation.

III.S.4. Other Nonfriable Asbestos-Containing Materials

III.S.4.a. Adequately wet the surface areas of the nonfriable ACM to prevent dust emissions throughout the removal process.

- III.S.4.b. Remove the materials using hand removal methods or power tools that do not subject the material to cutting, grinding, sanding, bead blasting, sandblasting, or otherwise damage the material in such a way as to render it friable.
- III.S.4.c. Remove the material carefully with minimal breakage and disturbance.
- III.S.4.d. If the nonfriable material is to be disposed of, then it must be transported to the landfill that will accept nonfriable ACM. The landfill must be contacted prior to disposal to ensure that the nonfriable ACM is transported and packaged in accordance with the landfill's specific policy or regulation. If the materials have been rendered friable, they must be disposed of as friable asbestos-containing waste materials pursuant to Section III.R. (Waste Handling).

III.S.5. Asbestos-Contaminated Soil

Any soil containing visible friable ACM or any soil with greater than 1% friable asbestos content in the top 1 inch of soil-is, for the purposes of this subsection, asbestos-contaminated soil. Where the surface area of the asbestos-contaminated soil exceeds the trigger levels, or the volume of contaminated soil to be removed exceeds the volume equivalent of a 55-gallon drum, the General Abatement Contractor (GAC) and the building owner must comply with all of the requirements in Section III.T. (Asbestos Spill Response), and must remove gross, visible surface debris, and either remove the top 2 inches of soil, or seal the area with concrete or other impenetrable material.

III.T. Asbestos Spill Response

The following procedures apply to all areas of public access, except school buildings, in which there has been a release of asbestos fibers due to a breach of the containment barrier on an abatement project, or due to any cause other than abatement of asbestos. For fiber release episodes in schools, see Section **IV.** (School Requirements). Disturbance of asbestos-containing material (ACM) in amounts greater than the trigger levels constitutes a major spill. Disturbance of ACM in amounts less than the trigger levels constitutes a minor spill.

III.T.1. Spill

In the event of a spill involving disturbance of suspect materials in an amount greater than the trigger levels:

- III.T.1.a. If disturbed materials are already known to be or will be assumed to be asbestos containing, the facility owner, operator or contractor who discovered or created the disturbance must immediately comply with subsection III.T.2. and submit to the Division and the facility owner or operator the form titled "Major Asbestos Spill Notification Form" as specified by the Division.
- III.T.1.b. If the asbestos content of the disturbed material(s) is unknown, the facility owner, operator or contractor must immediately contact a Colorado- certified Asbestos Building Inspector to collect and submit for analysis bulk samples in accordance with subsection III.A.4. The inspection report must identify if the amount of ACM disturbed constitutes a major or minor asbestos spill. The asbestos building inspector who identifies a major asbestos spill must immediately notify the facility owner, operator or contractor and within 24 hours, submit to the Division and the facility owner or operator the form titled "Major Asbestos Spill Notification Form" as specified by the Division.

III.T.2. Major Asbestos Spills

In the event of an asbestos spill involving greater than the trigger levels of ACM, the facility owner, facility operator or contractor must:

III.T.2.a. Restrict access to the area and post warning signs to prevent entry to the area by persons other than those necessary to respond to the incident;

III.T.2.b. Shut off or temporarily modify the air handling system to prevent the distribution of asbestos fibers to other areas;

III.T.2.c. Spill Delineation

III.T.2.c.(i) Indoor Spill Delineation

Unless the entire facility is to be treated as a major asbestos spill, a Colorado-certified Air Monitoring Specialist (AMS) must determine the extent of the spill area. This may be done using visual examination, air samples, microvacuum dust samples, wipe samples or a combination thereof. If visible dust or debris is observed, directly related to or resulting from the known or assumed ACM which created the major asbestos spill, areas where it is observed must be included in the abatement of the spill.

III.T.2.c.(ii) Outdoor Spill Delineation

The AMS must identify the extent of any debris and any surface contaminated by debris generated by the spill. This may be done using visual examination, microvacuum dust samples, wipe samples or a combination thereof. If visible dust or debris is observed, directly related to or resulting from the known or assumed ACM which created the major asbestos spill, areas where it is observed must be included in the abatement of the spill.

III.T.2.c.(iii) Samples must be collected and analyzed quantitatively by TEM using the following methods:

III.T.2.c.(iii)(A) Air samples must be collected and analyzed in accordance with the procedures specified in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010) "Interim Transmission Electron Microscopy Analytical Methods."

III.T.2.c.(iii)(B) Microvacuum samples must be collected and analyzed in accordance with the procedures specified in the ASTM International Method D5755-09 (Reapproved April 2014), "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading."

III.T.2.c.(iii)(C) Wipe samples must be collected and analyzed in accordance with the procedures specified in the ASTM International Method D6480-19 (January 2019), "Standard Test Method for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy."

- III.T.2.d. The General Abatement Contractor (GAC) selected to perform the cleanup of the spill must:
- III.T.2.d.(i) Submit notification in accordance with subsection III.E. (Notifications) or subsection III.G. (Permits), whichever is applicable, to the Division for approval.
 - III.T.2.d (ii) Using certified Workers and Supervisors, in accordance with Section II. (Certification Requirements), construct a containment in accordance with the following mandatory subsections, which must be followed in the exact sequence shown:
 - III.T.2.d.(ii)(A) Construct the decontamination unit in accordance with subsection III.K. (Decontamination Unit).
 - III.T.2.d.(ii)(B) Install critical barriers in accordance with subsection III.I. (Critical Barrier Installation)
 - III.T.2.d.(ii)(C) Comply with the requirements of subsection III.J. (Air Cleaning and Negative Pressure Requirements)
 - III.T.2.d.(iii) HEPA vacuum then steam clean all carpets, drapes upholstery and other non-clothing fabrics in the contaminated area or discard these materials in accordance with subsection III.R. (Waste Handling)
 - III.T.2.d.(iv) Launder or discard all contaminated clothing in accordance with subsection III.R. (Waste Handling)
 - III.T.2.d.(v) HEPA vacuum or wet wipe with clean amended water all hard surfaces in the contaminated area
 - III.T.2.d.(vi) Discard all waste in accordance with subsection III.R. (Waste Handling)
 - III.T.2.d.(vii) Ensure items cleaned as part of the spill response are included in the clearance process.
- III.T.2.e. All persons must comply with any other measures, provided in writing by the Division, which are deemed necessary to protect public health.
- III.T.2.f. Following completion of Sections III.T.2.d.(i) through III.T.2.e., the AMS must comply with air monitoring requirements as described in Section III.P. (Clearing Abatement Projects); air samples must be collected aggressively as described in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010), except that the air stream of the leaf blower must not be directed at any friable ACM that remains in the area.
- III.T.2.g. Gross removal of additional ACM may not be conducted under Section III.T.2. Any remaining gross removal of ACM must be abated in accordance with Section III.H. (Abatement Sequence). If additional ACM is to be removed, the final air sampling required in Section III.T.2.f. is not required to be conducted until after the additional removal is completed.

III.U. Maximum Allowable Asbestos Level

At any time, the maximum allowable asbestos level (MAAL) must not be exceeded in any area of public access.

All air monitoring required under this regulation must be performed by certified Air Monitoring Specialists independent of the General Abatement Contractor (GAC) to avoid possible conflict of interest.

III.U.1. Monitoring for the MAAL

III.U.1.a. In Occupied Buildings

For purposes of this Section III.U.1, air monitoring must be conducted during normal occupancy and samples must not be collected in an aggressive manner.

III.U.1.b. During Abatement

III.U.1.b.(i) Exhausting Negative Air Machines (NAM)s in a Building

If air from NAMs must be exhausted to the interior of the building, air samples must be collected and analyzed by Phase Contrast Microscopy (PCM) or any equivalent method approved by the Division each day abatement activities are occurring. The sample results must meet the requirements of Section III.U (Maximum Allowable Asbestos Level). In the event that the maximum allowable asbestos level is exceeded, all of the requirements of Section III.T (Asbestos Spill Response) must be met.

III.U.1.b.(ii) Outside Containment

If samples are collected outside a containment and the airborne fiber levels outside a containment in an area of public access exceed the MAAL when analyzed by PCM, the GAC must either treat the affected area as an asbestos spill and comply with all the requirements in Section III.T (Asbestos Spill Response) or, reanalyze the samples by transmission electron microscopy (TEM) analysis in accordance with 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010), within 24 hours. If the MAAL is exceeded by TEM, comply with Section III.T (Asbestos Spill Response).

III.U.2. The Maximum Allowable Asbestos Level (MAAL)

III.U.2.a. PCM

If PCM is used as the method of analysis the standard is 0.01 fibers per cubic centimeter of air (f/cc), which is equivalent to 10,000 fibers per cubic meter of air (f/m³). The NIOSH 7400 Method entitled "Asbestos and other Fibers by PCM" published in the NIOSH Manual of Analytical Methods, 5th Edition, Third Supplement, June 14, 2019, shall be used to analyze samples. The number of samples to be collected must be determined by the certified Air Monitoring Specialist.

III.U.2.b. TEM

Where TEM is used as the method of analysis, the standard is 70 structures/millimeter² (s/mm²). TEM analysis must be conducted pursuant to the protocol in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010).

III.U.2.c. Elevated Ambient Levels

Notwithstanding the provisions of Sections III.U.1.b.(i) and III.U.1.b.(ii), if the asbestos fiber level in the outside ambient air which is adjacent to an asbestos project site or in an area of public access exceeds 70 s/mm² using TEM analysis or 0.01 fibers per cubic centimeter of air (10,000 f/m³) using PCM analysis, whichever is applicable, the existing asbestos level in such air will be the maximum allowable asbestos level.

III.U.3. What to do if the MAAL is Exceeded

III.U.3.a. Second Set by TEM

In the event that airborne asbestos fiber levels exceed the MAAL when analyzed by PCM, a second set of samples may be collected during normal occupancy, analyzed by TEM analysis, and calculated as an eight-hour time-weighted average (TWA) in accord with 29 C.F.R. Part 1910.1000(d)(1)(i), before any order of abatement is issued. The TEM sample(s) must be collected in the same location(s) as the original PCM sample(s) and analyzed within 24 hours of the PCM sample(s).

III.U.3.b. Outside Containment

In the event that airborne fiber levels outside a containment in an area of public access exceed the MAAL when analyzed by PCM, the GAC must either treat the affected area as an asbestos spill and comply with all the requirements in Section III.T (Asbestos Spill Response) or, reanalyze the samples by TEM analysis in accordance with 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010), within 24 hours. If the MAAL is exceeded by TEM, comply with Section III.T (Asbestos Spill Response).

III.V. Special Removal Methods

This Section III.V applies to asbestos abatement projects in areas of public access where the amount of asbestos-containing material (ACM) that will be abated exceeds the trigger levels.

III.V.1. Glovebag Removal

Glovebag removal methods will only be allowed where the glovebag can be installed such that it completely surrounds the ACM to be removed without causing a fiber release.

III.V.1.a. Glovebags must be at least 6-mil polyethylene in thickness and must be seamless at the bottom.

III.V.1.b. Glovebags must not be used in situations where the glovebag could come into contact with surfaces that exceed 150° Fahrenheit.

III.V.1.c. Glovebags may be used only once and may not be moved.

III.V.1.d. For glovebag removals the General Abatement Contractor (GAC) must:

III.V.1.d.(i) erect secondary containment barriers where the amount of ACM to be removed in a functional space exceeds three (3) linear or three (3) square feet. In the event of a spill or a breach of the glovebag, the entire area enclosed by the secondary containment must be cleaned utilizing HEPA vacuuming and wet wiping with all debris, filters, mop heads, and cloths disposed of as asbestos-containing waste material (ACWM) in leak tight containers;

- III.V.1.d.(ii) tape or otherwise seal the glovebag to the area from which asbestos is to be removed. Glovebags must be smoke tested for leaks and any leaks sealed prior to use;
- III.V.1.d.(iii) adequately wet, then remove, the asbestos-containing material from the surface;
- III.V.1.d.(iv) adequately wet any ACM that has fallen from the surface into the enclosed bag using an airless sprayer and amended water or other materials or equipment equally effective in wetting;
- III.V.1.d.(v) thoroughly clean and wet wipe the surface until no traces of ACM can be seen;
- III.V.1.d.(vi) encapsulate the rough edges of any ACM that will remain on the surface after the glovebag has been removed. This must be done prior to the removal of the glovebag.;
- III.V.1.d.(vii) evacuate the air from the glovebag using a HEPA filter-equipped vacuum prior to removing the glovebag;
- III.V.1.d.(viii) ensure that the final visual inspection and clearance air monitoring requirements of Section III.P. (Clearing Abatement Projects) are met;
- III.V.1.d.(ix) handle and dispose of all waste materials as required in Section III.R (Waste Handling).

III.V.2. Facility Component Removal

Only those facility components on which the ACM is well adhered to the component may be taken out of the facility as units or in sections and be exempt from the containment requirements in Section III.N (Containment Components) provided that the GAC:

- III.V.2.a. Adequately wet the facility component pursuant to Section III.O.1.a.(i) (Wetting) then wrap the facility component in six (6) mil polyethylene prior to removing the facility component; and
- III.V.2.b. Ensure that the abatement project is cleared as required in Section III.P. (Clearing Abatement Projects) and that the ACWM is disposed of as required in Section III.R. (Waste Handling). The use of a secondary containment to facilitate the required air clearance monitoring is recommended, but not required.
- III.V.2.c. If the components are to be stripped after being removed from the containment, the GAC must comply with Sections I. (Definitions), II. (Certification Requirements) and III (Abatement, Renovation and Demolition Projects).

III.W. Structurally Unsound Facilities

For facilities, or any portions thereof, described in Section III.E.4., the Division may suspend any abatement work practice requirements, which may endanger personnel who will be removing the asbestos. The General Abatement Contractor (GAC) must apply for a variance from the Division in accordance with the requirements of Section III.F. (Alternative Procedures and Variances). During wrecking operations, the facility must be kept adequately wet commencing from the start of the project through delivery of the asbestos-containing waste material to a landfill that will accept friable asbestos-containing material (ACM).

III.W.1. The variance request must be accompanied by:

III.W.1.a. An asbestos inspection report completed by a Colorado certified Asbestos Building Inspector in compliance with Section III.A. or an acknowledgement that the entire facility and the associated debris are assumed to be ACM.

III.W.1.b. A completed Asbestos Abatement Notification Application form and a completed Demolition Notification Application Form

III.W.1.c. A completed Structurally Unsound Facility form. Photos of the site depicting the structural damage to the facility must be provided.

III.W.2. At minimum, the variance request for the demolition and abatement of a structurally unsound facility must address the following elements in detail:

III.W.2.a. An overall site plan/diagram or aerial photograph showing locations of the structurally unsound facility, wind fencing, haul routes, loading pads, personnel and equipment decontamination facilities, proposed air sample locations, and adjacent structures within 150' or less from the structure.

III.W.2.b. The abatement site demarcation and containment including wind and water control

III.W.2.c. A list of equipment to be used to handle asbestos-contaminated waste or soil.

III.W.2.d. An acknowledgement of staff training and certification (in accordance with Section II),

III.W.2.e. The decontamination unit construction (in accordance with Section III.K.1) and decontamination procedures and personal protective equipment (in accordance with Section III.K.2.).

III.W.2.f. A description of engineering controls to be used to control visible emissions including wetting and dust suppression procedures

III.W.2.g. A description of removal methods including demolition procedures (if applicable)

III.W.2.h. Procedures for handling and packaging waste and transportation and disposal of waste.

III.W.2.i. Spill procedures to be undertaken if ACM is released from the demarcated abatement site.

- III.W.2.j. Wind Conditions
 - III.W.2.j.(i) All wind speed measurements must be taken outside any windscreens or fencing in locations in close proximity to the abatement area utilizing an approved hand-held device
 - III.W.2.j.(ii) Activities involving the removal or disturbance of ACM must immediately cease when one or more of the following site conditions occurs:
 - III.W.2.j.(ii)(A) A wind gust equal to or greater than 20 miles per hour.
 - III.W.2.j.(ii)(B) Sustained wind speeds equal to or greater than 12 mph averaged over a period of 10 minutes.
 - III.W.2.j.(ii)(C) Winds producing visible emissions or creating movement of dust or debris in the abatement site.
 - III.W.2.j.(ii)(D) Winds impacting any site engineering controls.
 - III.W.2.j.(iii) Activities involving the removal or disturbance of ACM may resume when all of the following site conditions are met:
 - III.W.2.j.(iii)(A) Wind gust readings for a period of 20 minutes drop below 20 miles per hour as determined by hand-held instruments.
 - III.W.2.j.(iii)(B) Sustained wind speeds are below 12 mph averaged over a period of 20 minutes.
 - III.W.2.j.(iii)(C) Winds are no longer producing visible emissions or creating movement of dust in the abatement site, and
 - III.W.2.j.(iii)(D) Winds are not impacting any site engineering controls.
- III.W.2.k. An air monitoring plan containing the following information:
 - III.W.2.k.(i) Description of the equipment to be used and proposed analytical method for collection and analysis.
 - III.W.2.k.(ii) Project shut-down and restart criteria.
- III.W.2.l. A cold weather wetting plan (if applicable).
- III.W.2.m. Abatement site visual clearance procedures.
- III.W.2.n. Final demobilization procedures including decontamination of equipment

III.X. Exemptions

The following sections of the regulation contain exemptions from certain requirements. Please refer to the indicated section for the specific details of the exemption.

- If the asbestos-containing material to be abated is less than the trigger levels, then only Section III.R. (Waste Handling) applies in Section III.

- Inspection requirements may be exempt if the architect or project engineer responsible for the construction of the building, or a Colorado certified asbestos building Inspector certifies a building constructed after October 12, 1988 to be asbestos-free. See Section III.A.1.d.
- If you own a Single-family residential dwelling (SFRD) that is your primary residence and you choose to do the abatement yourself, certification is not required. See Section III.B.1.c.
- A Project Manager doesn't need to be independent of the General Abatement Contractor (GAC) if the project manager and GAC are working in-house. See Section III.D.2.
- If you own a SFRD, which is your primary residence, you may opt out of having your SFRD deemed an area of public access. See Section III.E.3.
- There are three situations in which a Negative Air Machine (NAM) does not have to be fitted with a HEPA filter. See Section III.J.1.c.
- Certain materials are exempted from many of the abatement requirements. See Section III.S (Abatement of Special Materials).
- While performing facility component removal, full containment is not required. See Section III.V.2 (Facility Component Removal).

IV. School Requirements

IV.A. Scope and Purpose

The requirements in this section of the regulation mirrors the Asbestos Hazard Emergency Response Act of 1986 (AHERA) (15 U.S.C. 2646) that was enacted to identify, manage and reduce exposure to asbestos in schools.

This section of the regulation requires local education agencies to identify friable and nonfriable asbestos-containing material (ACM) in public and private elementary and secondary schools by visually inspecting school buildings for such materials, sampling such materials if they are not assumed to be ACM, and having samples analyzed by appropriate techniques referred to in this rule. The rule requires local education agencies to submit management plans to the Colorado Department of Public Health and Environment, Air Pollution Control Division by October 12, 1988, or if a deferral is applied for and received from the Division, May 9, 1989. The LEA must begin to implement the plans by July 9, 1989, and complete implementation of the plans in a timely fashion. In addition, local education agencies are required to use persons who have been certified to conduct inspections, reinspections, develop management plans, or perform response actions. The rule also includes recordkeeping requirements. LEAs may contractually delegate their duties under this rule, but they remain responsible for the proper performance of those duties. Local education agencies are encouraged to consult with the EPA Regional Asbestos Coordinator or the Division for assistance in complying with this rule.

- IV.A.1. Local education agencies must provide for the transportation of asbestos in accordance with Section III. of this regulation. Disposal of asbestos-containing waste is governed by rules promulgated by the Colorado Board of Health, and implemented by the Department's Hazardous Materials and Waste Management Division.

IV.B. General LEA Responsibilities

Each LEA shall:

- IV.B.1. Ensure that the activities of any persons who perform inspections, reinspections, and periodic surveillance, develop and update management plans, and develop and implement response actions, including operations and maintenance, are carried out in accordance with Section IV. of this Regulation Number 8.
- IV.B.2. Ensure that all custodial and maintenance employees are properly trained as required by this Section IV. and other applicable Federal and/or State regulations (e.g., the Occupational Safety and Health Administration asbestos standard for construction, and the EPA Worker protection rule.)
- IV.B.3. Ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about inspections, response actions, and post-response action activities, including periodic reinspection and surveillance activities that are planned or in progress.
- IV.B.4. Ensure that short-term workers (e.g., telephone repair workers, utility workers, or exterminators) who may come in contact with asbestos in a school are provided information regarding the locations of ACBM and suspected ACBM assumed to be ACM. Documentation of these notifications shall become part of the management plan.
- IV.B.5. Ensure that warning labels are posted in accordance with Section IV.L. (Warning Labels).
- IV.B.6. Ensure that management plans are available for inspection and notification of such availability has been provided as specified in the management plan under Section IV.J. (School Management Plans)
- IV.B.7. Designated Person
 - IV.B.7.a. Designate a person to ensure that requirements under this section are properly implemented.
 - IV.B.7.b. Ensure that the designated person receives adequate training to perform duties assigned under Section IV.B. Such training shall provide, as necessary, basic knowledge of:
 - IV.B.7.b.(i) Health effects of asbestos.
 - IV.B.7.b.(ii) Detection, identification, and assessment of ACM.
 - IV.B.7.b.(iii) Options for controlling ACM.
 - IV.B.7.b.(iv) Asbestos management programs.
 - IV.B.7.b.(v) Relevant Federal and State regulations concerning asbestos, including those in this Commission Regulation Number 8 and those of the Occupational Safety and Health Administration, U.S. Department of Labor, the U.S. Department of Transportation and the U.S. Environmental Protection Agency.
- IV.B.8. Consider whether any conflict of interest may arise from the interrelationship among certified personnel and whether that should influence the selection of certified personnel to perform activities under this section.

IV.C. Inspection and Reinspection

IV.C.1. Inspection

IV.C.1.a. Except as provided in Section IV.C.1.b. below, before October 12, 1988 or by May 9, 1989, if a deferral has been applied for and received from the Division, local education agencies shall inspect each school building that they lease, own, or otherwise use as a school building to identify all locations of friable and nonfriable ACM.

IV.C.1.b. Any building leased or acquired on or after October 12, 1988, that is to be used as a school building shall be inspected as described under Sections IV.C.1.c. and IV.C.1.d. prior to use as a school building. In the event that emergency, use of an uninspected building as a school building is necessitated, such buildings shall be inspected within 30 days after commencement of such use.

IV.C.1.c. Each inspection shall be made by a certified Inspector.

IV.C.1.d. For each area of a school building, except as excluded under Section IV.M. (Exclusions), each person performing an inspection shall:

IV.C.1.d.(i) Visually inspect the area to identify the locations of all suspected ACM.

IV.C.1.d.(ii) Touch all suspected ACM to determine whether they are friable.

IV.C.1.d.(iii) Identify all homogeneous areas of friable suspected ACBM and all homogeneous areas of nonfriable suspected ACM.

IV.C.1.d.(iv) Assume that some or all of the homogeneous areas are ACM, and, for each homogeneous area that is not assumed to be ACM, collect and submit for analysis bulk samples under Sections IV.D. (Sampling) and IV.E. (Analysis).

IV.C.1.d.(v) Assess, under Section IV.F. (Assessment), friable material in areas where samples are collected, friable material in areas that are assumed to be ACM, and friable ACM identified during a previous inspection.

IV.C.1.d.(vi) Record the following and submit to the person designated under Section IV.B. (General LEA Responsibilities) a copy of such record for inclusion in the management plan within 30 days of the inspection:

IV.C.1.d.(vi)(A) An inspection report with the date of the inspection signed by each certified person making the inspection, and his or her certification number.

IV.C.1.d.(vi)(B) An inventory of the locations of the homogeneous areas where samples are collected, exact location where each bulk sample is collected, dates that samples are collected, homogeneous areas where friable suspected ACBM is assumed to be ACM, and homogeneous areas where nonfriable suspected ACBM is assumed to be ACM.

IV.C.1.d.(vi)(C) A description of the manner used to determine sampling locations, the name and signature of each certified Inspector who collected the samples, and his or her certification number.

IV.C.1.d.(vi)(D) A list of whether the homogeneous areas identified under sub clause IV.C.1.d.(vi)(B) are surfacing material, thermal system insulation, or miscellaneous material.

IV.C.1.d.(vi)(E) Assessments made of friable material, the name and signature of each certified Inspector making the assessment, and his or her certification number.

IV.C.2. Reinspection

IV.C.2.a. At least once every three years after a management plan is in effect, each LEA shall conduct a reinspection of all friable and nonfriable known or assumed ACBM in each school building that they lease, own, or otherwise use as a school building.

IV.C.2.b. Each inspection shall be made by a certified Inspector.

IV.C.2.c. For each area of a school building, each person performing a reinspection shall:

IV.C.2.c.(i) Visually reinspect, and reassess, under Section IV.F. (Assessment) the condition of all friable known or assumed ACBM.

IV.C.2.c.(ii) Visually inspect material that was previously considered nonfriable ACBM and touch the material to determine whether it has become friable since the last inspection or reinspection.

IV.C.2.c.(iii) Identify any homogeneous areas with material that has become friable since the last inspection or reinspection.

IV.C.2.c.(iv) For each homogeneous area of newly friable material that is already assumed to be ACBM, bulk samples may be collected and submitted for analysis in accordance with Sections IV.D. (Sampling) and IV.E. (Analysis).

IV.C.2.c.(v) Assess, under Section IV.F. (Assessment), the condition of the newly friable material in areas where samples are collected, and newly friable materials in areas that are assumed to be ACBM.

IV.C.2.c.(vi) Reassess, under Section IV.F. (Assessment), the condition of friable known or assumed ACBM previously identified.

IV.C.2.c.(vii) Record the following and submit to the person designated under Section IV.B. (General LEA Responsibilities), a copy of such record for inclusion in the management plan within 30 days of the reinspection:

IV.C.2.c.(vii)(A) The date of the reinspection, the name and signature of the person making the reinspection, his or her certification number, and any changes in the condition of known or assumed ACBM.

IV.C.2.c.(vii)(B) The exact locations where samples are collected during the reinspection, a description of the manner used to determine sampling locations, the name and signature of each certified Inspector who collected the samples, and his or her certification number.

IV.C.2.c.(vii)(C) Any assessments or reassessments made of friable material, the name and signature of the certified Inspector making the assessments, and his or her certification number.

IV.C.3. General

Thermal system insulation that has retained its structural integrity and that has an undamaged protective jacket or wrap that prevents fiber release shall be treated as nonfriable and therefore is subject only to periodic surveillance and preventive measures as necessary.

IV.D. Sampling

IV.D.1. Surfacing Material

A certified Inspector shall collect, in a statistically random manner that is representative of the homogeneous area, bulk samples from each homogeneous area of friable surfacing material that is not assumed to be ACM, and shall collect the samples as follows:

IV.D.1.a. At least three bulk samples shall be collected from each homogeneous area that is 1,000 ft², or less, except as provided in Section IV.E.3.b.

IV.D.1.b. At least five bulk samples shall be collected from each homogeneous area that is greater than 1,000 ft² but less than or equal to 5,000 ft², except as provided in Section IV.E.3.b.

IV.D.1.c. At least seven bulk samples shall be collected from each homogeneous area that is greater than 5,000 ft², except as provided in Section IV.E.3.b.

IV.D.1.d. Sampling of friable surfacing materials should follow the guidance provided in the EPA publication "Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a) (1985).

IV.D.2. Thermal System Insulation

IV.D.2.a. Except as provided in Sections IV.D.2.b. through IV.D.2.d., a certified Inspector shall collect, in a randomly distributed manner, at least three bulk samples from each homogeneous area of thermal system insulation that is not assumed to be ACM.

IV.D.2.b. Collect at least one bulk sample from each homogeneous area of patched thermal system insulation that is not assumed to be ACM if the patched section is less than 6 linear or square feet.

IV.D.2.c. In a manner sufficient to determine whether the material is ACM or not ACM, collect bulk samples from each insulated mechanical system that is not assumed to be ACM where cement or plaster is used on fittings such as tees, elbows, or valves, except as provided under Section IV.E.3.b., analysis.

IV.D.2.d. Bulk samples are not required to be collected from any homogeneous area where the certified Inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACBM.

IV.D.3. Miscellaneous Material

In a manner sufficient to determine whether material is ACM or not ACM, a certified Inspector shall collect bulk samples from each homogeneous area of friable miscellaneous material that is not assumed to be ACM.

IV.D.4. Nonfriable suspected ACBM

If any homogeneous area of nonfriable suspected ACBM is not assumed to be ACM, then a certified Inspector shall collect, in a manner sufficient to determine whether the material is ACM or not ACM, bulk samples from the homogeneous area of nonfriable suspected ACBM that is not assumed to be ACM.

IV.E. Analysis

IV.E.1. Local education agencies shall have bulk samples, collected under Section IV.D. (Sampling) and submitted for analysis, analyzed for asbestos using laboratories accredited by the National Institute of Standards and Technology (NIST). Local education agencies shall use laboratories which have received interim accreditation for polarized light microscopy analysis under the EPA Interim Asbestos Bulk Sample Analysis Quality Assurance Program until the National Institute of Standards and Technology (NIST) PLM laboratory accreditation program for PLM is operational.

IV.E.2. Bulk samples shall not be composited for analysis and shall be analyzed for asbestos content by PLM, using the United States Environmental Protection Agency's August 1994 Method EPA/600/R-93/116J "Method for the Determination of Asbestos in Bulk Building Materials."

IV.E.3. Interpreting Bulk Sample Results

IV.E.3.a. A homogeneous area is considered not to contain ACM only if the results of all samples required to be collected from the area show asbestos in amounts of one percent or less.

IV.E.3.b. A homogeneous area shall be determined to contain ACM based on a finding that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than one percent.

IV.E.4. The name and address of each laboratory performing an analysis, the date of analysis, and the name and signature of the person performing the analysis shall be submitted to the person designated under Section IV.B. (General LEA Responsibilities) for inclusion into the management plan within 30 days of the analysis.

IV.F. Assessment

IV.F.1. [Untitled]

- IV.F.1.a. For each inspection and reinspection conducted under Sections IV.C.1. and IV.C.2. (Inspections/Reinspections), and previous inspections specified under Section IV.M. (Exclusions), the LEA shall have a certified Inspector provide a written assessment of all friable known or assumed ACBM in the school building.
- IV.F.1.b. Each certified Inspector providing a written assessment shall sign and date the assessment, provide his or her certification number, and submit a copy of the assessment to the person designated under Section IV.B. (General LEA Responsibilities) for inclusion in the management plan within 30 days of the assessment.
- IV.F.2. The Inspector shall classify and give reasons in the written assessment for classifying the ACBM and suspected ACBM assumed to be ACM in the school building into one of the following categories:
 - IV.F.2.a. Damaged or significantly damaged thermal system insulation ACM.
 - IV.F.2.b. Damaged friable surfacing ACM.
 - IV.F.2.c. Significantly damaged friable surfacing ACM.
 - IV.F.2.d. Damaged or significantly damaged friable miscellaneous ACM.
 - IV.F.2.e. ACBM with potential for damage.
 - IV.F.2.f. ACBM with potential for significant damage.
 - IV.F.2.g. Any remaining friable ACBM or friable suspected ACBM.
- IV.F.3. Assessment may include the following considerations:
 - IV.F.3.a. Location and the amount of the material, both in total quantity and as a percentage of the functional space.
 - IV.F.3.b. Condition of the material, specifying:
 - IV.F.3.b.(i) Type of damage or significant damage (e.g., flaking, blistering, water damage, or other signs of physical damage).
 - IV.F.3.b.(ii) Severity of damage (e.g., major flaking, severely torn jackets, as opposed to occasional flaking, minor tears to jackets).
 - IV.F.3.b.(iii) Extent or spread of damage over large areas or large percentages of the homogeneous area.
 - IV.F.3.c. Whether the material is accessible.
 - IV.F.3.d. The material's potential for disturbance.
 - IV.F.3.e. Known or suspected causes of damage or significant damage (e.g., air erosion, vandalism, vibration, water).
 - IV.F.3.f. Preventive measures, which might eliminate the reasonable likelihood of undamaged ACM from becoming significantly damaged.

IV.F.3.g. The LEA shall select a person certified to develop management plans to review the results of each inspection, reinspection, and assessment for the school building and to conduct any other necessary activities in order to recommend in writing to the LEA appropriate response actions. The certified person shall sign and date the recommendation, and provide his or her certification number, and submit a copy of the recommendation to the person in the management plan.

IV.G. Response Actions

IV.G.1. The LEA shall select and implement in a timely manner the appropriate response actions in this section consistent with the assessment conducted in Section IV.F. The response actions selected shall be sufficient to protect human health and the environment. The LEA may then select, from the response actions, which protect human health and the environment, that action which is the least burdensome method. Nothing in this section shall be construed to prohibit removal of ACBM from a school building at any time, should removal be the preferred response action of the LEA.

IV.G.2. If damaged or significantly damaged thermal system insulation ACM is present in a building, the LEA shall:

IV.G.2.a. At least repair the damaged area.

IV.G.2.b. Remove the damaged material if it is not feasible, due to technological factors, to repair the damage.

IV.G.2.c. Maintain all thermal system insulation ACM and its covering in an intact state and undamaged condition.

IV.G.3. Selecting the Response Action

IV.G.3.a. If damaged friable surfacing ACM or damaged friable miscellaneous ACM is present in a building, the LEA shall select from among the following response actions: encapsulation, enclosure, removal, or repair of the damaged material.

IV.G.3.b. In selecting the response action from among those, which meet the definitional standards in Section IV.I. (Training & Periodic Surveillance) the LEA shall determine which of these response actions protects human health and the environment. For purposes of determining which of these response actions are the least burdensome, the LEA may then consider local circumstances, including occupancy and use patterns within the school building, and its economic concerns, including short- and long-term costs.

IV.G.4. If significantly damaged friable surfacing ACM or significantly damaged friable miscellaneous ACM is present in a building the LEA shall:

IV.G.4.a. Immediately isolate the functional space and restrict access, unless isolation is not necessary to protect human health and the environment.

IV.G.4.b. Remove the material in the functional space or, depending upon whether enclosure or encapsulation would be sufficient to protect human health and the environment, enclose or encapsulate.

- IV.G.5. If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for damage is present in a building, the LEA shall at least implement an operations and maintenance (O&M) program, as described under Section IV.H. (Operations & Maintenance).
- IV.G.6. If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for significant damage is present in a building, the LEA shall:
- IV.G.6.a. Implement an O&M program, as described under Section IV.H. (Operations & Maintenance).
- IV.G.6.b. Institute preventive measures appropriate to eliminate the reasonable likelihood that the ACM or its covering will become significantly damaged, deteriorated, or delaminated.
- IV.G.6.c. Remove the material as soon as possible if appropriate preventive measures cannot be effectively implemented, or unless other response actions are determined to protect human health and environment. Immediately isolate the area and restrict access if necessary to avoid an imminent and substantial endangerment to human health or the environment.
- IV.G.7. Response actions including removal, encapsulation, enclosure, or repair, other than small-scale, short-duration repairs, shall be designed and conducted by persons certified to design and conduct response actions.
- IV.G.8. The requirements of this Section IV. of Regulation Number 8 in no way supersede the Worker Protection and work practice requirements under 29 C.F.R. 1926.58 (Occupational Safety and Health Administration (OSHA 1988) Asbestos, 40 C.F.R. Part 763, Subpart G (EPA 1995) (Asbestos Abatement Projects), and 40 C.F.R. Part 61, Subpart M (EPA 1995) (National Emission Standards for Hazardous Air Pollutants-Asbestos) and Section III. of this regulation.
- IV.G.9. Completion of Response Actions.
- IV.G.9.a. At the conclusion of any action to remove, encapsulate, or enclose ACBM or material assumed to be ACBM, a person designated by the LEA shall visually inspect each functional space where such action was conducted to determine whether the action has been properly completed.
- IV.G.9.b. Collection and Analysis of Air Samples
- IV.G.9.b.(i) A person designated by the LEA shall collect air samples using aggressive sampling as described in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 1995), to monitor air for clearance after each removal enclosure and encapsulation project involving ACBM, except for projects that are less than three square or three linear feet.
- IV.G.9.b.(ii) Local education agencies shall have air samples collected under this section analyzed for asbestos using laboratories accredited by the National Bureau of Standards to conduct such analysis using transmission electron microscopy or, under circumstances permitted in this section, laboratories enrolled in the American Industrial Hygiene Association Proficiency Analytical Testing Program for phase contrast microscopy.

IV.G.9.b.(iii) Until the National Bureau of Standards TEM laboratory accreditation program is operational, local educational agencies shall use laboratories that use the protocol described in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 1995).

IV.G.9.c. Except as provided in Sections IV.G.9.d., IV.G.9.e., IV.G.9.f., or IV.G.9.g. of this subsection, an action to remove, encapsulate, or enclose ACBM shall be considered complete when the average concentration of asbestos of five air samples collected within the affected functional space and analyzed by the TEM method in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 1995), is not statistically significantly different, as determined by the Z-test calculation found in Appendix A from the average asbestos concentration of five air samples collected at the same time outside the affected functional space and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in Appendix A is below the filter background level, as defined in Appendix A, of 70 structures per square millimeter (70 s/mm²).

IV.G.9.d. An action may also be considered complete if the volume of air drawn for each of the five samples collected within the affected functional space is equal to or greater than 1,199 L of air for a 25mm filter or equal to or greater than 2,799 L of air for a 37 mm filter, and the average concentration of asbestos as analyzed by the TEM method in 40 C.F.R. Part 763, Appendix A to Subpart E (1995), for the five air samples does not exceed the filter background level, as defined in Appendix A, of 70 structures per square millimeter (70 s/mm²). If the average concentration of asbestos of the five air samples within the affected functional space exceeds 70 s/mm², or if the volume of air in each of the samples is less than 1,199 L of air for a 25 mm filter or less than 2,799 L of air for a 37 mm filter, the action shall be considered complete only when the requirements of Sections IV.G.9.c., IV.G.9.e., IV.G.9.f, or IV.G.9.g. of this section are met.

IV.G.9.e. At any time, a LEA may analyze air monitoring samples collected for clearance purposes by phase contrast microscopy to confirm completion of removal, encapsulation, or enclosure of ACBM that is greater than small-scale, short-duration and less than or equal to the trigger levels. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by phase contrast microscopy using the National Institute for Occupational Safety and Health (NIOSH) Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.01 fibers per cubic centimeter (0.01 f/cm³, 10,000 f/m³) of air). The method is available at the Office of the Air Quality Control Commission.

IV.G.9.f. Until October 7, 1989, a LEA may analyze air-monitoring samples collected for clearance purposes by PCM to confirm completion of removal, encapsulation, or enclosure of ACBM that is less than or equal to 3,000 square feet or 1,000 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by PCM using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.01 fibers per cubic centimeter, 0.01 f/cm³, 10,000 f/m³). The method is available at the Office of the Colorado Air Quality Control Commission.

IV.G.9.g. From October 8, 1989, to October 7, 1990, a LEA may analyze air monitoring samples collected for clearance purposes by PCM to confirm completion of removal, encapsulation, or enclosure of ACBM that is less than or equal to 1,500 square feet or 500 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by PCM using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantification for PCM (0.01 fibers per cubic centimeter, 0.01 f/cm³, 10,000 f/m³). The method is available at the Office of the Colorado Air Quality Control Commission.

IV.G.9.h. To determine the amount of ACBM affected under Sections IV.G.9.e., IV.G.9.f., or IV.G.9.g. of this subsection, the LEA shall add the total square or linear footage of ACBM within the containment barriers used to isolate the functional space for the action to remove, encapsulate, or enclose the ACBM. Contiguous portions of material subject to such action conducted concurrently or at approximately the same time within the same school building shall not be separated to qualify under Sections IV.G.9.e., IV.G.9.f., or IV.G.9.g. of this subsection.

IV.G.9.i. All monitoring and final visual inspections required under this regulation shall be performed by certified air monitoring specialists independent of the GAC to avoid possible conflict of interest.

IV.H. Operations and Maintenance

IV.H.1. Applicability

The LEA shall implement an operation, maintenance, and repair (O&M) program under this section whenever any friable ACBM is present or assumed to be present in a building that it leases, owns, or otherwise uses as a school building. Any material identified as nonfriable ACBM or nonfriable assumed ACBM must be treated as friable ACBM for purposes of this section when the material is about to become friable as a result of activities performed in the school building.

IV.H.2. Cleaning

IV.H.2.a. Initial Cleaning

Unless the building has been cleaned using equivalent methods within the previous six months, all areas of a school building where friable ACBM, damaged or significantly damaged thermal system insulation ACM, or friable suspected ACBM assumed to be ACM are present shall be cleaned at least once after the completion of the inspection required by Section IV.C.1 and before the initiation of any response action, other than O&M activities or repair, according to the following procedures:

IV.H.2.a.(i) HEPA vacuum or steam-clean all carpets.

IV.H.2.a.(ii) HEPA vacuum or wet-clean all other floor and all other horizontal surfaces.

IV.H.2.a.(iii) Dispose of all debris, filters, mop heads, and cloths in sealed, leak-tight containers.

IV.H.2.b. Additional Cleaning

The certified management planner shall make a written recommendation to the LEA whether additional cleaning is needed, and if so, the methods and frequency of such cleaning.

IV.H.3. Operations and Maintenance Activities

The LEA shall ensure that the procedures described to protect building occupants shall be followed for any operations and maintenance activities disturbing friable ACBM.

IV.H.3.a. Restrict entry into the area by persons other than those necessary to perform the maintenance project, either by physically isolating the area or by scheduling.

IV.H.3.b. Post signs to prevent entry by unauthorized persons.

IV.H.3.c. Shut off or temporarily modify the air-handling system and restrict other sources of air movement.

IV.H.3.d. Use work practices or other controls, such as, wet methods, protective clothing, HEPA vacuums, mini-enclosures, and glovebags, as necessary to inhibit the spread of any released fibers.

IV.H.3.e. Clean all fixtures or other components in the immediate work area.

IV.H.3.f. Place the asbestos debris and other cleaning materials in a sealed, leak-tight container.

IV.H.4. Maintenance Activities Other than Small-Scale, Short-Duration

The response action for any maintenance activities disturbing friable ACBM, other than small-scale, short-duration maintenance activities, shall be designed by persons certified to design response actions and conducted by persons certified to conduct response actions.

IV.H.5. Fiber Release Episodes

IV.H.5.a. Minor fiber release episode-The LEA shall ensure that the procedures described are followed in the event of a minor fiber release episode (i.e., the falling or dislodging of 3 square or linear feet or less of friable ACBM):

IV.H.5.a.(i) Thoroughly saturate the debris using wet methods.

IV.H.5.a.(ii) Clean the area, as described in Section IV.H.2. of this section.

IV.H.5.a.(iii) Place the asbestos debris in a sealed, leak-tight container.

IV.H.5.a.(iv) Repair the area of damaged ACM with materials such as asbestos-free spackling, plaster, cement, or insulation, or seal with latex paint or an encapsulant, or immediately have the appropriate response action implemented as required by Section IV.H.3. (Operations & Maintenance).

- IV.H.5.b. Major fiber release episode- The LEA shall ensure that the procedures described are followed in the event of a major fiber release episode (i.e., the falling or dislodging of more than 3 square or linear feet of friable ACBM):
- IV.H.5.b.(i) Restrict entry into the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.
 - IV.H.5.b.(ii) Shut off or temporarily modify the air-handling system to prevent the distribution of fibers to other areas in the building.
 - IV.H.5.b.(iii) The response action for any major fiber release episode must be designed by persons certified to design response actions and conducted by persons certified to conduct response actions, as specified in Section II.A. (General Requirements).

IV.I. Training and Periodic Surveillance

IV.I.1. Training

IV.I.1.a. The LEA shall ensure, prior to the implementation of the O&M provisions of the management plan, that all members of its maintenance and custodial staff (custodians, electricians, heating/air conditioning engineers, plumbers, etc.) who may work in a building that contains ACBM receive awareness training of at least two hours, whether or not they are required to work with ACBM. New custodial and maintenance employees shall be trained within 60 days after commencement of employment. Annual refresher training shall be provided and documented in the management plan for the school. Training shall include, but not be limited to:

- IV.I.1.a.(i) Information regarding asbestos and its various uses and forms.
- IV.I.1.a.(ii) Information on the health effects associated with asbestos exposure.
- IV.I.1.a.(iii) Locations of ACBM identified throughout each school building in which they work.
- IV.I.1.a.(iv) Recognition of damage, deterioration, and delamination of ACBM.
- IV.I.1.a.(v) Name and telephone number of the person designated to carry out general LEA responsibilities under Section IV.B. (General LEA Responsibilities) and the availability and location of the management plan.

IV.I.1.b. The LEA shall ensure that all members of its maintenance and custodial staff who conduct any activities that will result in the disturbance of ACBM shall receive training described in Section IV.I.1.a. and 14 hours of additional training. Annual refresher training shall be provided and documented in the management plan for the school. Additional training shall include, but not be limited to:

- IV.I.1.b.(i) Descriptions of the proper methods of handling ACBM.

IV.I.1.b.(ii) Information on the use of respiratory protection as contained in the EPA/NIOSH Guide to Respiratory Protection for the Asbestos Abatement Industry, September 1986 (EPA 560/OPTS-86-001), available from the office of the Colorado Air Quality Control Commission, and other personal protection measures.

IV.I.1.b.(iii) The provisions of Section IV. and Appendices A, B, C, and D of 52 Federal Register 41857-41898 (October 30, 1987), EPA regulations contained in 40 C.F.R. Part 763, Subpart G, and in 40 C.F.R. Part 61, Subpart M, and QSHA regulations contained in 29 C.F.R. 1926.1101.

IV.I.1.b.(iv) Hands-on training in the use of respiratory protection, other personal protection measures, and good work practices.

IV.I.1.c. LEA maintenance and custodial staff who have attended EPA-approved asbestos training or received equivalent training for Q&M and periodic surveillance activities involving asbestos shall be considered trained for the purposes of this section.

IV.I.2. Periodic Surveillance

IV.I.2.a. At least once every six months after a management plan is in effect, each LEA shall conduct periodic surveillance in each building that it leases, owns, or otherwise uses as a school building that contains ACBM or is assumed to contain ACBM.

IV.I.2.b. Each person performing periodic surveillance shall:

IV.I.2.b.(i) Visually inspect all areas that are identified in the management plan as ACBM or assumed ACBM.

IV.I.2.b.(ii) Record the date of the surveillance, his or her name, and any changes in the condition of the materials.

IV.I.2.b.(iii) Submit to the person designated to carry out general LEA responsibilities under Section IV.B. (General LEA Responsibilities) a copy of such record for inclusion in the management plan.

IV.J. School Management Plans

IV.J.1. Submittal of Management Plans

IV.J.1.a. On or before October 12, 1988, or by May 9, 1989, if the LEA has applied for and received a deferral from the Division each LEA shall develop an asbestos management plan for each school, including all buildings that they lease, own, or otherwise use as school buildings, and submit the plan in the form specified by the Division. The plan may be submitted in stages that cover a portion of the school buildings under the authority of the LEA. The fee for Division review of management plans will be \$45.00.

IV.J.1.b. If a building to be used as part of a school is leased or otherwise acquired after October 12, 1988, the LEA shall include the new building in the management plan for the school prior to its use as a school building. The revised portions of the management plan shall be submitted to the Division.

- IV.J.1.c. If a LEA begins to use a building as a school after October 12, 1988, the LEA shall submit a management plan for the school to the Division prior to its use as a school.
- IV.J.2. If the Division does not disapprove a management plan within 90 days after receipt of the plan, the LEA shall implement the plan.
- IV.J.3. Each LEA must begin implementation of its management plan on or before July 9, 1989, and complete implementation in a timely fashion.
- IV J.4. Each LEA shall maintain and update its management plan to keep it current with ongoing operations and maintenance, periodic surveillance, inspection, reinspection, and response action activities. All provisions required to be included in the management plan under this section shall be retained as part of the management plan, as well as any information that has been revised to bring the plan up-to-date.
- IV.J.5. The Management plan shall be developed by a certified management planner and shall include:
- IV.J.5.a. A list of the name and address of each school building and whether the school building contains friable ACBM, nonfriable, ACBM, or friable and nonfriable suspected ACBM assumed to be ACM.
- IV.J.5.b. For each inspection conducted before December 14, 1987:
- IV.J.5.b.(i) The date of the inspection.
- IV.J.5.b.(ii) A blueprint, diagram, or written description of each school building that identifies clearly each location and approximate square or linear footage of any homogeneous or sampling area where material was sampled for ACM, and, if possible, the exact locations where bulk samples were collected, and the dates of collection.
- IV.J.5.b.(iii) A copy of the analyses of any bulk samples, dates of analyses, and a copy of any other laboratory reports pertaining to the analyses.
- IV.J.5.b.(iv) A description of any response actions or preventive measures taken to reduce asbestos exposure, including if possible, the names and addresses of all contractors involved, start and completion dates of the work, and results of any air samples analyzed during and upon completion of the work.
- IV.J.5.b.(v) A description of assessments, required to be made under Section IV.F. of material that was identified before December 14, 1987, as friable ACBM or friable suspected ACBM assumed to be ACM, and the name and signature, and Colorado certification number of each certified person making the assessments.
- IV.J.5.c. For each inspection and reinspection conducted under Section IV.C. (Inspections & Reinspections):
- IV.J.5.c.(i) The date of the inspection or reinspection and the name and signature, and the Colorado certification number of each certified Inspector performing the inspection or reinspection.

- IV.J.5.c.(ii) A blueprint, diagram, or written description of each school building that identifies clearly each location and approximate square or linear footage of homogeneous areas where material was sampled for ACM, the exact location where each bulk sample was collected, date of collection, homogeneous areas where friable suspected ACBM is assumed to be ACM, and where nonfriable suspected ACBM is assumed to be ACM.
- IV.J.5.c.(iii) A description of the manner used to determine sampling locations, and the name and signature of each certified Inspector collecting samples, and his or her Colorado certification number.
- IV.J.5.c.(iv) A copy of the analyses of any bulk samples collected and analyzed, the name and address of any laboratory that analyzed bulk samples, a statement that the laboratory meets the applicable requirements of Section IV.E.1., the date of analysis, and the name and signature of the person performing the analysis.
- IV.J.5.c.(v) A description of assessments, required to be made under Section IV.F. (Assessment), of all ACBM and suspected ACBM assumed to be ACM, and the name, signature, and Colorado certification number of each person making the assessments.
- IV.J.5.d. The name, address, and telephone number of the person designated under Section IV.B. (General LEA Responsibilities) to ensure that the duties of the LEA are carried out, and the course name, and dates and hours of training taken by that person to carry out the duties.
- IV.J.5.e. The recommendations made to the LEA regarding response actions, under Section IV.F. (Assessment), the name, signature, and his or her Colorado certification number.
- IV.J.5.f. A detailed description of preventive measures and response actions to be taken, including methods to be used, for any friable ACBM, the locations where such measures and action will be taken, reasons for selecting the response action or preventive measure, and a schedule for beginning and completing each preventive measure and response action.
- IV.J.5.g. A signed statement that the individual is certified under this Regulation Number 8 from each individual who inspects for ACBM or who will design or carry out response actions, except for operations and maintenance.
- IV.J.5.h. A detailed description in the form of a blueprint, diagram, or in writing of any ACBM or suspected ACBM assumed to be ACM which remains in the school once response actions are undertaken pursuant to Section IV.G. (Response Actions). This description shall be updated as response actions are completed.
- IV J.5.i. A plan for reinspection under Section IV.C. (Inspections & Reinspections) and a plan for operations and maintenance activities under Section IV.H. (Operations & Maintenance), and a plan for periodic surveillance under Section IV.I. (Training & Periodic Surveillance), a description of the recommendation made by the management planner regarding additional cleaning under Section IV.H.2.b. (Additional Cleaning) as part of an operations and maintenance program, and the response of the LEA to that recommendation.

- IV.J.5.j. A description of steps taken to inform Workers and building occupants, or their legal guardians, about inspections, reinspections, response actions, and post-response action activities that are planned or in progress.
 - IV.J.5.k. An evaluation of the resources needed to complete response actions successfully and carry out reinspection, operations and maintenance activities, periodic surveillance and training.
 - IV.J.5.l. The name of each consultant who contributed to the management plan, and a statement from each such consultant that the consultant is certified under Colorado State law, and a statement that the person is accredited by an EPA approved course (specify course title and sponsor) under Section 206(c) of the Title II of TSCA.
- IV.J.6. A LEA may require each management plan to contain a statement signed by a certified management plan developer that such plan is in compliance with this Section IV. (School Requirements). Such statement may not be signed by a person who, in addition to preparing or assisting in preparing the management plan, also implements (or will implement) the management plan.
- IV.J.7. Availability of Management Plan
- IV.J.7.a. Upon submission of a management plan to the Division, a LEA shall keep a copy of the plan in its administrative office. The management plans shall be available, without cost or restriction, for inspection by representatives of EPA and the Division, the public, including teachers, other school personnel and their representatives, and parents. The LEA may charge a reasonable cost to make copies of management plans.
 - IV.J.7.b. Each LEA shall maintain in its administrative office a complete, updated copy of a management plan for each school under its administrative control or direction. The management plans shall be available, during normal business hours, without cost or restriction, for inspection by representatives of EPA and the Division, the public, including teachers, other school personnel and their representatives, and parents. The LEA may charge a reasonable cost to make copies of management plans.
 - IV.J.7.c. Each school shall maintain in its administrative office a complete, updated copy of the management plan for that school. Management plans shall be available for inspection, without cost or restriction, to Workers before work begins in any area of a school building. The school shall make management plans available for inspection to representatives of EPA and the Division, the public, including parents, teachers, and other school personnel and their representatives within five working days after receiving a request for inspection. The school may charge a reasonable cost to make copies of the management plan.
 - IV.J.7.d. Upon submission of its management plan to the Division and at least once each school year, the LEA shall notify in writing parent, teacher, and employee organizations of the availability of management plans and shall include in the management plan a description of the steps taken to notify such organizations, and a dated copy of the notification. In the absence of any such employees, the LEA shall provide written notice to that relevant group of the availability of the management plan, a description of the steps taken to notify such groups and a dated copy of the notification.

- IV.J.8. Records required under Section IV.K. (Recordkeeping) shall be made by local education agencies and maintained as part of the management plan.
- IV.J.9. Each management plan must contain a true and correct statement, signed by the individual designated by the LEA under Section IV.B. (General LEA Responsibilities) which certifies that the general, LEA responsibilities, as stipulated by Section IV.B. (General LEA Responsibilities), have been met or will be met.
- IV.K. Recordkeeping
- IV.K.1. Records required under this section shall be maintained in a centralized location in the administrative office of both the school and the LEA as part of the management plan. For each homogeneous area where all ACBM has been removed, the LEA shall ensure that such records are retained for three years after the next reinspection required under Section IV.C.2.a. or for an equivalent period.
- IV.K.2. For each preventive measure and response action taken for friable and nonfriable suspected ACBM assumed to be ACM, the LEA shall provide:
- IV.K.2.a. A detailed written description of the measure or action, including methods used, the location where the measure or action was taken, reasons for selecting the measure or action, start and completion dates of the work, names and addresses of all contractors involved and Colorado Certification numbers, and if ACBM is removed, the name and location of storage or disposal site of the ACM.
- IV.K.2.b. The name and signature of any person collecting any air sample required to be collected at the completion of certain response actions specified by Section IV.G.9., the locations where samples were collected, date of collection, the name and address of the laboratory analyzing the samples, the date of analysis, the results of the analysis, the method of analysis, the name and signature of the person performing the analysis, and a statement that the laboratory meets the applicable requirements of clause IV.G.9.b.(ii).
- IV.K.3. For each person required to be trained under Section IV.I.1.a. or b., the LEA shall provide the person's name and job title, the date that training was completed by that person, the location of the training, and the number of hours completed in such training.
- IV.K.4. For each time that periodic surveillance under Section IV.I.2.a. is performed, the LEA shall record the name of each person performing the surveillance, the date of surveillance and any changes in the conditions of the materials.
- IV.K.5. For each time that cleaning under Section IV.H.2. (Cleaning) is performed, the LEA shall record the name of each person performing the cleaning, the date of such cleaning, the locations cleaned, and the methods used to perform such cleaning.
- IV.K.6. For each time that operations and maintenance activities under Section IV.H.3. (Operations & Maintenance Activities.) are performed, the LEA shall record the name of each person performing the activity, the start and completion dates of the activity, the locations where such activity occurred, a description of the activity including preventive measures used, and if ACBM is removed, the name and location of storage or disposal site of the ACM.

IV.K.7. For each time that major asbestos activity under Section IV.H.4. (Maintenance Activities) is performed the LEA shall provide the name and signature, and the Colorado Certification number of each person performing the activity, the start and completion dates of the activity, the locations where such activity occurred, a description of the activity including preventive measures used, and if ACM is removed, the name and location of storage or disposal site of the ACM.

IV.K.8. For each fiber release episode under Section IV.H.5. (Fiber Release Activities) the LEA shall provide the date and location of the episode, the method of repair, preventive measures or response action taken, the name of each person performing the work, and if ACM is removed, the name and location of storage or disposal site of the ACM.

IV.L. Warning Labels

The LEA shall attach a warning label immediately adjacent to any friable and nonfriable ACM and suspected ACM assumed to be ACM located in routine maintenance areas (such as boiler rooms) at each school building. This shall include:

IV.L.1. Friable ACM that was responded to by a means other than removal.

IV.L.2. ACM for which no response action was carried out.

IV.L.3. All labels shall be prominently displayed in readily visible locations and shall remain posted until the ACM that is labeled is removed.

IV.L.4. The warning label shall read, in print which is readily visible because of large size or bright color, as follows: CAUTION: ASBESTOS. HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT.

IV.M. Exclusions

IV.M.1. A LEA shall not be required to perform an inspection under Section IV.C.1. (Inspections) in any sampling area or homogeneous area of a school building where:

IV.M.1.a. A certified Inspector has determined that, based on sampling records, friable ACM was identified in that homogeneous or sampling area during an inspection conducted before December 14, 1987. The Inspector shall sign and date a statement to that effect with his or her Colorado Certification number and, within 30 days after such determination, submit a copy of the statement to the person designated under Section IV.B. (General LEA Responsibilities) for inclusion in the management plan. However, a certified Inspector shall assess the friable ACM under Section IV.F. (Assessment).

IV.M.1.b. A certified Inspector has determined that, based on sampling records, nonfriable ACM was identified in that homogeneous or sampling area during an inspection conducted before December 14, 1987. The Inspector shall sign and date a statement to that effect with his or her certification number and, within 30 days after such determination, submit a copy of the statement to the person designated under Section IV.B. (General LEA Responsibilities) for inclusion in the management plan. However, a certified Inspector shall identify whether material that was nonfriable has become friable since that previous inspection and shall assess the newly friable ACM under Section IV.F. (Assessment).

- IV.M.1.c. Based on sampling records and inspection records, a certified Inspector has determined that no ACBM is present in the homogeneous or sampling area and the records show that the area was sampled, before December 14, 1987 in substantial compliance with Section IV.C.1. (Inspections) that for purposes of this section means in a random manner and with a sufficient number of samples to reasonably ensure that the area is not ACBM.
- IV.M.1.c.(i) The certified Inspector shall sign and date a statement, with his or her certification number that the homogeneous or sampling area determined not to be ACBM was sampled in substantial compliance with Section IV.C.1. (Inspections).
- IV.M.1.c.(ii) Within 30 days after the Inspector's determination, the LEA shall submit a copy of the Inspector's statement to the Division and shall include the statement in the management plan for that school.
- IV.M.1.d. The Division has determined that, based on sampling records and inspection records, no ACBM is present in the homogeneous or sampling area and the records show that the area was sampled before December 14, 1987, in substantial compliance with Section IV.C.1. (Inspections). Such determination shall be included in the management plan for that school.
- IV.M.1.e. A certified Inspector has determined that, based on records of an inspection conducted before December 14, 1987, suspected ACBM identified in that homogeneous or sampling area is assumed to be ACM. The Inspector shall sign and date a statement to that effect, with his or her State of Colorado Certification number and, within 30 days of such determination, submit a copy of the statement to the person designated under Section IV.B. (General LEA Responsibilities) for inclusion in the management plan. However, a certified Inspector shall identify whether material that was nonfriable suspected ACBM assumed to be ACM has become friable since the previous inspection and shall assess the newly friable material and previously identified friable suspected ACBM assumed to be ACM under Section IV.F. (Assessment).
- IV.M.1.f. Based on inspection records and contractor and clearance records, a certified Inspector has determined that no ACBM is present in the homogeneous or sampling area where asbestos removal operations have been conducted before December 14, 1987, and shall sign and date a statement to that effect and include his or her State of Colorado Certification number. The LEA shall submit a copy of the statement to the Division and shall include the statement in the management plan for that school.
- IV.M.1.g. An architect or project engineer responsible for the construction of a new school building built after October 12, 1988, or a certified Inspector signs a statement that no ACBM was specified as a building material in any construction document for the building, or, to the best of his or her knowledge, no ACBM was used as a building material in the building. The LEA shall submit a copy of the signed statement of the architect, project engineer, or certified Inspector to the Division and shall include the statement in the management plan for that school.
- IV.M.2. The exclusion, under Sections IV.M.1.a. through IV.M.1.d. of this subsection, from conducting the inspection under Section IV.C.1. (Inspections) shall apply only to homogeneous or sampling areas of a school building that were inspected and sampled before October 17, 1987. The LEA shall conduct an inspection under Section IV.C.1. (Inspections) of all areas inspected before October 17, 1987 that were not sampled or were not assumed to be ACM.

IV.M.3. If ACBM is subsequently found in a homogeneous or sampling area of a LEA local education agency that had been identified as receiving an exclusion by a certified Inspector under Sections IV.M.1.c., d., and e., of this section, or an architect, project engineer or certified Inspector under Section IV.M.1.g. of this section, the LEA shall have 180 days following the date of identification of ACBM to comply with this Section IV. (School Requirements).

V. State Building Requirements

V.A. Scope and Purpose

State agencies shall follow the assessment procedures prescribed by this section prior to conducting any response action for friable ACM in an area of public access that exceeds the trigger levels. The prescribed assessment procedures require state agencies to identify friable and potentially friable ACM; sample such materials; assess the condition of suspected ACM; and conduct air monitoring to determine the level of fibers in the air. In addition, state agencies are required to use individuals who have been certified as Inspectors and Management Planners (see Section II) to complete the inspections and make recommendations to building managers as to the appropriate response action to be taken.

V.B. General State Agency Responsibilities

Each state agency shall:

V.B.1. Ensure that the activities of all persons who perform inspections or conduct asbestos abatement actions are carried out in accordance with Sections I., I.I, III. and V. of this regulation.

V.B.2. Designated Asbestos Coordinator

V.B.2.a. Designate an asbestos coordinator to ensure that the requirements of this section are properly implemented.

V.B.2.b. Ensure that the asbestos coordinator receives adequate training to perform duties assigned under this section. Such training shall provide, as necessary, basic knowledge of:

V.B.2.b.(i) Health effects of asbestos.

V.B.2.b.(ii) Detection, identification, and assessment of ACM.

V.B.2.b.(iii) Options for controlling ACM.

V.B.2.b.(iv) Asbestos management programs.

V.B.2.b.(v) Relevant Federal and State regulations concerning asbestos, including those in this Regulation and those of the U.S. Department of Transportation and the U.S. Environmental Protection Agency.

V.B.2.C. A person who has received "Inspector" training and certification according to Section II. (Certification Requirements) is deemed to be adequately trained to function as the asbestos coordinator.

V.C. Inspections

V.C.1. Prior to conducting an asbestos response action in an area of public access that exceeds the trigger levels in any state-owned or state-leased building, state agencies shall inspect the affected area of such buildings to identify all locations of friable and potentially friable ACM. Potentially friable ACM is any ACM that can reasonably be expected to become friable as a result of anticipated renovation or demolition work.

V.C.2. Each inspection shall be made by a certified Inspector.

V.C.3. Except as excluded under Section V.H. (Exclusion), the person performing an inspection under this section shall:

V.C.3.a. Visually inspect the area to identify the locations of all suspected ACM.

V.C.3.b. Touch all suspected ACM to determine whether they are friable.

V.C.3.c. Identify all homogeneous areas of friable suspected ACM and all homogeneous areas of potentially friable suspected ACM.

V.C.3.d. Pursuant to Section V.D. (Sampling); collect bulk samples from each suspect homogeneous area and submit such samples for analysis pursuant to Section V.E. (Analysis).

V.C.3.e. Develop a written assessment of the extent, condition and types of materials in the area. Such assessment shall be performed pursuant to Section V.F. (Assessment).

V.C.3.f. Record the following and submit to the Asbestos Coordinator under Section V.B. (General State Agency Responsibilities), a copy of such record.

V.C.3.f.(i) An inspection report with the date of the inspection signed by the certified person making the inspection, and his or her certification number.

V.C.3.f.(ii) An inventory of the locations of the homogeneous areas where samples are collected, exact locations where each bulk sample is collected, and dates that samples are collected.

V.C.3.f.(iii) A list identifying each homogeneous area listed under Section V.C.3.c. as surfacing material, thermal system insulation, or miscellaneous material.

V.C.3.f.(iv) Assessments made of friable and potentially friable material, the name and signature of each certified Inspector making the assessment, and his or her certification number.

V.D. Sampling

V.D.1. Surfacing material

Prior to conducting an asbestos response action in an area of public access that exceeds the trigger levels in any state-owned or state-leased building, the State Agency shall insure that a certified Inspector shall collect, in a randomly distributed manner that is representative of the homogeneous area, bulk samples from each homogeneous area of suspect friable and potentially friable, surfacing material. The samples shall be collected as follows:

V.D.1.a. At least three bulk samples shall be collected from each homogeneous area that is 1,000 square feet or less.

V.D.1.b. At least five bulk samples shall be collected from each homogeneous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.

V.D.1.c. At least seven bulk samples shall be collected from each homogeneous area that is greater than 5,000 square feet.

V.D.2. Thermal system insulation

V.D.2.a. Except as provided in Sections V.D.2.b., c. and d. of this section, a certified Inspector shall collect, in a randomly distributed manner, at least three bulk samples from each homogeneous area of thermal system insulation that is not assumed to be ACM.

V.D.2.b. Collect at least one bulk sample from each homogeneous area of patched thermal system insulation if the patched section is less than 6 linear or square feet.

V.D.2.c. In a manner sufficient to determine whether the material is ACM or not ACM, collect bulk samples from each insulated mechanical system where cement or plaster is used on fittings such as tees, elbows, or valves. An area may be determined to contain ACM based on a single positive asbestos sample as described in Section V.E.3.b.

V.D.2.d. Bulk samples are not required to be collected from any homogeneous area where the certified Inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACM.

V.D.3. Miscellaneous material

In a manner sufficient to determine whether material is ACM or not ACM, a certified Inspector shall collect bulk samples from each homogeneous area of friable miscellaneous material that is suspected to be ACM.

V.D.4. The state agency shall perform air sampling prior to any response action that in an area of public access exceeds the trigger levels. The procedures described in Section III.U. (Maximum Allowable Asbestos Level), shall be followed.

V.E. Analysis

- V.E.1. State agencies shall have bulk samples, collected under Section V.D. (Sampling) analyzed for asbestos by laboratories accredited by the National Bureau of Standards (NBS). State agencies shall use laboratories that have received interim accreditation for polarized light microscopy analysis under the EPA Interim Asbestos Bulk Sample Analysis Quality Assurance Program until the NBS PLM laboratory accreditation program for PLM is operational.
- V.E.2. Bulk samples shall not be composited for analysis.
- V.E.3. Interpreting Bulk Sample Results
 - V.E.3.a. A homogeneous area is considered not to contain ACM only if the results of all samples submitted for analysis show asbestos in amounts of one percent or less.
 - V.E.3.b. A homogeneous area shall be determined to contain ACM based on a finding that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than one percent.
- V.E.4. The name and address of each laboratory performing an analysis submitted to the asbestos coordinator designated under Section V.B. (General State Agency Responsibilities).
- V.E.5. Air samples shall be analyzed according to the procedures described in Section III.U. (Maximum Allowable Asbestos Level).

V.F. Assessment

- V.F.1. [Untitled]
 - V.F.1.a. For each inspection conducted under Section V.D. (Exclusion) and previous inspections specified under Section V.H. the state agency shall have a certified Inspector provide a written assessment of all triable material that is known or assumed ACM in a state building.
 - V.F.1.b. Each certified Inspector providing a written assessment shall sign and date the assessment, provide his or her certification number, and submit a copy of the assessment to the Asbestos Coordinator designated under Section V.B. (General State Agency Requirements).
- V.F.2. The Inspector shall classify and give reasons in the written assessment for classifying the ACM and suspected ACM assumed to be ACM in the state building into one of the following categories:
 - V.F.2.a. Damaged or significantly damaged thermal system insulation ACM.
 - V.F.2.b. Damaged friable surfacing ACM.
 - V.F.2.c. Significantly damaged friable surfacing ACM.
 - V.F.2.d. Damaged or significantly damaged friable miscellaneous ACM.
 - V.F.2.e. ACM with potential for damage.

- V.F.2.f. ACM with potential for significant damage.
- V.F.2.g. Any remaining friable ACM or friable material suspected to be ACM.
- V.F.2.h. Undamaged material known or suspected to be ACM.
- V.F.3. Assessment shall include the following considerations:
 - V.F.3.a. Location and the amount of the material, both in total quantity and as a percentage of the functional space.
 - V.F.3.b. Condition of the material, specifying:
 - V.F.3.b.(i) Type of damage or significant damage (e.g., flaking, blistering, water damage, or other signs of physical damage).
 - V.F.3.b.(ii) Severity of damage (e.g., major flaking, severely torn jackets, as opposed to occasional flaking, minor tears to jackets).
 - V.F.3.b.(iii) Extent or spread of damage over large areas or large percentages of the homogeneous area.
 - V.F.3.c. Whether the material is accessible by building occupants.
 - V.F.3.d. The material's potential for disturbance.
 - V.F.3.e. Known or suspected causes of damage or significant damage (e.g., air erosion, vandalism, vibration, water).
 - V.F.3.f. Preventive measures, which might eliminate the reasonable likelihood of undamaged ACM from becoming significantly damaged.
 - V.F.3.g. The results of any air monitoring.
- V.F.4. The state agency shall select a person certified to develop management plans (see Section II.) to recommend, in writing to the state agency the appropriate response actions. Prior to making a recommendation, such certified person shall review all inspections and assessments, and may conduct any other activities necessary to support his or her recommendations. The certified person shall sign and date the recommendation, and provide his or her certification number, and submit a copy of the recommendations to the asbestos coordinator.
- V.G. Recordkeeping
 - V.G.1. For each response action taken, the Asbestos Coordinator for each state agency shall document in a file to be maintained with building records:
 - V.G.1.a. A detailed written description of the measure or action, including methods used; the location where the measure or action was taken; reasons for selecting the measure or action; start and completion dates of the work; names and addresses of all contractors involved and certification numbers; and if ACM is removed, the name and location of storage or disposal site of the ACM.

V.G.1.b. The name and signature of any person collecting any air samples required to be collected by Section V.D. (Sampling), the locations where samples were collected, date of collection, the name and address of the laboratory analyzing the samples, the date of analysis, the results of the analysis, the method of analysis, the name and signature of the person performing the analysis, and a statement that the laboratory meets the accreditation requirements of clause III.G.9.b.(ii).

V.G.2. For each exclusion provided by Section V.H. (Exclusions) below, a statement signed by a certified Inspector that meets the requirements of Section V.H. (Exclusions) shall be included in the record.

V.H. Exclusions

V.H.1. A state agency shall not be required to perform an inspection under Section V.C.1. (Inspections) in any area of a state building where:

V.H.1.a. A certified Inspector has determined that, based on sampling records, friable or potentially friable ACM was identified in that homogeneous or sampling area during an inspection conducted before April 30, 1989. The Inspector shall sign and date a statement to that effect with his or her certification number and include such a statement as part of the record required by Section V.G. (Recordkeeping). However, a certified Inspector/management planner shall assess the friable ACBM under Section V.F. and a certified Air Monitoring Specialist shall conduct air monitoring, if not already completed.

V.H.1.b. Based on sampling records and inspection records, a certified Inspector has determined that no ACM is present in the homogeneous or sampling area and the records show that the area was sampled, before April 30, 1989, in substantial compliance with Section V.C.1. (Inspections), which for purposes of this section means in a random manner and with a sufficient number of samples to reasonably ensure that the area is free of ACM. The certified Inspector shall sign and date a statement, with his or her certification number that the homogeneous or sampling area determined not to be ACM was sampled in substantial compliance with Section V.D.1. (Surfacing Materials).

V.H.1.c. Based on inspection records a certified Inspector has determined that no ACM is present in the homogeneous or sampling area because asbestos removal operations have been conducted before April 30, 1989. The Inspector shall sign and date a statement to that effect and include his or her certification number. The state agency shall include the statement as part of the recordkeeping for that agency.

V.H.1.d. An architect or project engineer responsible for the construction of a new state building built after April 30, 1989, or a certified Inspector signs a statement that no ACM was specified as a building material in any construction document for the building, or, to the best of his or her knowledge, no ACM was used as a building material in the building. The state agency shall place a copy of the signed statement in asbestos records for the agency.

V.H.2. The exclusion, under Section V.H.1.a. through d. of this subsection, from conducting the inspection under Section V.C.1. (Inspections) shall apply only to homogeneous or sampling areas of a building that were inspected and sampled before April 30, 1989.

VI. Use of Asbestos in the Manufacturing, Commerce and Construction Industries

VI.A. Standard for Asbestos Mills

Each owner or operator of an asbestos mill shall discharge no visible emissions to the ambient air from the asbestos mill and use the methods specified by Section III.J.1. (Air Cleaning and Negative Pressure Requirements) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the ambient air.

VI.B. Standard for Road Ways

No owner or operator of a roadway may deposit asbestos tailings or asbestos-containing waste material on that roadway, unless it is a temporary roadway on an area of asbestos ore deposits.

VI.C. Standard for Manufacturing

VI.C.1. Applicability: This section applies to the following manufacturing operations using commercial asbestos.

VI.C.1.a. The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap, or other textile materials.

VI.C.1.b. The manufacture of cement products.

VI.C.1.c. The manufacture of fireproofing and insulating materials.

VI.C.1.d. The manufacture of friction products.

VI.C.1.e. The manufacture of paper, millboard, and felt.

VI.C.1.f. The manufacture of floor tile.

VI.C.1.g. The manufacture of paints, coatings, caulks, adhesives, and sealants.

VI.C.1.h. The manufacture of plastics and rubber materials.

VI.C.1.i. The manufacture of chlorine utilizing asbestos diaphragm technology.

VI.C.1.j. The manufacture of shotgun shell wads.

VI.C.1.k. The manufacture of asphalt concrete.

VI.C.2. Standard: Each owner or operator of any of the manufacturing operations to which this Section VI.C. (Standards for Manufacturing) applies shall:

VI.C.2.a. Discharge no visible emissions to the ambient air from these operations or from any building or structure in which they are conducted; and

VI.C.2.b. Use the methods specified in Section III.J.1. (Air Cleaning and Negative Pressure Requirements) to clean emissions from these operations containing particulate asbestos material before they escape to, or are vented to, the ambient air.

VI.D. Standard for Spraying

The owner or operator of an operation in which asbestos-containing materials are spray applied shall comply with the following requirements:

VI.D.1. Use materials that contain one percent asbestos or less on a dry weight basis for spray-on application on buildings, structures, pipes, and conduits, except as provided in Section VI.D.1.b. below, and:

VI.D.1.a. Notify the Division at least 20 days before beginning the spraying operation. Include the following information in the notice:

VI.D.1.a.(i) Name and address of owner or operator.

VI.D.1.a.(ii) Location of spraying operation.

VI.D.1.a.(iii) Procedures to be followed to meet the requirements of Section VI.D. (Standard for Spraying).

VI.D.1.b. Discharge no visible emissions to the ambient air from the spray-on application of the asbestos-containing material and/or use the methods specified by Section III.J.1. (Air Cleaning and Negative Pressure Requirements) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the ambient air.

VI.D.2. The requirements of Section VI.D.1.a. do not apply to the spray-on application of materials where the asbestos fibers in the materials are encapsulated with a bituminous or resinous binder during spraying and the materials are not friable after drying.

VI.E.1. STANDARD FOR FABRICATING

VI.E.1. Applicability. This section applies to the following fabricating operations using commercial asbestos:

VI.E.1.a. The fabrication of cement building products.

VI.E.1.b. The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

VI.E.1.c. The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture; bulkheads, partitions, and ceilings for marine construction; and flow control devices for the molten metal industry.

VI.E.2. Standard. Each owner or operator of any of the fabricating operations to which this Section VI.E. (Standard for Fabricating) applies shall:

VI.E.2.a. Discharge no visible emissions to the ambient air from any of the operations or from any building or structure in which they are conducted; and

VI.E.2.b. Use the methods specified by Section III.J.1. (Air Cleaning and Negative Pressure Requirements) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the ambient air.

VI.F. Standard for Insulating Materials

No owner or operator of a facility may install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded and friable or wet-applied and friable after drying. The provisions of this subsection do not apply to spray-applied insulating materials regulated under Section VI.D. (Standard for Spraying).

VII. Statements of Basis, Specific Statutory Authority and Purpose for Part B

VII.A. Amendment to Section II – Incorporation of the EPA Model Accreditation Plan by Reference (March 21, 1996)

Background

The Asbestos Hazard Emergency Response Act of 1986 (AHERA) (15 U.S.C. 2646) was enacted to identify, manage and reduce exposure to asbestos in schools. The Asbestos School Hazard Abatement Reauthorization Act of 1990 (ASHARA) (Public Law 101-637) extended the training and certification requirements of AHERA to public and commercial buildings. Both acts require the Environmental Protection Agency (EPA) to promulgate minimum standards for the conduct of this training. In addition, states are mandated by both acts to either adopt EPA's Model Accreditation Plan (MAP), as presented in 40 CFR Part 763, or create programs that are at least as stringent as the EPA MAP. The state act contemplates adoption of the pertinent federal training requirements in 25-7-503 (1)(f)(I). Through this rulemaking, the Commission is incorporating by reference the Model Accreditation Plan into Air Quality Control Commission Regulation Number 8, Part B, Section II to comply with federal and state laws.

Specific Authority

The specific authority for this regulation is found in the Colorado Air Quality Control Act. Section 25-7-503(1)(f)(I) provides authority to promulgate regulations regarding the training required to apply for state asbestos certification. This regulation will establish appropriate minimum training standards that will meet both state and federal mandates.

Purpose

Regulation 8 generally provides protection to Colorado citizens from exposure to asbestos, a Class A carcinogen, caused by improper abatements due to inadequate training of asbestos Workers, Supervisors, Inspectors, Management Planners and Project Designers. This rule will protect against potentially adverse economic impacts that might result against course providers in Colorado. This rule also helps protect against adverse health and environmental effects that may be caused by improperly trained asbestos Workers. In addition, this rule will meet the requirements of federal law (AHERA) and state law (Colorado Air Quality Control Act).

VII.B. Revisions Resulting from HB 95-1016 (September 19, 1996)

Basis

The Commission adopted revisions to Regulation Number 8, Part B, recommended by the Division to comply with state legislative directives, and to make other revisions reflecting changes in the federal program and appropriate changes to make the state program more effective and clear. A variety of recommended revisions were appropriate given that Regulation Number 8 has not been reopened and revised for over three years, apart from a recent limited revision regarding the EPA Model Accreditation Plan, and it was necessary to bring the regulation up to date.

The state asbestos program is not part of the State Implementation Plan (SIP), and the revisions approved by the Commission today will not be submitted to EPA as part of Colorado's SIP.

Specific Statutory Authority

Specific authority exists for the Commission's revisions in §25-7-105(10), and §25-7-501 et seq., C.R.S. In 1995 the Colorado legislature enacted HB 95-1016 amending Part 5, Asbestos Control, to require a variety of changes to the program. Section 25-7-503 provides the Commission with many separate specific authorities including, for example, specifying abatement practices and procedures, assessing notification fees, prescribing inspection and monitoring requirements, enforcing the maximum allowable asbestos level of 0.01 fibers per cubic centimeter, and requiring training and examinations. Other sections in Part 5 provide authority for specific requirements related, for example, to certification of personnel involved in asbestos abatement. Specific authority within Part 5 supports each of the revisions adopted by the Commission today.

Purpose

The Commission revised Regulation Number 8, Part B, regarding asbestos regulation to effectuate recent state legislative directives, to ensure the public is protected by minimizing the release of asbestos, to address changes to the federal National Emissions Standard for Hazardous Air Pollutants (NESHAP) Subpart M regarding asbestos, and to update the regulation for efficiency and clarity. The Commission adopts the substantive changes recommended by the Division and relies upon the record to support those changes. The Commission adopts the Division's proposals to eliminate unnecessary administrative text where it has been found in the regulation. Also, the Commission adopts various incorporations by reference recommended by the Division to bring Regulation Number 8, Part B, into conformity with the Colorado APA.

The Commission raises the minimum scope of asbestos abatement subject to the program as recommended by the Division to conform to the NESHAP for asbestos and as directed in §25-7-503(1)(b), C.R.S. The Commission acknowledges certain statutory changes that are prescriptive from HB 95-1016, e.g., the effect of a plea of nolo contendere (§25-7-508(2)(a)(II)(C), C.R.S.), and prohibition from seeking recertification within one year after the Division revokes certification for a violation of the regulation (§25-7-508(6), C.R.S.). The Commission approves the Division devising application procedures to offer certificates for a one, three or five-year period at the option of the applicant (§ 25-7-506(2), 25-7-507.5(2)(b), C.R.S.).

The Commission has considered the record and adopts the Division's proposals regarding the project manager discipline and project design requirements. The Commission believes the project manager duties are reasonable and appropriate, and determines at this time that imposing a college-level or higher education requirement would unnecessarily preclude otherwise qualified persons from performing these duties and that education at such a level was not required by the legislature (§ 25-7-502(7.5), 25-7-503(1)(b)(V)). The Commission approves of the independence requirement for project managers from GACs, and the separate independence requirement for Inspectors from GACs as reasonable and required by statute (§25-7-503(1)(b)(V), C.R.S.).

The Commission adopts the additional training and updated work practices appendix for the removal of sheet vinyl containing asbestos based on the record. The Commission believes this is generally consistent with EPA's NESHAP and with § 25-7-501 and 25-7-503(1)(a), C.R.S. by reducing the risk of the release of asbestos fibers. Further, the Commission approves revisions to the definitions of asbestos-containing waste material facility, cutting, and grinding as consistent with EPA's NESHAP. The Commission approves the disclosure regarding certification of Workers conducting abatement in single-family residential dwellings as required by §25-7-504(3), C.R.S., to ensure that those doing the work are properly certified and therefore properly trained. The Commission also adopts revisions to procedures for use of glove bags on abatement projects as being reasonable and efficient, and providing practical assistance to those conducting abatements while protecting the public from exposure to asbestos.

Based upon documents submitted and considered pursuant to §25-7-110.5, C.R.S., the Commission makes the following findings: (1) the Commission has considered and has based its decision upon the reasonably available, validated, reviewed and sound scientific methodologies and information made available by interested parties; (2) where these revisions are not administrative in nature, the record supports that the revisions will result in a demonstrable reduction in asbestos fiber releases or prevent asbestos releases where they might otherwise occur; (3) the revisions selected are the most cost-effective based upon the documents submitted pursuant to §25-7-110.5(4), C.R.S., they provide the regulated community with flexibility, and achieve necessary reductions or prevention of the release of asbestos, and; (4) the revisions selected will maximize the air quality benefits of asbestos regulation in the most cost-effective manner.

VII.C. Revisions Resulting from SB-01-121, The DORA Asbestos Control Program 2000 Sunset Review, and the Reorganization of Regulation Number 8, Part B (January 16, 2003)

This Statement of Basis, Specific Statutory Authority and Purpose comply with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4) and (12.5), C.R.S. for new and revised regulations.

Basis

Regulation Number 8, Part B, sets forth the Air Quality Control Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act ("Act"). In 2001, the legislature amended Part 5 of the Act dealing with asbestos control. These amendments, among other things, expanded the definition of Area of Public Access to include single-family residential dwellings, mandated certification for Air Monitoring Specialists and changed the definition of Friable Asbestos-Containing Material. As part of the legislative review of the Act, the Department of Regulatory Agencies ("DORA") examined potential problems with the Act and Regulation Number 8, Part B. Based on this review, DORA issued a report recommending a regulatory solution to perceived inequities in the Conflict of Interest provision set forth in Regulation Number 8, Part B, Section III.C.6.b.v. These revisions are needed to effect the statutory amendments and resolve the conflict of interest issue identified in the DORA report. In addition, the Regulation has been reorganized to make it more readable and easier to understand.

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in various sections of the Colorado Air Pollution Prevention and Control Act. Section 25-7-105(1), C.R.S., gives the Air Quality Control Commission general authority to promulgate rules and regulations necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations governing asbestos abatement and control. The provisions set forth in Sections 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in single-family residential dwellings, changes to the conflict of interest regulations and modification of the regulatory definition of friable asbestos-containing material. Additional authority regarding single-family residential dwellings is set forth in Section 25-7-504, C.R.S. The revisions governing the certification of Air Monitoring Specialists are specifically authorized pursuant to Section 25-7-506.5, C.R.S.

Purpose

The purposes of these revisions are as follows: 1) to effectuate the legislative changes to the state's asbestos control program adopted through the passage of Senate Bill 01-121; 2) to address inequalities that DORA noted with respect to the conflict of interest provisions; and 3) to reorganize the Regulation to make it more readable and easier to understand.

VII.C.1. Senate Bill 01-121

In enacting Senate Bill 01-121, the Legislature made the following changes to Colorado's asbestos control program: 1) revisions to expand statutory and regulatory requirements to single-family residential dwellings; 2) modification of the definition of friable asbestos-containing material to clarify that this term includes materials measured by area or volume as well as by weight; and 3) adoption of a certification requirement for persons conducting Air Monitoring Specialist activities. To accomplish these legislative changes, the Commission has adopted a number of revisions to Regulation Number 8, Part B.

VII.C.1.a. Single Family Residential Dwellings

Prior to the adoption of Senate Bill 01-121, single-family residential dwellings were not included within the definition of area of public access. Because the majority of requirements set forth in the Act and the Regulation apply only to areas of public access, this exclusion left homeowners without recourse to important regulatory protections in connection with either the abatement of asbestos or renovations impacting asbestos in their homes. To rectify this situation, the Legislature modified the statutory definition of area of public access to include single-family residential dwellings, but provided that such a dwelling would not be considered an area of public access at the request of the homeowner residing in that dwelling. The Commission has adopted essentially identical modifications to the regulatory definition. Modifications to the regulatory provisions governing permitting and use of certified personnel have also been made to provide that while single-family residential dwellings could constitute areas of public access, neither permits nor the use of certified abatement Workers was required for abatement projects in such dwellings where the abatement was performed by an individual utilizing the dwelling as his or her primary residence. These provisions are consistent with the statutory mandate set forth in Senate Bill 01-121. Finally, the revisions create a new minimum scope of applicability with regard to single-family residential dwellings. Consistent with the authority set forth in Senate Bill 01-121 the Commission has set applicability levels for abatement projects in single-family residential dwellings at 50 linear feet on pipes or 32 square feet on other surfaces. These levels are lower than the levels currently set for projects in public and commercial buildings. The lower levels have been adopted in view of the fact that residential projects are typically much smaller; nonetheless, they are likely to result in prolonged exposure to higher risk populations, such as small children, the elderly or the infirm, than projects in public or commercial buildings.

VII.C.1.b. Definition of Friable Asbestos-Containing Material

The previous definition of the term "friable asbestos-containing material" referenced material containing more than one percent asbestos by weight. Authorized laboratory analytical methods, however, have, in addition to weight, utilized measurements by area or volume. Consistent with these methods, and the change to the statutory definition, the new regulatory definition clarifies that friable asbestos-containing material includes material containing more than one percent asbestos by area or volume, as well as weight.

VII.C.1.c. Certification of Air Monitoring Specialists

Air Monitoring Specialists perform air sampling during and at the end of asbestos abatement projects as well as conduct final visual inspections to ensure that visible dust or debris is not left at the conclusion of the project. These activities are crucial to protecting the general public from asbestos exposure resulting from abatement projects. Despite the important role that they play in protecting the public, Air Monitoring Specialists were not previously required to obtain a state certification. This omission undermined the Division's ability to ensure that Air Monitoring Specialists were properly qualified, and precluded the Division from revoking certifications of unqualified individuals. In recognition of this, Senate Bill 01-121 required certification of Air Monitoring Specialists in accordance with Commission regulations setting forth experience, education and training requirements.

These revisions adopt requirements necessary to effectuate the certification of Air Monitoring Specialists. The new requirements allow currently practicing Air Monitoring Specialists to obtain certification upon successful completion of an Air Monitoring Specialist refresher course and a Division administered exam. Individuals who are not qualified under the present regulation, must have a high school diploma and pass a Division approved exam, as well as complete an Air Monitoring Specialist course and on-the-job experience consisting of at least 80 hours of air monitoring under the supervision of an existing AMS and at least two final visual clearances and at least two final air clearances under the observation of an existing AMS. While an existing AMS must sign off on a trainee's completion of the on-the-job experience, such a sign off shall not subject the AMS to any enforcement action or liability based on the trainee's subsequent performance of AMS activities.

VII.C.2. DORA Recommendation

In connection with its review of Regulation Number 8, Part B, the Department of Regulatory Agencies recommended revisions to the provision governing potential conflicts of interest with respect to inspections for asbestos. The new regulation requires that inspection and abatement firms be independent of each other but removes the prohibition against payments from abatement contractors to Inspectors. This change puts abatement and inspection firms on equal footing with respect to contracting with building owners, while giving owners the flexibility to contract with a single firm and allow that firm to sub-contract the abatement or inspection work with another firm.

VII.C.3. Reorganization

The regulation has been reorganized to make it more readable and easier to understand. This reorganization has not substantively changed any requirements, but rather has put these requirements into a more accessible format.

Section I.A. of the Regulation governing materials incorporated by reference, has been expanded to include not only a statement that certain materials have been incorporated by reference, but also a list of those materials. This change makes the substantive provisions citing these materials easier to read and allows the reader to know up front what additional rules, beyond the regulation itself, apply to asbestos control in Colorado.

The definition section has been changed to include a list of relevant acronyms. This allows the reader to quickly identify what a given acronym stands for. Additionally, throughout the reorganized regulation, electronic links have been created so that individuals electronically reviewing a particular provision can immediately link to a given definition or acronym used in that provision.

Section II of the rule, governing certifications, has been substantially re-written to systematically explain the steps necessary to obtain certification in each of the certified disciplines. The current regulation organizes this information by the different types of requirements rather than by discipline. For example, testing requirements for all the disciplines are contained in one subsection, while training requirements are contained in another. The proposed reorganization organizes this material by discipline. As such, a person seeking to become certified as a Building Inspector can turn directly to the Building Inspector section, and not have to flip back and forth between several subsections. In addition, the current rule includes provisions governing when use of certified personnel is required. Because these provisions substantively govern asbestos control, and do not address how certification is to be obtained, they have been moved to a new subsection in Section III. governing abatement, renovation and demolition projects.

The substantive requirements in Section III. have been reorganized to follow, as nearly as possible, the chronological steps that need to be taken in dealing with asbestos-containing materials in buildings. Given the complexity of the regulation, perfect sequencing was not possible, since certain requirements may be applicable at various stages, but generally the proposed revisions logically group related requirements together and in an order that should make sense to a layperson trying to determine how to properly proceed with respect to asbestos control. In addition, statements have been added to clarify when the various requirements are applicable.

Because certain specialized rules apply to asbestos in schools and state buildings, separate sections containing these rules have been maintained in the regulation. A new Section VI. has been created governing standards associated with the manufacture and construction of asbestos materials. These requirements are currently placed in Section III governing project requirements. Because these rules are separate and distinct from the rules governing the removal and management of asbestos in buildings, the Division believes that they should be contained in a separate section. Finally, the section governing enforcement has been deleted from the proposed reorganization. This section unnecessarily duplicated the provisions of the Act, and its inclusion in the regulation was inconsistent with the other air regulations that rely on the Act for their enforcement mechanisms.

Findings Pursuant to §25-7-110.8, C.R.S.

These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. Interested parties did not provide the Commission with any other validated, reviewed and scientifically sound methodologies or information.

Based on the evidence presented on the record, the requirements of this revised regulation will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.

The revisions represent the regulatory alternative presented to the Commission, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

VII.D. Revisions to Address Incorrect Language in the Single-Family Residential Dwelling Opt-Out Provision, Roofing Materials and Typographical Errors (December 18, 2003)

This Statement of Basis, Specific Statutory Authority and Purpose comply with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4) and (12.5), C.R.S. for new and revised regulations.

Basis

Regulation Number 8, Part B, sets forth the Air Quality Control Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act ("Act"). The Legislative Legal Services contacted the Division to identify a concern with the single family residential dwelling opt-out provision. Specifically, Legislative Legal Services indicated that the regulatory language governing single-family residential opt outs conflicted with the overriding statutory language. While the intent of the old provision was to be consistent with the statutory directive, the old regulatory language failed to capture that intent. These revisions are needed to address the concerns of Legislative Legal Services. We have also fixed several typographical errors.

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in various sections of the Colorado Air Pollution Prevention and Control Act. Section 25-7-105(1), C.R.S., gives the Air Quality Control Commission general authority to promulgate rules and regulations, necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations governing asbestos abatement and control. The provisions set forth in Sections 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in single-family residential dwellings, changes to the conflict of interest regulations and modification of the regulatory definition of friable asbestos-containing material. Additional authority regarding single-family residential dwellings is set forth in Section 25-7-504, C.R.S.

Purpose

These changes address issues identified by Legislative Legal Services with respect to the single-family residential dwelling opt-out provision and address typographical errors.

Findings Pursuant to §25-7-110.8, C.R.S.

These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. Interested parties did not provide the Commission with any other validated, reviewed and scientifically sound methodologies or information.

Based on the evidence presented on the record, the requirements of this revised regulation will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.

The revisions represent the regulatory alternative presented to the Commission, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

VII.E. Revisions to Regulation Number 8, Part B - Asbestos (December 16, 2004)

This Statement of Basis, Specific Statutory Authority and Purpose comply with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4) and (12.5), C.R.S. for new and revised regulations.

Basis

Regulation Number 8, Part B, sets forth the Air Quality Control Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act ("Act"). The Legislative Legal Services contacted the Division to identify a concern with the single family residential dwelling opt-out provision. Specifically, Legislative Legal Services indicated that the regulatory language governing single-family residential opt-outs exceeded statutory language. While the intent of the current provision was thought to be consistent with the statutory directive, Legislative Legal Services disagreed. Therefore, this revision is needed to address the concern of Legislative Legal Services.

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in various sections of the Colorado Air Pollution Prevention and Control Act. Section 25-7-105(1), C.R.S., gives the Air Quality Control Commission general authority to promulgate rules and regulations necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations governing asbestos abatement and control. The provision set forth in Section 25-7-502, C.R.S. authorizes the regulatory revisions governing asbestos control in single-family residential dwelling. Additional authority regarding single-family residential dwellings is set forth in Section 25-7-504, C.R.S.

Purpose

This change addresses the issue identified by Legislative Legal Services with respect to the single-family residential dwelling opt-out provision.

VII.F. Revisions to Regulation Number 8, Part B (June 21, 2007)

This Statement of Basis, Specific Statutory Authority and Purpose comply with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4) and (12.5), C.R.S. for new and revised regulations.

Basis

Regulation Number 8, Part B, sets forth the Air Quality Control Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act ("Act"). In 2006, the Legislature amended Part 5 of the Act dealing with asbestos control. These amendments, among other things: extended the sunset period to July 1, 2013; mandated exams for Air Monitoring Specialists; allowed the Division to establish certification renewal cycles, and the need to retest, administratively; changed an incorrect Code of Federal Regulations reference; and applied the regulation consistently across all building types. This included requiring an Air Monitoring Specialist to be independent of the General Abatement Contractor. It also included requiring a Project Manager on abatement projects of specified amounts of friable asbestos-containing materials in all building types. In addition, the Regulation has been changed to fix several administrative, typographical and referencing errors.

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in various sections of the Colorado Air Pollution Prevention and Control Act. Section, 25-7-105(1), C.R.S., gives the Air Quality Control Commission general authority to promulgate rules and regulations necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations governing asbestos abatement and control. The provisions set forth in Sections 25-7-505.5, C.R.S. authorize the regulatory revision to allow proficiency testing of Air Monitoring Specialists. Section 25-7-503, C.R.S., authorizes changes to the regulation for consistency and revises an incorrect Code of Federal Regulations reference. Additionally, authority to allow the Division to change certification periods is set forth in Sections 25-7-506, 25-7-506.5 and 25-7-507.5, C.R.S.

Purpose

The purposes of these revisions are as follows: 1) to effectuate the legislative changes to the State's asbestos control program adopted through the passage of House Bill 06-1177, and 2) to fix several administrative, typographical and referencing errors.

VII.F.1. House Bill 06-1177

In enacting House Bill 06-1177, the Legislature made the following changes to Colorado's asbestos control program: 1) addition of an examination requirement for persons conducting Air Monitoring Specialist activities; 2) corrected an incorrect Code of Federal Regulation reference; 3) required an Air Monitoring Specialist to be independent of the General Abatement Contractor; and 4) required a Project Manager on abatement projects (over a specified minimum amount of friable asbestos-containing materials) in all building types. To accomplish these legislative changes, the Commission has adopted a number of revisions to Regulation Number 8, Part B.

VII.F.1.a. Examinations for Air Monitoring Specialists

Air Monitoring Specialists perform air sampling during, and at the conclusion of, asbestos abatement projects. They also conduct final visual inspections to ensure that visible dust or debris is not left behind at the conclusion of the project. These activities are crucial to protecting the general public from asbestos exposure resulting from abatement projects. Several years ago, Legislative Legal Services determined that the Division did not have the specific statutory authority to administer tests to Air Monitoring Specialist applicants. This determination removed the Division's ability to ensure that Air Monitoring Specialists were properly trained and competent to perform their duties. In recognition of this, House Bill 06-1177 revised the statutory language to make it clearer that an examination was required in order for them to become certified.

VII.F.1.b. Statutorily Established Certification Periods

Currently, it is a requirement that certified individuals take an annual refresher class and pass a state certification test for each discipline. Those who have renewed their certification for many years have often asked for relief from the annual testing requirement. It was recommended that the Division track pass/fail rates and other factors for a period of time to determine appropriate renewal cycles based on these rates.

VII.F.1.c. Correct Code of Federal Regulations Provisions

In Section III.U.3.a. (Maximum Allowable Asbestos Level – Second Set by TEM) of the Regulation, a reference to a provision in the Code of Federal Regulations (CFR) is made that is no longer correct due to changes within that document. This provision must be changed in order to be consistent with the current CFR.

VII.F.1.d. Consistency in Requirements of the Regulation

In connection with its review of Regulation Number 8, Part B, DORA recommended extending the provision governing potential conflicts of interest with respect to Air Monitoring Specialists and General Abatement Contractors. Additionally, the legislature adopted the use of Project Managers on qualifying abatement projects of friable asbestos containing material in all types of buildings. School buildings and single-family residential dwellings were not covered by this requirement. As abatement projects in these types of buildings may be just as complex as projects in public and commercial buildings, the legislature made the requirements apply to all buildings.

VII.F.2. Corrections

A number of administrative, typographical and referencing errors were corrected. These corrections have not changed any requirements, but were necessary to correct errors that were present.

Findings Pursuant to §25-7-110.8, C.R.S.

These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard.

Based on the evidence presented on the record, the requirements of this revised regulation will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying any costs associated with this regulation.

The revisions represent the regulatory alternative presented to the Commission, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

VII.G. Revisions to Regulation Number 8, Part B (December 20 & 21, 2007)

This Statement of Basis, Specific Statutory Authority and Purpose complies with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4), C.R.S. for new and revised regulations.

Basis

The Air Quality Control Commission has adopted revisions to Regulation Number 8, Part B, Sections I.B.13., I.B.14., I.B.15., (all other definition numbers will be updated to reflect these 3 additions), II.B.1., II.B.2., II.C.2., II.C.4., II.C.6., II.D.2., II.D.3.b.(iv)., II.E.1., II.E.1.a., II.G.1., II.G.2., II.L., II.M., II.N., III.E.1.b., III.E.1.c., III.E.1.d., III.F., III.G.1.b., III.G.1.c., III.G.3.c. and III.G.6., in order to raise current fees for certification of individuals and asbestos abatement firms and fees for asbestos abatement and demolition notices and permits. New fees are proposed for registration of asbestos training providers, asbestos consulting firms and asbestos laboratories. The fees will be adjusted commencing in 2008. The increases are necessary to cover current and rising program costs.

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in Section 25-7-510 C.R.S., which allows the Commission to adjust fees so that the revenue generated is sufficient to cover direct and indirect costs to implement the Asbestos program.

Purpose

The revisions to Regulation Number 8, Part B, Sections I.B.13., I.B.14., I.B.15., (all other definition numbers will be updated to reflect these 3 additions), II.B.1., II.B.2., II.C.2., II.C.4., II.C.6., II.D.2., II.D.3.b.(iv), II.E.1., II.E.1.a., II.G.1., II.G.2., II.L., II.M., II.N., III.E.1.b., III.E.1.c., III.E.1.d., III.F., III.G.1.b., III.G.1.c., III.G.3.c. and III.G.6. will cover existing and anticipated shortfalls.

VII.H. Findings in Support of Adoption of Emergency Revisions to Regulation Number 8, Part B
Clarifying the Requirements for Single-Family Residential Dwellings (October 16, 2019)

Pursuant to § 24-4-103(6) C.R.S. and 5 Code Colo. Reg. § 1001-1, § V.C.6.a., the Air Quality Control Commission (“Commission”) adopted revisions to Regulation 8, Part B effective on October 16, 2019.

Basis

Regulation Number 8, Part B, sets forth the Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act (“Act”). On August 15, 2019, the Colorado Department of Public Health and Environment, Air Pollution Control Division (“Division”) was made aware of a Colorado Court of Appeals case, decided on August 1, 2019 (See *Ferraro v. Frias Drywall, LLC*, 2019COA123). The Division was not a party in the District Court, nor at the Court of Appeals. In *Ferraro*, the Court of Appeals held that there is no duty to inspect single-family residential dwellings for suspect asbestos containing materials prior to renovation or demolition. In part, the Court of Appeals based its decision on an inconsistency in the definition of “facility” in Regulation 8, Part B. Therefore, the Division requested an emergency rulemaking to clarify the requirements for single-family residential dwellings, ensure compliance with state law and preserve public health, safety and welfare.

Specific Statutory Authority

The Colorado Administrative Procedure Act, § 24-4-103(6) and 5 Code Colo. Reg. § 1001-1, § V.C.6.a. gives the Commission authority to adopt a temporary or emergency rule. Furthermore, the specific statutory authority for these revisions is set forth in various sections of the Act. Section 25-7-105(1), C.R.S., gives the Commission general authority to promulgate rules and regulations, necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations regarding asbestos. The provisions set forth in §§ 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in single-family residential dwellings. Section 25-7-502(1) explicitly states that single-family residential dwellings must be considered an area of public access unless the homeowner opts out. Additional authority regarding single-family residential dwellings is set forth in § 25-7-504, C.R.S.

Purpose

These changes address the immediate need to clarify the requirements for single-family residential dwellings, which enables the Division to comply with state law and ensure single-family residential homeowners are protected from harmful asbestos spills and improper asbestos abatement.

Findings Pursuant to § 24-4-103(6), C.R.S.

The Commission is aware that if it does not take emergency action to adopt these revisions single-family residential homeowners may be exposed to harmful asbestos due to the regulatory uncertainty caused by *Ferraro*. The Commission finds the immediate adoption of these revisions is imperatively necessary to comply with state law, to preserve the public health, safety and welfare, and that compliance with the normal rulemaking requirements of § 24-4-103 C.R.S., resulting in further delay, would be contrary to the public interest.

Findings Pursuant to § 25-7-110.5(5), C.R.S.

EPA's National Emission Standards for Hazardous Air Pollutants ("NESHAP") rules do not limit states from developing more stringent requirements for asbestos. However, in accordance with C.R.S. § 25-7-110.5(5)(b) and after considering all of the evidence in the record, the Commission determines:

- I. EPA established national standards for asbestos. EPA's national rules do not limit states from developing more stringent requirements for asbestos. The proposal maintains additional asbestos requirements above the NESHAP.
- II. The federal rules discussed in (I) are primarily performance-based and there is flexibility in those requirements.
- III. The NESHAP does not address the issues that are of concern to Colorado and did not take into account concerns unique to Colorado.
- IV. The proposed revisions will improve the ability of the regulated community to comply in a more cost-effective way by clarifying confusing or potentially conflicting requirements and increasing certainty.
- V. The NESHAP has already been implemented in Colorado so there are no timing issues that might justify changing the time frame for implementation.
- VI. The proposed revisions will assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth.
- VII. The proposed revisions maintain reasonable equity in the requirements for various sources by instituting the same requirements for single-family residential dwellings and public and commercial buildings.
- VIII. Colorado homeowners may face increased costs from asbestos spills if the proposed revisions are not adopted.
- IX. The proposed revisions include minimal monitoring, recordkeeping, and procedural requirements that correlate to the NESHAP requirements.
- X. Demonstrated technology is available to comply with the proposed revisions since the revisions only clarify what has already been implemented and the regulated community has been doing for over fifteen years.
- XI. The proposed revisions contribute to the prevention of harmful asbestos exposure in a cost-effective manner as demonstrated in their implementation over the last fifteen years.
- XII. Although alternative revisions may reduce asbestos exposure, the Commission determined that the division's proposal was reasonable and cost-effective.

Findings Pursuant to § 25-7-110.8, C.R.S.

After considering all of the information in the record, the Commission makes the determination that:

- I. These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. The Commission has considered all information submitted by interested parties.
- II. Evidence in the record supports the finding that the requirements of these revisions will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.
- III. Evidence in the record supports the finding that the revisions are the most cost-effective, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

These revisions are to be effective October 16, 2019, and continue in effect until the effective date of permanent revisions, or for 120 days, whichever comes first.

- VII.I. Revisions to Restore the Status Quo by Clarifying the Requirements for Single-Family Residential Dwellings (January 16, 2020)

This Statement of Basis, Specific Statutory Authority and Purpose complies with the requirements of the Colorado Administrative Procedure Act Section 24-4-103(4), C.R.S., the Colorado Air Pollution Prevention and Control Act (“Act”), and the Air Quality Control Commission’s (“Commission”) Procedural Rules

Basis

Regulation Number 8, Part B, sets forth the Commission’s asbestos control program. The statutory authority for this program is contained in the Act. On August 15, 2019, the Colorado Department of Public Health and Environment, Air Pollution Control Division (“Division”) was made aware of a Colorado Court of Appeals case, decided on August 1, 2019 (*See Ferraro v. Frias Drywall, LLC*, 451 P.3d 1255 (Colo. App. 2019)). The Division was not a party in the District Court, nor at the Court of Appeals. In *Ferraro*, the Court of Appeals held there is no duty to inspect single-family residential dwellings for suspect asbestos containing materials prior to renovation or demolition. In part, the Court of Appeals based its decision on an inconsistency in the definition of “facility” in Regulation Number 8, Part B. The *Ferraro* decision caused regulatory uncertainty, violation of state law and risk to the public health, safety and welfare.

Specific Statutory Authority

Specific statutory authority for these revisions is set forth in various sections of the Act. Section 25-7-105(1), C.R.S., gives the Commission general authority to promulgate rules and regulations, necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations regarding asbestos. The provisions set forth in §§ 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in areas of public access, which includes single-family residential dwellings. Section 25-7-502(1), C.R.S. explicitly states that single-family residential dwellings must be considered an area of public access unless the homeowner opts out. Additional authority regarding single-family residential dwellings is set forth in § 25-7-504, C.R.S.

Purpose

The adoption of these revisions make the temporary revisions, adopted on October 16, 2019, permanent. These changes address the need to clarify the inspection requirements for single-family residential dwellings, which restores the status quo, reestablishes regulatory certainty and enables the Division to comply with state law and ensure Colorado citizens are protected from harmful asbestos spills and improper asbestos abatement.

Findings Pursuant to § 25-7-110.5(5), C.R.S.

EPA's National Emission Standards for Hazardous Air Pollutants ("NESHAP") rules do not limit states from developing more stringent requirements for asbestos. However, in accordance with C.R.S. § 25-7-110.5(5)(b), C.R.S. and after considering all of the evidence in the record, the Commission determines:

- I. EPA established national standards for asbestos. EPA's national rules do not limit states from developing more stringent requirements for asbestos. The proposal maintains additional asbestos requirements above the NESHAP.
- II. The federal rules discussed in (I) are primarily performance-based and there is flexibility in those requirements.
- III. The NESHAP does not address the issues that are of concern to Colorado and did not take into account concerns unique to Colorado.
- IV. The proposed revisions will improve the ability of the regulated community to comply in a more cost-effective way by clarifying confusing or potentially conflicting requirements and increasing certainty.
- V. The NESHAP has already been implemented in Colorado so there are no timing issues that might justify changing the time frame for implementation.
- VI. The proposed revisions will assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth.
- VII. The proposed revisions maintain reasonable equity in the requirements for various sources by instituting the same requirements for single-family residential dwellings and public and commercial buildings.
- VIII. Colorado homeowners may face increased costs from asbestos spills if the proposed revisions are not adopted.
- IX. The proposed revisions include minimal monitoring, recordkeeping, and procedural requirements that correlate to the NESHAP requirements.
- X. Demonstrated technology is available to comply with the proposed revisions since the revisions only restore status quo and clarify what has already been implemented and the regulated community has been complying with for over fifteen years.
- XI. As set forth in the Economic Impact Analysis, the proposed revisions contribute to the prevention of harmful asbestos exposure in a cost-effective manner.
- XII. Although alternative revisions may reduce asbestos exposure, the Commission determined that the Division's proposal was reasonable and cost-effective.

Findings Pursuant to § 25-7-110.8, C.R.S.

After considering all of the information in the record, the Commission makes the determination that:

- I. These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. The Commission has considered all information submitted by interested parties.
- II. Evidence in the record supports the finding that the requirements of these revisions will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.
- III. Evidence in the record supports the finding that the revisions are the most cost-effective, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.
- VII.J. Findings in Support of Adoption of Emergency Revisions to Regulation Number 8, Part B Which Clarify the Requirements for Single-Family Residential Dwellings, in Order to Bridge the Gap Between when the Temporary Rule Expires and the Permanent Rule Becomes Effective (January 16, 2020)

Pursuant to § 24-4-103(6), C.R.S. and 5 Code Colo. Reg. § 1001-1, § V.C.6.a., the Air Quality Control Commission (“Commission”) adopted revisions to Regulation 8, Part B effective on January 16, 2020.

Basis

Regulation Number 8, Part B, sets forth the Commission's asbestos control program. The statutory authority for this program is contained in the Colorado Air Pollution Prevention and Control Act (“Act”). On August 15, 2019, the Colorado Department of Public Health and Environment, Air Pollution Control Division (“Division”) was made aware of a Colorado Court of Appeals case, decided on August 1, 2019 (See *Ferraro v. Frias Drywall, LLC*, 451 P.3d 1255 (Colo. App. 2019)). The Division was not a party in the District Court, nor at the Court of Appeals. In *Ferraro*, the Court of Appeals held that there is no duty to inspect single-family residential dwellings for suspect asbestos containing materials prior to renovation or demolition. In part, the Court of Appeals based its decision on an inconsistency in the definition of “facility” in Regulation 8, Part B. On October 16, 2019, the Commission conducted an emergency rulemaking at which it adopted temporary revisions (“Temporary Revisions”) to clarify the requirements for single-family residential dwellings, ensure compliance with state law and preserve public health, safety and welfare. On January 16, 2020, the Commission conducted a normal rulemaking in compliance with §§ 24-4-103(3) and (4), C.R.S., at which it adopted the identical revisions on a permanent basis (“Permanent Revisions”).

Specific Statutory Authority

The Colorado Administrative Procedure Act, § 24-4-103(6), C.R.S. and 5 Code Colo. Reg. § 1001-1, § V.C.6.a. gives the Commission authority to adopt a temporary or emergency rule. Furthermore, the specific statutory authority for these revisions is set forth in various sections of the Act. Section 25-7-105(1), C.R.S., gives the Commission general authority to promulgate rules and regulations, necessary for the proper implementation of the Act. Additionally, the various provisions set forth in Part 5 of the Act give the Commission specific authority to promulgate regulations regarding asbestos. The provisions set forth in §§ 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in single-family residential dwellings. Section 25-7-502(1), C.R.S. explicitly states that single-family residential dwellings must be considered an area of public access unless the homeowner opts out. Additional authority regarding single-family residential dwellings is set forth in § 25-7-504, C.R.S.

Purpose

The Temporary Revisions will expire before the Permanent Revisions become effective. Therefore, the adoption of these revisions, which are identical to the Temporary Revisions and Permanent Revisions, on an emergency basis will address the immediate need to bridge the gap between when the Temporary Revisions expire and the Permanent Revisions become effective. The revisions restore the status quo by clarifying the requirements for single-family residential dwellings, which enables the Division to comply with state law and ensure single-family residential homeowners are protected from harmful asbestos spills and improper asbestos abatement.

Findings Pursuant to § 24-4-103(6), C.R.S.

The Commission is aware that if it does not take emergency action to adopt these revisions, a regulatory gap will occur and single-family residential homeowners may be exposed to harmful asbestos due to the regulatory uncertainty caused by *Ferraro*. The Commission finds the immediate adoption of these revisions is imperatively necessary to comply with state law, to preserve the public health, safety and welfare, and that compliance with the normal rulemaking requirements of § 24-4-103 C.R.S., resulting in a regulatory gap, would be contrary to the public interest.

Findings Pursuant to § 25-7-110.5(5), C.R.S.

EPA's National Emission Standards for Hazardous Air Pollutants ("NESHAP") rules do not limit states from developing more stringent requirements for asbestos. However, in accordance with § 25-7-110.5(5)(b), C.R.S., and after considering all of the evidence in the record, the Commission determines:

- I. EPA established national standards for asbestos. EPA's national rules do not limit states from developing more stringent requirements for asbestos. The proposal maintains additional asbestos requirements above the NESHAP.
- II. The federal rules discussed in (I) are primarily performance-based and there is flexibility in those requirements.
- III. The NESHAP does not address the issues that are of concern to Colorado and did not take into account concerns unique to Colorado.
- IV. The proposed revisions will improve the ability of the regulated community to comply in a more cost-effective way by clarifying confusing or potentially conflicting requirements and increasing certainty.
- V. The NESHAP has already been implemented in Colorado so there are no timing issues that might justify changing the time frame for implementation.
- VI. The proposed revisions will assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth.
- VII. The proposed revisions maintain reasonable equity in the requirements for various sources by instituting the same requirements for single-family residential dwellings and public and commercial buildings.
- VIII. Colorado homeowners may face increased costs from asbestos spills if the proposed revisions are not adopted.
- IX. The proposed revisions include minimal monitoring, recordkeeping, and procedural requirements that correlate to the NESHAP requirements.

- X. Demonstrated technology is available to comply with the proposed revisions since the revisions only clarify what has already been implemented and the regulated community has been doing for over fifteen years.
- XI. The proposed revisions contribute to the prevention of harmful asbestos exposure in a cost-effective manner as demonstrated in their implementation over the last fifteen years.
- XII. Although alternative revisions may reduce asbestos exposure, the Commission determined that the Division's proposal was reasonable and cost-effective.

Findings Pursuant to § 25-7-110.8, C.R.S.

After considering all of the information in the record, the Commission makes the determination that:

- I. These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. The Commission has considered all information submitted by interested parties.
- II. Evidence in the record supports the finding that the requirements of these revisions will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.
- III. Evidence in the record supports the finding that the revisions are the most cost-effective, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

These revisions are to be effective January 16, 2020, and continue in effect until the effective date of the Permanent Revisions or for 120 days, whichever comes first.

- VII.K. Revision to Sections I., II., and III. Which Update Incorporations by Reference; Address Inaccurate and Missing Definitions; Clarify and Update Certification Requirements; and Clarify and Update Requirements for Abatement, Renovation and Demolition Projects (January 22, 2021)

This Statement of Basis, Specific Statutory Authority and Purpose complies with the requirements of the Colorado Administrative Procedure Act § 24-4-103(4), C.R.S., the Colorado Air Pollution Prevention and Control Act ("Act"), and the Air Quality Control Commission's ("Commission") Procedural Rules

Basis

Regulation 8, Part B, sets forth the Commission's asbestos control program. The main statutory authority for this program is contained in Part 5 of the Act. Regulation Number 8, Part B had not undergone substantive revisions since 2003. Therefore, it was determined certain substantive changes were necessary to address outstanding issues. The rule revisions updated incorporations by reference; addressed inaccurate and missing definitions; clarified and updated certification requirements; and clarified and updated requirements for abatement, renovation and demolition projects.

Specific Statutory Authority

The Act, §§ 25-7-101, C.R.S., *et seq.*, specifically § 25-7-105(1), gives the Commission general authority to promulgate rules and regulations, necessary for the proper implementation of the Act. Section 25-7-503, C.R.S. directs the Commission to promulgate such rules and regulations as are necessary to implement the provisions of Part 5 regarding areas of public access and as required by the federal Clean Air Act, 42 U.S.C., sec. 7412 *et seq.* (regarding Hazardous Air Pollutants). The implementing regulations for hazardous air pollutants are the National Emission Standards for Hazardous Air Pollutants (“NESHAP”). The asbestos NESHAP is found at 40 CFR Part 61, Subpart M. Section 25-7-501(1), C.R.S. states it is the intent of the general assembly that the Commission may adopt regulations to permit the enforcement of the NESHAP.

Section 25-7-503(1)(a)(I), C.R.S. directs the Commission to promulgate performance standards and practices for asbestos abatement which are not more stringent than occupational asbestos exposure as covered under the federal Occupational Safety and Health Administration (OSHA). Section 25-7-503(1)(a)(II), C.R.S. directs the Commission to promulgate rules regarding the maximum allowable asbestos level. Section 25-7-503(1)(a)(IV), C.R.S. directs the Commission to promulgate requirements for air pollution permits, which includes asbestos abatement projects. Section 25-7-503(1)(a)(IX), C.R.S. directs the Commission to promulgate assessment procedures which determine the need for response actions for friable asbestos-containing materials. Section 25-7-503(1)(b)(I) directs the Commission to promulgate rules determining the minimum scope (i.e. trigger levels) of asbestos abatement to which Part 5 applies. Section 25-7-503(1)(b)(II), C.R.S. directs the Commission to promulgate rules regarding notification requirements, consistent with the Clean Air Act, to demolish, renovate, or perform asbestos abatement in any building, structure, facility or installation, or any portion thereof, which contains asbestos (unless below trigger levels or otherwise exempt). Section 25-7-502(1)(a), C.R.S. dictates that single-family residential dwellings are included in the same category as buildings, facilities, installations or any portion thereof. Notice provisions in the NESHAP involve regulated asbestos-containing material (RACM), which includes both friable and nonfriable asbestos containing materials. Section 25-7-503(1)(b)(III), C.R.S. directs the Commission to promulgate rules regarding procedures for the inspection and monitoring of sites where demolition, renovation, or the performance of asbestos abatement is taking place. Section 25-7-503(1)(b)(V) directs the Commission to promulgate requirements to prevent any real or potential conflict of interest between the identification of asbestos-containing materials and the abatement of such materials. Section 25-7-503(1)(d), C.R.S. gives the Commission power to authorize the Air Pollution Control Division (Division) to establish procedures regarding applications, examinations, and certifications required under Part 5. Section 25-7-503(1)(e), C.R.S. directs the Commission to promulgate rules setting minimum standards for sampling the asbestos in the air and standards for persons engaging in such sampling.

Additionally, other various provisions set forth in Part 5 of the Act dictate Colorado-specific requirements for asbestos. Section 25-7-501, C.R.S. specifically provides that it is in the interest of the general public to control the exposure of the general public to friable asbestos and it is the intent of the general assembly that the practice of asbestos abatement be regulated in areas which the general public has access to ensure the abatement is performed in a manner that will minimize the risk of release of asbestos. The provisions set forth in §§ 25-7-502 and 25-7-503, C.R.S. authorize the regulatory revisions governing asbestos control in areas of public access, which includes single-family residential dwellings. Section 25-7-502(1) C.R.S. explicitly states that single-family residential dwellings must be considered an area of public access unless the homeowner opts out. Authority regarding certifications is set forth in §§ 25-7-504, 505, 505.5, 506, 506.5, 507, and 507.5, C.R.S. Authority regarding denial of certification is set forth in § 25-7-508, C.R.S. Section 25-7-505(1), C.R.S. requires that to be certified as a General Abatement Contractor, an applicant must submit an application to the Division, in the form specified by the Division, and pay a fee set by the Commission. Sections 25-7-506 and 25-7-506.5 C.R.S. requires that to be certified as a Supervisor or Air Monitoring Specialists, applicants must submit an application to the Division, in the form specified by the Division, and pay a fee set by the Commission.

The Asbestos Hazard Emergency Response Act of 1986 (AHERA) (15 U.S.C. 2646) was enacted to identify, manage and reduce exposure to asbestos in schools. Subsequently, in 1990, Congress enacted the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) (Public Law 101-637) which amended AHERA to extend the training and accreditation requirements to persons performing such work in public and commercial buildings. States are mandated by AHERA to adopt an accreditation plan no less stringent than the Environmental Protection Agency's (EPA) Model Accreditation Plan (MAP). See 15 U.S.C. 2646(b)(2). Sections 25-7-503(1)(f)(I) and 25-7-507.5(5)(c)(1), C.R.S. of the Act give the Commission the power and duty to adopt these federal training and certification requirements and promulgate rules governing refresher training programs.

Purpose

The purpose of these changes are as follows: 1) Remove language that is no longer applicable or appropriate and update/add language regarding forms; 2) Update source materials incorporated by reference; 3) Add/clarify definitions; 4) Update and clarify the roles and responsibilities of various certified disciplines; 5) Address processes for examinations and requirements for course instruction; 6) Clarify inspection requirements; 7) Update requirements for project designs; 8) Clarify responsibilities of Project Managers; 9) Clarify requirements for single-family residential dwellings; 10) Clarify requirements for abatement activities; and 11) Update and clarify how to identify and respond to major asbestos spills.

The revisions will meet the requirements of federal law (NESHAP and AHERA) and state law (the Act).

The revisions also correct typographical, grammatical, and formatting errors found throughout the entire regulation.

The following explanations provide further insight into the Commission's intention for certain revisions and, where appropriate, the technological or scientific rationale for the revision.

SECTION I. INCORPORATED MATERIALS, DEFINITIONS, AND ACRONYMS

Incorporation by Reference (Section I.A.)

Section 24-4-103(12.5), C.R.S. of the State Administrative Procedure Act allows the Commission to incorporate by reference federal regulations. The criteria of §24-4-103(12.5), C.R.S. are met by including specific information and making the regulations available because repeating the full text of each of the federal regulations incorporated would be unduly cumbersome and inexpedient. To fully comply with these criteria, the Commission included updated reference dates to rules and reference methods incorporated in Regulation Number 8, Part B. The Commission removed references considered guidance or are no longer relevant. The Commission also incorporated by reference ASTM International Method D5755-09 (Reapproved April 2014), "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust Transmission Electron Microscopy for Asbestos Structure Number Surface Loading" and ASTM International Method D6480-19 (January 2019), "Standard Test Method for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy". It is the Commission's intent that, as staff to the Commission, the Division will maintain hard copies of these standards for public inspection as required by the Colorado Administrative Procedure Act.

Definitions (Section I.B.)

The Commission updated definitions that were unclear or incomplete. The Commission added definitions for Asbestos-contaminated, Business day, Conflict of Interest, Full containment, General Abatement Contractor, in poor condition, Installation, Inspection, Leak-tight, Major asbestos spill, Makeup air intake, Minor asbestos spill, Project, Quantify, and Secondary containment as these are all commonly used terms in the regulation and industry that were not previously defined. The Commission deleted the definition for Asbestos Abatement Contractor as it is not used in the Regulation and the definition for Friable Asbestos Containing Materials as the terms “friable” and “asbestos containing material” are already defined.

In updating the definitions for “friable” and “nonfriable”, it is the Commission’s intent to clarify that nonfriable material will become friable when reduced to a state that is likely to emit asbestos fibers. An example of this may include when floor tile is removed in a manner which reduces the tile to smaller pieces and generates particulates. Another example is when asbestos containing cement materials (commonly used as roofing, siding or pipe) are not removed or handled properly. When these materials are not removed intact (e.g. breaking it up with a hammer or cutting with a saw), the matrix will crumble which will allow the asbestos fibers to be emitted. Fire or extreme weathering are other examples when nonfriable materials may be reduced to a state that is likely to emit fibers, where the fire or weather has burned/stripped away the matrix that binds the asbestos fibers.

In defining “project”, it is the Commission’s intent to clarify that activities may not be broken up or separated to intentionally remain below trigger levels so as not to be subject to the requirements of Regulation 8, Part B.

Acronyms (Section I.C)

The Commission updated contact information for companies/agencies listed in this section.

SECTION II. CERTIFICATION REQUIREMENTS

General Requirements (Section II.A.)

The Commission revised the certifications requirements to prohibit renewal of a certification or registration where the individual has failed to pay in full a Division-assessed penalty for violating any provision of Regulation 8, Part B or failing to comply with any written order (e.g. compliance determination letter, cease and desist order, etc.) of the Division issued pursuant to part 5 of the Act.

Section II.A.3.

This section waived the application fee for any person who was certified to work solely on asbestos abatement in non-public access areas. Due to the fact the Division has not received a request since 2008 to work solely on asbestos abatement projects in non-public access areas, the confusing nature of this provision and certification, and the fact the Act speaks mostly to areas of Public Access, the Commission removed this section.

General Abatement Contractor Certificates (Section II.B.)

The Commission made both fees the same for out-of-state and in-state General Abatement Contractors.

Worker, Supervisor, Building Inspector, Management Planner, Project Designer and Air Monitoring Specialists Certificates (Sections II.C. and II.D.)

The Commission updated examination requirements to conform with statutory requirements. The Commission implemented more on-the-job training for Air Monitoring Specialists (AMS) to address deficiencies in the field. Grandfathered AMS requirements were removed since the deadline (June 30, 2003) to apply for the grandfathered certification has passed.

Training Provider Application Procedures, Instructor Qualifications, Training Course Notifications, Training Course Audits and Reciprocity (Sections II.E., II.F., II.G., II.H. and II.I.)

Which type of qualifications are required for the different types of instructor were often misunderstood. Therefore, the Commission added additional clarification for the qualifications and requirements of each type of instructor. Furthermore, the processes for becoming an instructor and obtaining reciprocity were also clarified. The federal MAP requires that a training instructor's approval must be based upon a review of the instructor's academic credentials and/or field experience in asbestos abatement. See 40 C.F.R. Pt. 263, Subpt. E, App. C, § I.B.

Asbestos Consulting Firm Registration and Asbestos Laboratory Registration (Sections II.L. and II.M.)

For clarity, the Commission added two new subtitles. The Commission also clarified that cities, counties and municipalities or other governmental entity employing appropriately trained and certified personnel, as required by this Regulation 8, Part B, will be exempt from paying the asbestos consulting firm registration fee. The Commission's intent in exempting these entities is to allow for the governmental agencies to provide a service to their constituents where commercial services are less readily available.

SECTION III. ABATEMENT, RENOVATION AND DEMOLITION PROJECTS

Inspection (Section III.A.)

Previously, Section III.A. required inspections, sampling and assessments to be performed as required by Section IV, which addresses schools. This caused confusion within the regulated community as to inspection requirements for non-school facilities. Therefore, the Commission copied the requirements for conducting an asbestos inspection, sampling, analysis and assessment of asbestos-containing materials (ACM) from Sections IV.C. through IV.F. into Section III.A. to clarify that the process and procedures developed for asbestos inspections in schools is the same process and procedures required for all other types of facilities in areas of public access. Since Section IV. deals solely with the management of ACBM in place, for Section III. the Commission edited and added some requirements to make them applicable to non-school facilities and ensure that any resulting abatement is performed in a manner which will minimize the risk of release of asbestos.

Sections III.A.3 and III.A.4.

The Commission added language requiring that an inspector quantify suspect ACM. In requiring that the inspector "quantify" suspect ACM, it is the Commission's intent to avoid conflicts of interest between the identification of ACM and the abatement of ACM. Section 25-7-503(1)(b)(V), C.R.S. specifically requires the Commission to promulgate such rules. If the same person abating the asbestos is also determining how much asbestos there is, there is a potential conflict of interest. The Commission intends that an inspector quantify, to the extent practicable, the amount of ACM in each homogeneous area. In some instances, it is recognized that ACM that is inaccessible without subjecting the building to extensive damage may not be quantifiable. This material must be noted with anticipated locations described as completely as possible so that inadvertent disturbance of the material does not occur.

The Commission also set-out minimum standards for what must be included in an inspection report and that the report must be present on site when renovation or demolition activities affecting inspected materials are being conducted. In requiring that an inspector provide a blueprint or diagram of the ACM, it is the Commission's intent to avoid the loss of factual information. Verbal and/or written descriptions may not provide the same certainty or permanence as visual identification due to the fact room names or numbers can frequently change due to changes in ownership or use of the building. For buildings that do not have blueprints or diagrams, or for smaller or less complicated buildings, it is the Commission's intent that a hand drawn sketch by the inspector will suffice for this requirement.

For buildings where security prohibits the inclusion of blueprints, diagrams or any hand drawn sketches, it is the Commission's intent that an accurate and detailed verbal description will suffice. Section 25-7-503(1)(a)(IX), C.R.S. gives the Commission both the power and duty to promulgate rules regarding assessment procedures which determine the need for response actions for friable asbestos-containing materials.

The Commission determined the previous procedures for determining the need for response actions for friable asbestos-containing materials, which may include nonfriable materials, were confusing. Furthermore, the requirements for what should be included in an inspection report were inadequate. Therefore, the Commission added and clarified procedures to ensure the inspection, subsequent analysis and report are adequate in order to properly determine the necessary response actions.

Section III.A.5.

The Commission added language to clarify when abatement is required. This includes clarifying that even if removal of asbestos is in an area of non-public access, if it will release asbestos into an area of public access (i.e. impact an area of public access), it will need to be abated in accordance with this Regulation 8, Part B. Examples of this include, but are not limited to, when asbestos fibers may travel into an area of public access through communal HVAC systems, through communal access, or if asbestos-containing materials not properly packaged will be transported through and/or stored in areas of public access.

Section III.A.6.

The Commission added language to clarify when abatement before demolition is required.

Use of Certified and Required Personnel (Section III.B.)

The Commission made minor changes to clarify existing requirements and remove obsolete language.

Project Design (Section III.C.)

Sections III.C.3, III.C.4. and III.C.5.

Prior to the start of any asbestos abatement project in an area of public access where the amount of asbestos-containing material exceeds a certain threshold, a written project design must be developed by a Project Designer. The Commission revised the requirements regarding the written project design to require the Project Designer to visit the site prior to creating the project design and added clarity as to what the project design must include. The Commission also added a requirement to ensure the abatement project is conducted in accordance with the project design.

Project Management (Section III.D.)

To ensure adequate notice and compliance, the Commission required the Project Manager to notify the Division of any deviations from the Project Manager's duties if the deviation(s) is/are not corrected within 24 hours.

Notifications (Section III.E.)

Sections III.E.1, III.E.2, and III.E.3.

The Commission simplified this section by separating out notification requirements for single-family residential dwellings, which includes the ability to opt out as allowed by § 25-7-502(1)(c), C.R.S. The Commission clarified that the opt out may only be used by a homeowner regarding his or her primary residence, which is the home the homeowner currently resides in. This means if, at the time of abatement, the homeowner knows the single-family residential dwelling will be accessed on a regular basis by someone other than the homeowner and their family, the opt out is not available. The purpose of this is to ensure only the people who opt out are subjected to the risks that may be associated with not following all proper abatement procedures and requirements.

Alternative Procedures and Variances (Section III.F.)

The Commission reduced the amount of time from 60 days to 45 days in which the Division must notify an applicant of its decision to either grant or deny a variance. The Commission also removed an exception for alternative procedures previously evaluated by the Division due to confusion around what constitutes a procedure that has been previously evaluated.

Permits (Section III.G.)

Section III.G.2.

The Commission added additional language and changed some language to clarify how an applicant should notify the Division regarding changes to a permit and what constitutes a change.

Section III.G.3.

The Commission added additional language and changed some language to clarify how permits for a multiple-phase project must be obtained. The Division has agreed to reduce the paperwork burden associated with the multi-phase project application process by eliminating the repetitive use of some forms such as, but not limited to, requiring a complete application form to be submitted for every phase.

Abatement Sequence (Section III.H.)

Section III.H.2.

The Commission added an additional step to clarify when coating may be applied and that such coating must be dry before final clearance air sampling may begin.

Section III.H.3.

The Commission added additional language to clarify that the handling of waste during either post-abatement or during active abatement must be done in accordance with Section III.R. (Waste Handling).

Air Cleaning and Negative Pressure Requirements (Section III.J.)

Section III.J.1.

The Commission made changes to ensure the use of the term negative air machines (NAMs) is consistent in the regulation and to clarify what constitutes proper maintenance of NAMs.

Section III.J.3.

The Commission added language requiring that manometers have an audible alarm to signal when pressure drops too low and that the alarm function must be kept in the audible mode during active abatement. This is to ensure all personnel onsite will be alerted if the pressure drops too low so immediate adjustments can be made.

Section III.J.4.

The Commission added language clarifying the purpose of smoke tubes is to also verify air movement within the work area.

Decontamination Unit (Section III.K)

Section III.K.1.

The Commission clarified that decontamination units should be used by all personnel and that the flaps must be self-closing. The purpose of this is to ensure the flaps will close automatically should negative pressure be lost. Where there is negative air pressure, the flaps are naturally pulled in toward the work area. If pressure is lost and the flaps are not designed correctly, the flaps may remain open and exhaust asbestos fibers.

Containment Components (Section III.N.)

Section III.N.1.

The Commission added language to clarify that polyethylene flooring must be installed unless asbestos containing flooring material is the only thing being removed. The purpose of the polyethylene flooring is to control water being used during abatement and prevent visible emissions.

Section III.N.3.

The Commission added language to address size requirements and self-closing flaps for the waste load-out area. The purpose of this is to clarify the waste load-out area must be large enough to accommodate large and/or oddly shaped debris, all while ensuring the flaps do not open and exhaust asbestos fibers.

Abatement Methods (Section III.O.)

Section III.O.1.

The Commission added language to address alternative methods for removing asbestos containing materials, with the use of additional engineering controls and without having to obtain a variance. The use of newer, aggressive mechanical methods significantly reduces the size of asbestos fibers during removal, which necessitates the need for additional engineering controls to ensure asbestos fibers and/or asbestos contaminated water are not emitted/released beyond the work area. Examples of additional controls that may be needed include an operator changing filters more often, use of more water or requiring additional air exchanges to clean the air of heavy loads of particulate.

Sections III.O.2 and III.O.3.

The Commission changed the language so a General Abatement Contractor is no longer required to erect a containment barrier for encapsulation or enclosure if the asbestos containing material is in good condition and the process will not cause visible emissions. The Commission clarified that the abatement area must still be cleared as required by Section III.P (Clearing Abatement Projects).

Clearing Abatement Projects (Section III.P.)

Section III.P.1.

The Commission added additional language requiring Air Monitoring Specialists (AMS) who conduct clearance sampling at abatement projects to provide written notification of the clearance to the General Abatement Contractor (GAC). The purpose of this is to ensure there is no miscommunication between the AMS and GAC, and that the GAC has written documentation that the site has been cleared. This written documentation may be provided to the building owner. This is a final step before releasing the abated area back to the general public, so proper communication is crucial.

Section III.P.3.

The Commission added language requiring a minimum amount of air to be collected during clearance air monitoring to be consistent with requirements of the analytical method. The Commission also added a requirement that analysts who analyze phase contrast microscopy samples must participate in their company's Proficiency Analytical Testing Program to ensure accuracy and consistency.

Tear-Down (Section III.Q.)

The Commission added language clarifying that vacuuming must be performed during the tear-down portion of the abatement project if minimal dust or debris is discovered.

Waste Handling (Section III.R.)

The Commission added language to clarify that all asbestos-containing waste materials must be removed from the abatement site at the conclusion of the project. If the volume of waste falls below a certain threshold and the property where the waste is stored is owned or operated by the General Abatement Contractor or building owner, the waste may be stored for a time not to exceed six months. This is to ensure the waste is disposed of properly while allowing flexibility for the regulated community.

Section III.R.2.

The Commission added language to prohibit the use of asbestos containing wastewater for wetting the abatement project. The purpose of this is to avoid the release of asbestos fibers that would occur when the water is applied.

Section III.R.3.

The Commission added language regarding the proper procedures regarding the disposal of asbestos waste.

Abatement of Special Materials (Section III.S.)

Section III.S.1.

The Commission added language regarding the friability of sheet vinyl flooring and clarifying that sheet vinyl flooring with a fibrous asbestos containing backing must be removed as a friable material unless removed as required by Section III.S.1.d. This is due to the fact the fibrous asbestos containing backing is extremely friable and when disturbed readily releases fibers.

Section III.S.2.

The Commission added language requiring that asbestos cement products over the trigger levels must be removed prior to demolition. Asbestos cement products readily emit asbestos fibers when disturbed. Therefore, the addition of this language was to ensure asbestos fibers from asbestos cement products are not released during demolition. This requirement also mirrors EPA guidance on asbestos cement products.

Asbestos Spill Response (Section III.T.)

Section III.T.1.

The Commission added this section as the first step for spill response. If it is already known or assumed that the disturbed materials contain asbestos and are greater than the trigger levels, a building owner, operator or contractor can simply proceed as if it is a major spill. If the asbestos content is unknown, the owner, operator or contractor must contact a certified asbestos building inspector to collect samples, and submit for analysis, to determine the type of spill. The inspector must prepare a report which identifies if the spill is major (i.e. above trigger levels and is asbestos containing material, which is material that contains more than 1% asbestos) or minor. Since the inspector is trained and certified and the most knowledgeable professional involved regarding the dangers of asbestos and what is required to address a spill, the Commission required the inspector to notify the Division and building owner of a major spill. Previously, the inspector was only required to notify the building owner. The building owner or, if they hired a contractor, the contractor was then required to notify the Division. The building owner would often fail to report to the Division or hire a contractor. Therefore, proper abatement was not completed and the Division was unaware of the spill. The requirement for the inspector to notify the Division will ensure asbestos spills are addressed as quickly as possible to minimize the danger to public health.

Section III.T.2.

The Commission reorganized and added additional steps regarding the response to major asbestos spills in order to ensure proper asbestos abatement. First, it required that an Air Monitoring Specialist (AMS) determine certain issues for both indoor and outdoor spills. The purpose of this is to ensure the most qualified professional (i.e. an AMS) is delineating the spills. The Commission added language requiring that samples for spill delineation must be collected and analyzed using the methods and procedures found in 40 C.F.R. Part 763, Appendix A to Subpart E (EPA 2010) "Interim Transmission Electron Microscopy Analytical Methods", ASTM International Method D5755-09 (Reapproved April 2014) "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading", or ASTM International Method D6480-19 (January 2019) "Standard Test Method for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy." Next, the Commission clarified the requirements for a clearance to ensure items are cleaned and cleared before they are returned to property owners and the general public. Objects subjected to an asbestos spill should meet the same clearance requirements as the area of the spill. The Commission added language to clarify that some abatement requirements apply to spills as well (e.g. decontamination, shower and negative pressure). The Commission also clarified that gross removal of additional asbestos-containing materials (ACM) must be done according to all abatement requirements. Additional ACM is ACM that was not part of the original spill.

The Commission added a requirement that any additional measures the Division deems necessary to protect public health in case of a major asbestos spill must be provided in writing. Any written measures provided pursuant to this Section III.T.2.e. are not intended to be final agency action unless and until incorporated into a Cease and Desist Order and/or Compliance Determination Letter.

The Commission removed the section regarding minor asbestos spills as those are below trigger levels and that section was considered guidance.

Maximum Allowable Asbestos Level (Section III.U.)

The Commission added language to clarify that if samples are collected outside a containment and those levels exceed the maximum allowable asbestos level, the General Abatement Contractor must either treat the affected area as an asbestos spill or reanalyze the samples. However, samples outside a containment area are not required.

Structurally Unsound Facilities (Section III.W.)

Previously, in the variances to demolish unsound buildings, the authority and qualifications of the individual determining the building must be demolished were not included. If a variance is granted to demolish an unsound building, all abatement requirements will not be followed. Therefore, the Commission revised and added language to clarify that any variance application to demolish a structurally unsound building must include the name, title, and qualifications of the State or local government representative who determined the structure is unsound. The purpose of this is to ensure only neutral, qualified individuals are making these determinations. The Commission also added a minimum set of requirements that must be addressed in each variance request for the demolition and abatement of a structurally unsound facility.

Exemptions (Section III.X.)

The Commission removed exemptions that are no longer applicable and added language clarifying other exemptions.

Forms and Guidance

In several sections the regulation requires information to be submitted “on forms specified by the Division”. Several parties raised the concern that the Division could change this form, requiring new or additional information without prior notification to or involvement by interested stakeholders, resulting in confusion and delays in the initiation and completion of asbestos abatement projects. The Division has indicated that it does not modify or add forms frequently. However, the Commission believes it is important for program efficiency that the Division work with the appropriate stakeholders who may be subject to a new or modified form to ensure that there is an opportunity to provide input on any substantive changes and to ensure that there is advance notice to those stakeholders affected prior to the form being finalized.

Parties advocated that more detailed abatement requirements be included in the regulation to avoid confusion on what is required during abatement projects. The Division expressed concern that it is not possible to include in regulations requirements that address every possible issue and scenario that may arise during abatement projects, preferring to address specific issues through guidance documents. The Commission agrees with the Division that attempting to include regulatory language that covers all issues and scenarios is impracticable. However, the Commission notes that there are several provisions in the regulation where the regulatory requirements are not specified in detail, leaving the regulated community unsure about what is acceptable compliance and resulting in delays in abatement projects, training, and certification.

The Commission supports the development of guidance to assist the regulated community in understanding what is required. Like the concern over “forms specified by the Division,” parties expressed concern that guidance documents could be issued without meaningful involvement by interested stakeholders. Parties also expressed concern that the Division would require compliance with any guidance issued in the same way as if it were a regulation. The Commission recognizes that guidance is not the same as a regulation: compliance with guidance should not be an enforceable requirement. Nevertheless, because guidance is intended to indicate what is acceptable in how to comply with the regulations, the Commission believes it important for the Division to involve stakeholders when it drafts new or revised guidance. The Commission understands that the Division has made the commitment to conduct a stakeholder process in the drafting of any guidance and it encourages the Division to commence meaningful stakeholder processes as expeditiously as possible to minimize confusion and delays. The Commission further requests the Division to provide an update to the Commission by October 2021.

Remote Training

Because of restrictions in in-person activities due to the COVID-19 pandemic, the Division has allowed for refresher trainings in the asbestos disciplines to be live-remote. Parties have submitted that virtual training should be allowed and more formally included in the regulation. The Division has recognized that live-remote refresher courses, where hands-on training is not as critical, may in the future be included in the regulation, but the Division does not support including live-remote training as an option now in the regulation stating that it has not had enough time to adequately evaluate the process. The Commission recognizes there are advantages associated with on-line training, including air quality and safety benefits associated with limiting commuting as well as enhanced access to training, especially for rural communities. With the need to continue restrictions in in-person activities until the COVID-19 pandemic is controlled, the Division should be able to collect sufficient data to evaluate the virtual training process and should have sufficient time to work with interested stakeholders to determine how virtual on-line training could be made a permanent option in the regulation. The Commission encourages the Division to continue authorizing live-remote refresher courses in the interim until a determination is made regarding a rulemaking to consider a regulatory change.

Findings Pursuant to § 25-7-110.5(5), C.R.S.

EPA’s NESHAP and AHERA rules do not limit states from developing more stringent requirements for asbestos. In accordance with C.R.S. § 25-7-110.5(5)(b) and after considering all of the evidence in the record, the Commission determines:

- I. EPA established national standards for asbestos. EPA’s national rules do not limit states from developing more stringent requirements for asbestos. The proposal maintains additional asbestos requirements above the NESHAP.
- II. The federal rules discussed in (I) are primarily performance-based and there is flexibility in those requirements.
- III. The NESHAP does not address the issues that are of concern to Colorado and did not take into account concerns unique to Colorado.
- IV. The proposed revisions will improve the ability of the regulated community to comply in a more cost-effective way by clarifying confusing or potentially conflicting requirements and increasing certainty.
- V. The NESHAP and AHERA have already been implemented in Colorado so there are no timing issues that might justify changing the time frame for implementation.

- VI. The proposed revisions will assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth.
- VII. The proposed revisions establish and maintain reasonable equity in the requirements for various sources by adding clarity and consistency.
- VIII. Colorado homeowners, building owners and the general public may face increased costs from asbestos spills and improper abatement if the proposed revisions are not adopted.
- IX. The proposed revisions include minimal monitoring, recordkeeping, and procedural requirements that correlate to the NESHAP and AHERA requirements.
- X. Demonstrated technology is available to comply with the proposed revisions since many of the revisions only clarify existing requirements, which some in the regulated community have been complying with for several years.
- XI. As set forth in the Economic Impact Analysis, the proposed revisions contribute to the prevention of harmful asbestos exposure in a cost-effective manner.
- XII. Although alternative revisions may reduce asbestos exposure, the Commission determined that the Division's proposal was reasonable and cost-effective.

Findings Pursuant to §25-7-110.8, C.R.S.

After considering all of the information in the record, the Commission makes the determination that:

- I. These revisions are based on reasonably available, validated and reviewed, and sound scientific methodologies demonstrating that exposure to asbestos creates a public health hazard. The Commission has considered all information submitted by interested parties.
- II. Evidence in the record supports the finding that the requirements of these revisions will reduce public exposure to harmful asbestos fibers and therefore reduce the risks to human health and the environment thereby justifying the costs associated with this regulation.
- III. Evidence in the record supports the finding that the revisions are the most cost-effective, which best balances cost-effectiveness, flexibility to the regulated community and maximization of air quality benefits.

APPENDIX A

This section is non-mandatory. It was designed to provide guidance to contractors in conducting asbestos abatement in a safe fashion.

- A. Small Scale Projects
 - A.1. If friable asbestos-containing materials, in any amount less than or equal to the trigger levels, will be abated, all of Section A.4. should be followed.
 - A.2. Nothing in this Appendix A shall prevent an owner or operator from employing the work practices contained in Section III. (Abatement, Renovation and Demolition Projects) if it is more prudent or practical to do so.
 - A.3. For the purposes of this Appendix A, small scale, short-duration renovation and maintenance activities include but are not limited to:

- A.3.a. removal of asbestos-containing insulation on pipes;
 - A.3.b. removal of small quantities of asbestos-containing insulation on beams; or above ceilings;
 - A.3.c. replacement of an asbestos-containing gasket on a valve;
 - A.3.d. installation or removal of a small section of drywall;
 - A.3.e. installation of electrical conduits through or proximate to asbestos-containing materials.
- A.4. The following controls and work practices may be used to reduce asbestos exposures during small maintenance and renovation operations:
- A.4.a. All movable objects should be removed from the work area to protect them from asbestos contamination. Objects that cannot be removed should be covered completely with six (6) mil polyethylene plastic sheeting before work begins. If contamination has already occurred, they should be thoroughly cleaned with a HEPA vacuum or wet wiped before they are removed from the work area, or completely encased in plastic.
 - A.4.b. Wet methods

Whenever feasible, wet methods, such as those described in Section III.O.1.a.(i) (Wetting) should be used during small scale, short-duration maintenance and renovation projects.
 - A.4.c. Removal methods
 - A.4.c.(i) Use of glovebags should be in accordance with Section III.V.1. (Glovebags).
 - A.4.c.(ii) If a facility component is to be removed from a structure in order that abatement is performed at an alternate location, the facility component should be completely wrapped in polyethylene and removed to an area where the stripping can be done safely.
 - A.4.d. Containment Barriers
 - A.4.d.(i) Containment Barriers may be constructed in accordance with Section III.N. (Containment Components);
 - A.4.d.(ii) Mini containment barriers may be constructed in the following manner:
 - A.4.d.(ii) (A) Affix polyethylene sheeting to the walls with spray adhesive and tape;
 - A.4.d.(ii) (B) Cover the floor with polyethylene and seal it to the polyethylene covering the walls;
 - A.4.d.(ii) (C) Seal any penetrations such as pipes or electrical conduits with tape; and

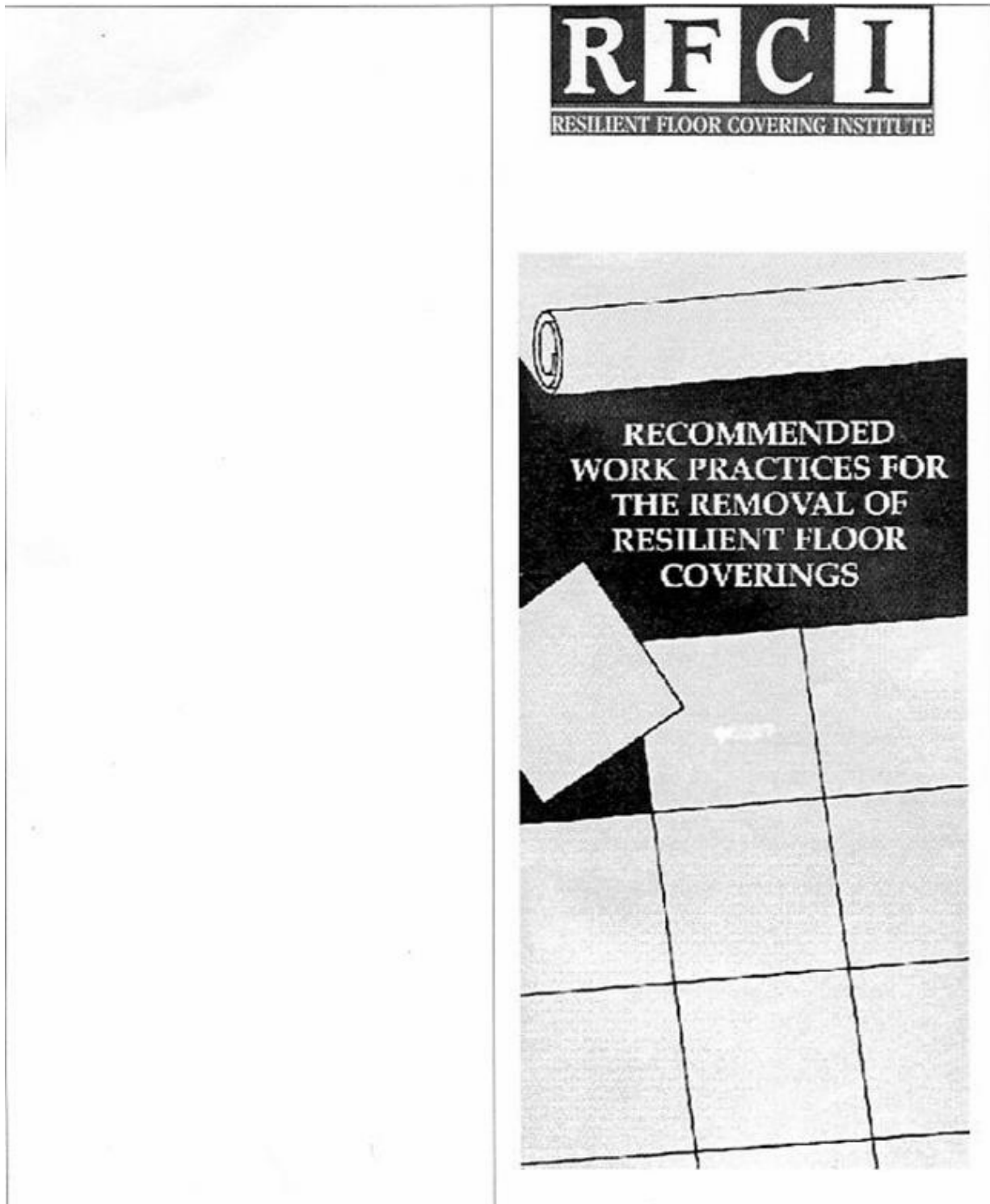
- A.4.d.(ii) (D) Construct a small change room (approximately 3 feet square) made of 6 mil polyethylene supported by 2 inch by 4-inch lumber (the polyethylene should be attached to the lumber supports with staples or spray adhesive and tape).
- A.4.d.(ii) (E) The change room should be contiguous to the work area and is necessary to allow the Worker to vacuum off his protective coveralls and remove them before leaving the work area.
- A.4.d.(ii) (F) While inside the work area, the Worker should wear Tyvek® disposable coveralls, in accordance with Section III.K.2.b.
- A.4.d.(ii) (G) Either a HEPA vacuum or a negative air HEPA unit should be used to establish negative air within the enclosure, in accordance with Section III.N. (Containment Components).

A.4.e. Clearance Air Monitoring

All requirements of Section III.P. (Clearing Abatement Projects) are optional, except that if air monitoring is performed, and the area has public access, the maximum allowable asbestos level shall not be exceeded.

APPENDIX B – BROCHURE

“Recommended Work Practices for the Removal of Resilient Floor Coverings”





WARNING

Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt or asphaltic "cut-back" adhesives.

These products may contain either *asbestos fibers* or *crystalline silica*.

Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard.

Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm.

Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.

The RFCI's *Recommended Work Practices for Removal of Resilient Floor Coverings* are a defined set of instructions which should be followed if you must remove existing resilient floor covering structures.

NOTICE

Various federal, state and local government agencies have regulations covering the removal of asbestos-containing material. If you are considering the removal of resilient floor covering that contains, or is presumed to contain, asbestos you should review and comply with the appropriate regulations.

This publication replaces prior editions of these work practices. Future editions of these work practices may be issued to replace this publication.

Issued by
Resilient Floor Covering Institute
966 Hungerford Drive
Suite 12-B
Rockville, MD 20850
(301) 340-8580

RECOMMENDED WORK PRACTICES FOR THE REMOVAL OF RESILIENT FLOOR COVERINGS

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IMPORTANT INFORMATION FOR INSTALLERS OF RESILIENT FLOOR COVERINGS

Introduction

The member companies of the Resilient Floor Covering Institute are manufacturers of the following forms of Resilient Floor Coverings:

1. Sheet Vinyl
2. Vinyl Floor Tile

While today these products do not contain asbestos, it is possible that in the past some of these products, including asphalt tile, may have contained firmly encapsulated asbestos fibers. In the past decade much attention has been focused on the relationship between exposure to asbestos fibers and respiratory ailments. It has been determined that inhalation of free airborne asbestos fibers may be injurious to health. However, the asbestos fibers contained in the above types of resilient floor coverings are **not free** but firmly encapsulated or **locked in** the product during the manufacturing process.

The Resilient Floor Covering Institute is providing this booklet of recommended work practices for installing or removing resilient floors so that you may proceed with this work in a prudent and protected manner.

There are several general rules to follow:

1. Unless positively certain that the floor is a non-asbestos product, presume it contains asbestos and treat it in the manner prescribed in this pamphlet for a floor containing asbestos.
2. It is preferred to install a new floor over a floor which contains asbestos rather than to remove that floor. This can be done by several methods – directly over the existing floor; installing new underlayment; or use of leveling compound following

installation procedures recommended by the floor covering manufacturer.

3. Removal should be considered the last alternative.
4. Never sand any resilient floor or it's backing to remove them from the floor (See Warning).
5. Use a vacuum equipped with a HEPA filter, disposable dust bag, and metal floor attachment (no brush).
6. All sheet removal must be done using detergent solution.
7. All tile removal must be done by wetting (misting) the tile prior to removal with a garden sprayer, except when heat s being used for removal.
8. All felt scraping must be done wet.
9. Do not dry sweep.
10. Material removed must be placed in heavy-duty polyethylene bags at least 6 mils thick or in a closed leak-tight container, properly labeled and disposed of in an authorized landfill.

OSHA Requirements

In August 1994, OSHA published standards which affect some of the operations described in this booklet. OSHA has determine that "intact" resilient floor covering materials can be removed under a "negative exposure assessment" in compliance with the revised standards by appropriately trained Workers using the Recommended Work Practices.

- **"Intact"** is defined to mean that the asbestos-containing material has not crumbled, been pulverized or otherwise deteriorated so that it is no longer likely to be bound to its matrix. The incidental breakage of flooring materials, or slicing of sheet vinyl floor covering with a sharp edged instrument, during removal operations conducted in accordance with the Recommended Work Practices does not mean that the materials are not removed in an "intact" condition. OSHA has recognized that resilient floor covering materials are considered nonfriable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing, or other aggressive operations.
- Installers of resilient floor covering materials that plan to use the Recommended Work Practices outlined in this book to remove intact and nonfriable

asbestos-containing flooring materials are required to complete an 8-hour **training program**.

- Employers must designate a **“competent person”** with 4 hours of additional training to be responsible for the health and safety of the Workers at the floor removal job site.
- OSHA has determined that the competent person can make a **“negative exposure assessment,”** based upon data in the OSHA asbestos rulemaking record (including data from the ENVIRON reports) showing that the use of the Recommended Work Practices during removal of intact flooring material consistently results in Worker exposures below the levels permitted in the OSHA standards.
- Where other Workers or persons may have access to the flooring removal worksite, the employer must establish a demarcated **“regulated area”** and post warning signs.
- Workers who engage in the removal of asbestos-containing flooring materials for more than 30 days per year (one hour or more per day) must receive **medical surveillance**.

RECOMMENDED WORK PRACTICES

PREPARATION OF FLOORS WITH EXISTING RESILIENT FLOOR COVERINGS TO RECEIVE NEW RESILIENT FLOOR COVERINGS

Follow the installation instruction published by the manufacturer of the new floor covering when a new resilient sheet or tile floor covering is to be installed on a surface presently covered with a resilient floor covering. These instructions will tell you what must be done to the existing surface before the new resilient floor covering can be installed.

On the four general procedures listed below, Items 1a, b, and c are covered by manufactures' instructions. Item 2 is covered specifically in this Work Practices Manual.

1. Resilient Floor Covering Installed Over...

- (a) **The Existing Surface.** Follow the manufacturer's instruction for removing wax, filling in low spots, etc. **Use wet scrubbing. Never sand an existing resilient floor covering.**
- (b) **New Underlayment.** Install panels on top of the existing surface (wood subfloors only) and apply new floor coverings directly over this. Follow the manufacturer's instructions.
- (c) **Leveling Compounds.** Follow the manufacturer's instructions.

2. Completely Removed Existing Resilient Floor Covering

- (a) **Sheet Vinyl** – See instructions below:
 - (1) “Complete Removal of Peripherally Adhered Sheet Vinyl Floor Coverings,” page 8.
 - (2) “Complete Removal of Fully Adhered Sheet Vinyl Floor Covering,” page 13.
- (b) **Tile** – See instructions under heading, “Complete Removal of an Existing Resilient Tile Floor Covering,” page 23.

SHEET VINYL FLOOR COVERING

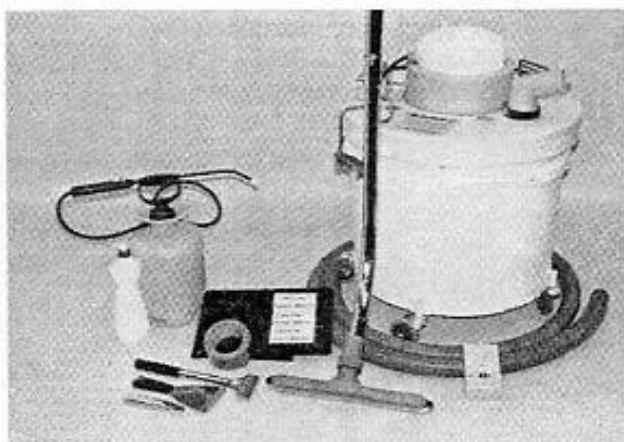
Preparation of Floors with Existing Sheet Vinyl Floor Covering to Receive a New Resilient Floor Covering

Sheet vinyl floor covering can be installed over existing resilient sheet vinyl floor covering under certain conditions. Be sure to follow the floor covering manufacturer's instructions regarding the conditions and floor preparations required.

If complete removal of the existing sheet vinyl floor covering is required, the following instructions are to be followed:

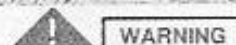
Supplies and Tools

1. Broad stiff-bladed wall scraper or floor scraper.
2. Utility or hook knife.
3. Tank type wet/dry HEPA (High Efficiency Particulate Air) filter vacuum cleaner with disposal dust bag and metal floor attachment (no brush).
4. Large size heavy-duty impermeable trash bags (at least 6 mils thick) or closed leak-tight containers, with ties, tapes, or string to tie shut and tags for labeling.
5. Garden sprayer.
6. A liquid dishwashing detergent which is stated to contain anionic, nonionic, and amphoteric surfactants. The detergent should be mixed with water to



Tools and supplies for sheet removal

6



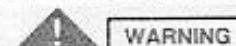
WARNING

Never sand an existing floor covering and never sand or dry scrape residual felt.

make a dilute solution (1 oz. of detergent in one gallon of water).*

7. Pressure sensitive labels.
8. Ground fault circuit interrupter for connection of HEPA vacuum and any other electrical equipment.

***PRECAUTION:** Resilient flooring becomes slippery when wet with a detergent solution. Use caution to contain the solution in the immediate work area. Standing on a *new sheet of plywood* or non-slip surface while working is recommended.



WARNING

Wash hands before eating and at the end of the work day.

7

COMPLETE REMOVAL OF PERIPHERALLY ADHERED SHEET VINYL FLOOR COVERING

A. Preparation

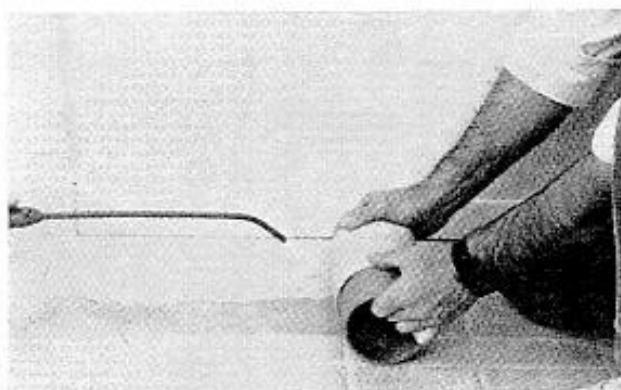
1. Move all appliances and furniture from the work area.
2. Remove all binding strips or other restrictive molding from doorways, walls, etc.
3. Mix a detergent solution (16 ounces of the specified liquid detergent [see Page 6, #6] to 1 gallon of warm water) and pour into a garden sprayer.
4. Clean the entire floor using a wet/dry vacuum cleaner equipped with a HEPA Filtration System and metal floor attachment (no brush). Do Not Sweep.



WARNING

ELECTRICAL SHOCK HAZARD EXISTS; USE A GROUND FAULT CIRCUIT INTERRUPTER FOR ANY ELECTRICAL CONNECTIONS IN A WET ENVIRONMENT.

- B. Make a slice in the adhered floor covering 4 to 8 inches wide, parallel with the walls, around the perimeter of the room.
- C. Start on either side of the entrance door, pry up the corner of the first strip, separating the backing layer. As the strip is being removed, a constant mist of the detergent solution must be sprayed into the delamination nip point to minimize any airborne dust particles.* When done properly, Any felt remaining on the floor and on the back of the strip



Spraying delamination nip.

will be thoroughly wet. The strip is peeled by pulling upward at the angle that permits the best separation or by rolling around a core.

- D. Roll the strip tightly as it is removed. Tie or tape securely and place in a heavy-duty leak-tight trash bag or closed impermeable container for disposal.
- E. It may be necessary to remove a second strip following steps (B, C, D) if the unadhered subfloor area has not been exposed.

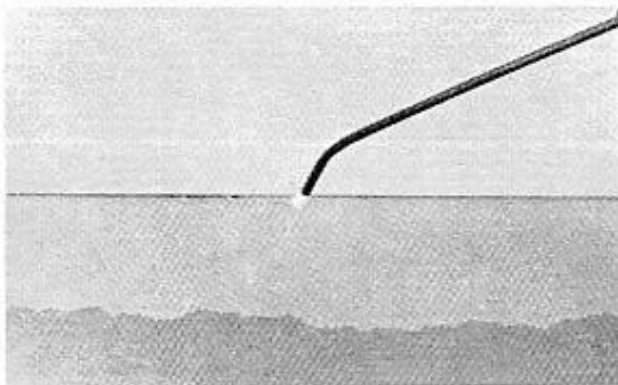
***PRECAUTION:** Resilient flooring becomes slippery when wet with detergent solution. Use caution to contain the solution in the immediate work area. Standing on a *new sheet of plywood* or non-slip surface while working is recommended.

- F. Remove all of the exposed residual felt by wet scraping before proceeding.

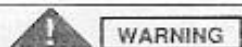
RESIDUAL FELT MUST BE REMOVED BY WET SCRAPING; DO NOT SAND OR DRY SCRAPE IN ANY WAY; DO NOT DRY SWEEP; AVOID CREATING DUST. SEE WARNING STATEMENT.

Wet Scraping Residual Felt

1. Thoroughly wet the residual felt with the detergent solution and allow a few minutes to soak.
2. Stand on the remaining floor covering (not the felt) and use the stiff-bladed scraper or a floor scraper with a replacement blade to remove the wet felt.



Wetting residual felt



Never sand or dry scrape residual felt. See Warning Statement.

3. Re-wet the felt if the solution has not completely penetrated, if drying occurs or if dry felt is exposed during scraping. Scrape all felt from this floor area before proceeding further. Pick up the scrapings as they are removed from the floor and place in a heavy-duty impermeable trash bag or closed leak-tight container.

PRECAUTION: Wet residual felt as above but do not excessively soak or flood wood floors with detergent solution. Excessive water can damage wood floors to the extent that new underlayment could be required. A floor that has been wet scraped must be allowed to dry thoroughly before new resilient flooring is installed.

- G. Continue around the room completely removing the adhered flooring along the perimeter, one strip at a time following steps B through F. Do not remove the flooring in the entrance doorway until all other flooring has been completely removed.
- H. Place all flooring strips and felt scrapings immediately while wet into the recommended trash bags. Close full bags tightly and seal securely for disposal. Identify with a label stating, "Caution-Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only.*



Placing felt scrapings and flooring strips in bag.

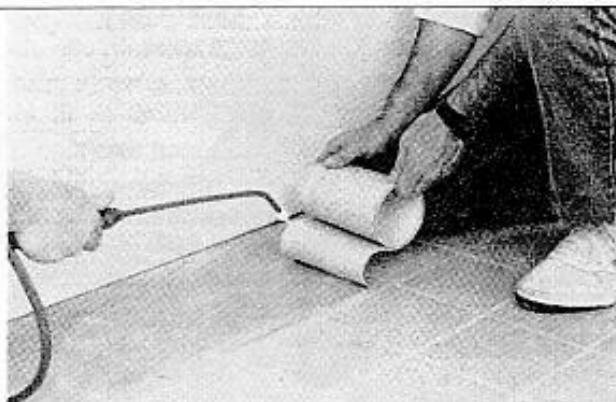
- I. Vacuum up any residue of wet felt scrapings immediately with a wet/dry vacuum equipped with a HEPA filter and metal floor attachment (no brush).
- J. Remove the unadhered flooring as detailed in the following steps.
- K. After vacuuming, used HEPA filters and cleaner bags should be removed according to the manufacturer's instructions and placed in a heavy-duty impermeable bag or leak-tight container with a label stating "Caution-Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only.

***NOTICE**

Various federal, state and local government agencies have regulations covering the removal of asbestos-containing material. If you are considering the removal of resilient floor covering that contains, or is presumed to contain, asbestos you should review and comply with the appropriate regulations. The RFCI recommended work practices are designed to comply with the federal occupational asbestos permissible exposure limits.

COMPLETE REMOVAL OF SHEET VINYL FLOORING IN UNADHERED AREAS AND FLOORING INSTALLED LOOSE LAID (WITHOUT ADHESIVE)

- A. Preparation
 - Move all appliances and furniture from the work area.
 - Remove all binding strips or other restrictive molding from doorways, walls, etc.
 - Prepare a detergent solution (16 ounces of the specified liquid detergent [see Page 6, #6] to 1 gallon of warm water) and pour into a garden sprayer.
 - Clean the entire floor using a wet/dry vacuum cleaner equipped with a HEPA Filtration System and metal floor attachment (no brush). Do Not Sweep.
- B. Start at the end of the room farthest from the entrance doorway and slice a strip 18 inches wide in the unadhered flooring.
- C. Remove the sliced strips while spraying the detergent solution directly into the separation nip point.

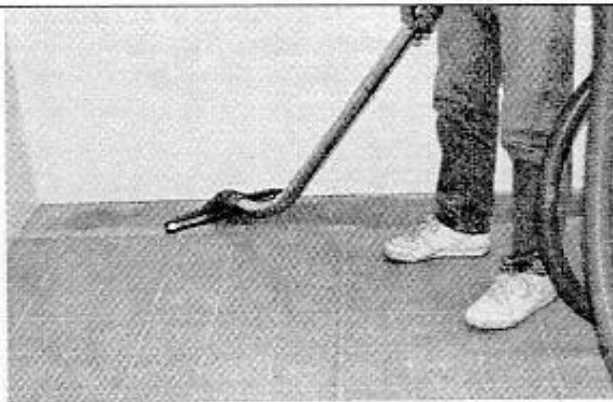


Spraying the separation nip point.

Do not stand or kneel on the exposed subfloor during the removal process.*

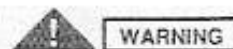
***PRECAUTION:** Resilient flooring becomes slippery when with a detergent solution. Use caution to contain the solution in the immediate work area. Standing on a *new sheet of plywood* or non-slip surface while working is recommended.

- D. Roll the wet strip tightly and tie or tape to secure. Continue working toward the doorway, slicing each strip and removing it while spraying the separation nip point with the detergent solution. Place the strips while still wet into a heavy-duty impermeable trash bag or closed leak-tight container. Close full bags tightly and seal securely for disposal. Identify with a label stating, "Caution-Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only. (See NOTICE page 11).
- E. After removing three strips of flooring, vacuum the exposed floor using a wet/dry vacuum equipped with a HEPA filter and metal floor attachment (no brush).
- F. Seams and other adhered areas should be removed as they are encountered by stripping the wear surface while spraying the detergent solution into the delamination nip point and wet scraping the residual felt as previously described in complete removal of peripherally adhered flooring.
- G. Continue removing flooring doing only one three-strip area at a time until the entire floor has been completely removed.



Vacuuming exposed floor after removing three strips of flooring.

- H. When the whole floor has been completely removed, let it dry and vacuum up any dust using a vacuum with a HEPA Filtration System and a metal floor attachment (no brush). Stand only in vacuumed areas as you proceed across the floor. Position the vacuum cleaner so that discharge air does not blow on the floor being cleaned.



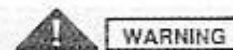
WARNING

Do not dry sweep; avoid creating dust. SEE WARNING STATEMENT.

- I. After vacuuming, used HEPA filters and cleaner bags should be removed according to manufacturer's instructions and placed into a heavy-duty impermeable trash bag or closed leak-tight container. Close full bags tightly and seal securely for disposal. Identify with a label stating, "Caution-Contains Asbestos. Avoid opening or braking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only.
- J. When the floor is dry, install the new resilient floor covering following manufacturer's installation recommendations.

COMPLETE REMOVAL OF AN EXISTING ADHERED SHEET VINYL FLOOR COVERING

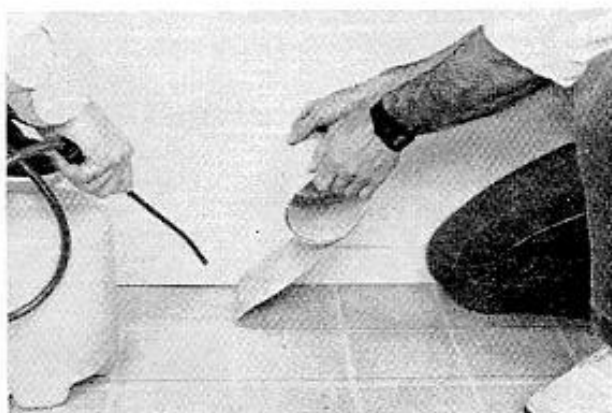
If complete removal is required, follow these instructions:



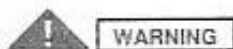
WARNING

Never Sand an Existing Floor Covering

- A. Preparation
1. Move all appliances and furniture from the work area.
 2. Remove all binding strips or other restrictive molding from doorways, walls, etc.
 3. Prepare a detergent solution (16 ounces of the specified detergent [See page 6] to 1 gallon of warm water) and pour into a garden sprayer.
 4. Clean the entire floor with a wet/dry vacuum equipped with a HEPA Filtration System and metal floor attachment (no brush). Do Not Sweep.
- B. Make a series of parallel slices 4 to 8 inches apart, parallel to a wall.
- C. Start at the end of the room farthest from the entrance door; pry up the corner of the first strip, separating the backing layer. As the strip is being removed, a constant mist of the detergent solution must be sprayed into the delamination nip point to minimize any airborne dust particles. When done properly, the felt remaining on the floor and on the back of the strip will be thoroughly wet. The strip is peeled by pulling upward at an angle that permits the best separation or by rolling around a core.



Spraying delamination nip.



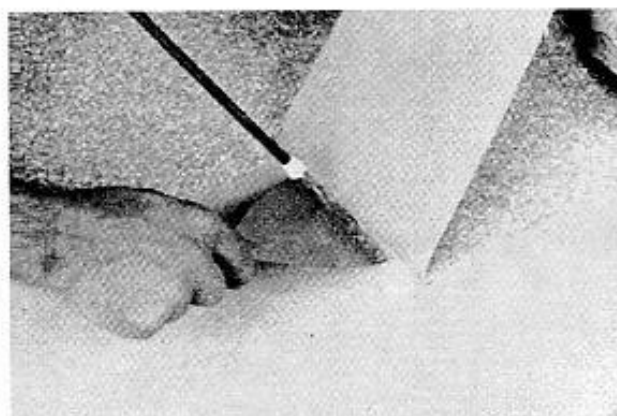
WARNING

ELECTRICAL SHOCK HAZARD EXISTS. USE A GROUND FAULT CIRCUIT INTERRUPTER FOR ANY ELECTRICAL CONNECTIONS IN A WET ENVIRONMENT.

- D. Roll the strip tightly as it is removed. Tie or tape securely and place in a heavy duty leak-tight trash bag or closed impermeable container for disposal.
- E. Occasionally, parts of the foam inner-layer will remain stuck to the backing. This condition can sometimes be eliminated by pulling the strips loose from the opposite end. Peel the foam inner-layer from the floor while spraying the detergent solution into the delamination nip point.

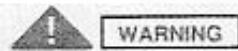
Some resilient flooring is not readily strippable by hand. When those conditions are encountered, it may be necessary to employ a sharp, stiff blade scraper to assist cleavage of the wearlayer from felt (distance between cuts in wearlayer should be narrower, 3" to 5" wide).

NOTE: Regardless of which one of the previously mentioned methods is used for stripping the wear surface, the detergent solution must be sprayed into the delamination nip point to minimize any airborne dust particles.



Using stiff blade scraper to assist wet removal

- F. Repeat the wetting and removal process on the next two strips, placing them immediately into the recommended trash bags or closed leak-tight containers for disposal.
- NOTE:** During the stripping process, do not stand or walk on the exposed felt.
- G. After removing three strips of the wear surface, the remaining residual felt must be removed by wet scraping before proceeding.



RESIDUAL FELT MUST BE REMOVED BY WET SCRAPING; DO NOT SAND OR DRY SCRAPE IN ANY WAY; DO NOT DRY SWEEP; AVOID CREATING DUST. SEE WARNING STATEMENT.

H. Wet Scraping Residual Felt

1. Thoroughly wet the residual felt with the detergent solution. Avoid excessive wetting or standing water. Wait a few minutes to allow the solution to soak into the felt.
2. Stand on the remaining floor covering (not the felt) and use the stiff-bladed scraper or a floor scraper with a replaceable blade to remove the wet felt.



Scrape from remaining floor covering.

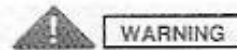


Never sand or dry scrape residual felt. See Warning Statement.

3. Re-wet the felt if the solution has not completely penetrated, if drying occurs or if dry felt is exposed during scraping. Scrape all felt from this floor area before proceeding further. Pick up the scrapings as they are removed from the floor and place in a heavy-duty impermeable trash bag or closed leak-tight container.
PRECAUTION: Wet residual felt as above but do not excessively soak or flood wood floors with detergent solution. Excessive water can damage

wood floors to the extent that new underlayment could be required. A floor that has been wet scraped must be allowed to dry thoroughly before new resilient flooring is installed.

4. After removing the three strips of flooring, vacuum the exposed floor using a wet/dry vacuum equipped with a HEPA filter and metal floor attachment (no brush).
- I. Repeat the operation (wetting the delamination nip point while removing the next three strips, then wet scrape the residual felt, then vacuum the exposed floor). Do only **one** three-strip area at a time until the entire floor has been completely removed.



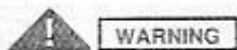
ELECTRICAL SHOCK HAZARD EXISTS, USE A GROUND FAULT CIRCUIT INTERRUPTER FOR ANY ELECTRICAL CONNECTIONS IN A WET ENVIRONMENT.

- J. Place all flooring strips and felt scrapings immediately while wet into the recommended trash bags or closed leak-tight container. Close full bags tightly and seal securely for disposal.

Identify with a label stating, "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose in an approved landfill only. (See NOTICE page 11.)



Proper disposal.



DO NOT DRY SWEEP; AVOID CREATING DUST. SEE WARNING STATEMENT.

- K. When the whole floor has been completely removed, let it dry and vacuum up any dirt using a vacuum with a HEPA Filtration System and a metal floor attachment (no brush). Stand only in vacuumed area as you proceed across the floor. Position the vacuum cleaner so the discharged air does not blow on the floor being cleaned.



Vacuuming entire floor.

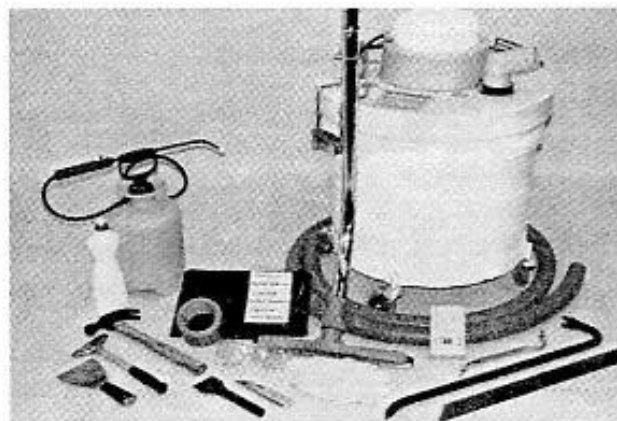
- L. Carefully remove the dust bag and place it in a heavy-duty impermeable trash bag or closed leak-tight container for disposal, which is labeled as above.
- M. When the floor is dry, it is ready to have a new resilient floor covering installed. Follow the floor covering manufacturer's instructions.

COMPETE REMOVAL OF THIN WOOD UNDERLAYMENT COVERED WITH EXISTING SHEET VINYL RESILIENT FLOORING

The removal of resilient flooring over wood subfloors using the wet stripping/wet scraping method may not be practical in cases where multiple layers of floor covering are present, where non-recommended underlayments were used, or where the flooring was made with a heavy foam backing. As an alternative, the

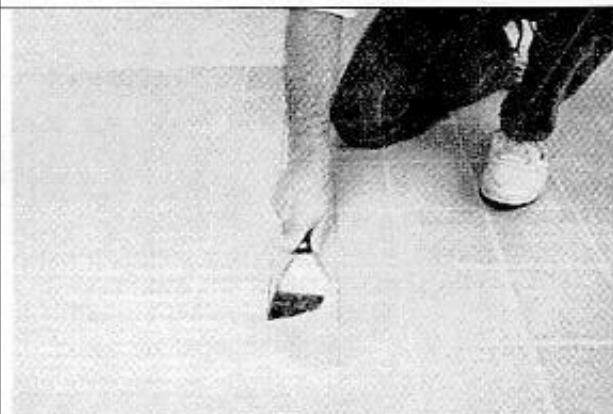
wood underlayment can be removed with the flooring adhered to it. Following are the details.

- A. Preparation
- Move all appliances and furniture from the work area.
 - Remove all binding strips or other restrictive molding from doorways, walls, etc.
 - Prepare a detergent solution (16 ounces of the specified liquid detergent [See page 6] to 1 gallon of warm water) and pour into a garden sprayer.



Tools needed.

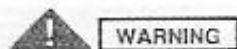
- Clean the entire floor with a wet/dry vacuum equipped with a HEPA Filtration System and metal floor attachment (no brush).
- B. Locate the joints of the underlayment panel farthest from the entrance door.
- C. Slice a strip of the flooring 4 to 8 inches wide centered over the underlayment joint in the panel being removed.
- D. Pry up the corner of the strip separating the backing layer. As the strip is being removed, a constant mist of the detergent solution must be sprayed into the delamination nip point to minimize any airborne dust particles.* When done properly, any felt remaining on the floor and on the back of the strip will be thoroughly wet. The strip is peeled by pulling upward at an angle that permits the best separation or by rolling around a core.



Wet removal of strip over underlayment joint.

***PRECAUTION:** Resilient flooring becomes slippery when wetted with a detergent solution. Use caution to contain the solution in the immediate work area. Standing on a *new sheet of plywood* or non-slip surface while working is recommended.

- E. Roll the strip tightly as it is removed. Tie or tape securely and place in a heavy-duty impermeable trash bag or closed impermeable container for disposal, which is labeled "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only.

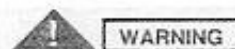


RESIDUAL FELT MUST BE REMOVED BY WET SCRAPING; DO NOT SAND OR DRY SCRAPE IN ANY WAY; DO NOT DRY SWEEP; AVOID CREATING DUST. SEE WARNING STATEMENT.

- F. Remove all of the exposed residual felt by wet scraping before proceeding.

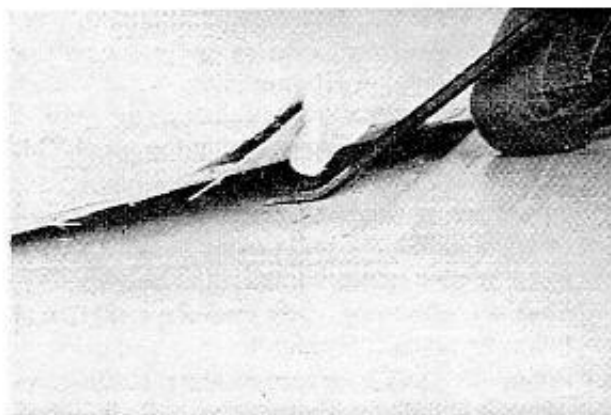
Wet Scraping Residual Felt

1. Thoroughly wet the residual felt with the detergent solution and allow a few minutes to soak.
2. Stand on the remaining floor covering (not the felt) and use the stiff-bladed scraper or a floor scraper with a replaceable blade to remove the wet felt.



Never sand or dry scrape residual felt. See Warning Statement.

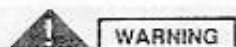
3. Re-wet the felt if the solution has not completely penetrated, if drying occurs or if dry felt is exposed during scraping. Scrape all felt from this floor area before proceeding further. Pick up the scrapings as they are removed from the floor and place in a heavy-duty impermeable trash bag or closed impermeable container.
 4. Continue around the underlayment panel completely removing the adhered flooring over the joints.
 5. Place all flooring strips and felt scrapings immediately while wet into the recommended trash bags or closed leak-tight containers. Close full bags tightly and seal securely for disposal. Identify with a label stating, "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose in an approved landfill only. (See NOTICE page 11.)
 6. Vacuum the exposed floor area using a wet/dry vacuum equipped with a HEPA filter and metal floor attachment (no brush).
- G. Drive a cold chisel using a hammer or mallet into the joint at a corner of the panel. Now use the chisel to pry the panel up far enough to insert a pry bar. Continue working around the panel, lifting all edges slowly. Use one or two pry bars to pry up the underlayment panel a little at a time until the panel



Prying up underlayment panel.

is completely loose and can be removed. Every attempt should be made to remove the panel in one piece.

- H. If the underlayment panel breaks, cut the resilient flooring at the break and spray the detergent solution onto the exposed felt. Allow the solution to penetrate for a few minutes, then continue lifting the broken underlayment.



ELECTRICAL SHOCK HAZARD EXISTS. USE A GROUND FAULT CIRCUIT INTERRUPTER FOR ANY ELECTRICAL CONNECTIONS IN A WET ENVIRONMENT.

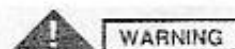
- I. Remove each underlayment panel or piece from the work area as it is lifted to avoid injury. Wear heavy gloves when handling removed panels. Be very careful of wood splinters and protruding fasteners. Flatten the fasteners with a hammer and stack the panels back to back on pallets or place in dumpster. Identify panels with a label stating, "Caution—Contains Asbestos. Avoid breaking panels. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only. Place any small wood or flooring scraps in a heavy-duty impermeable trash bag or closed leak-tight container for disposal. Identify all of the containers and bags with a label stating, "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose of in an approved landfill only.
- J. If the underlayment extends under cabinets or wall partitions, it will be necessary to slice through the flooring with a knife as close to the vertical surfaces as possible, deeply scoring the panel. This should allow removal.
- K. After each panel has been lifted and removed from the work area, pull up any remaining nails or fasteners in the subfloor.
- L. Continue removing each underlayment panel following steps G through K.
- M. When the underlayment/resilient flooring removal is completed, vacuum with a HEPA filter and metal floor attachment (no brush). Prepare the subfloor following the manufacturer's installation recommendations.

RESILIENT TILE FLOOR COVERING

Preparation of Floors with Existing Resilient Tiles to Receive New Resilient Floor Covering

Some resilient floor coverings can be installed over existing resilient tile installations. Follow the installation instructions published by the manufacturer of the new floor covering when a new resilient floor covering is to be installed on a surface presently covered with a resilient floor covering.

These instructions will tell you what must be done to the existing surface before the new resilient floor covering can be installed.



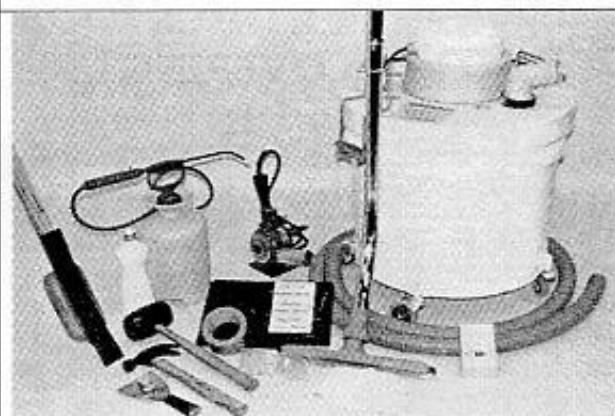
Never Sand an Existing Tile Installation

COMPLETE REMOVAL OF EXISTING RESILIENT FLOOR COVERING

Supplies and Tools

1. Sharp stiff blade floor scraper.
2. Weighted scraper with long handle.
3. Safety glasses.
4. Hammer.
5. Hot air gun or a radiant heat source.
6. Wet/dry vacuum with a HEPA Filtration System and metal floor attachment (no brush).
7. Heavy-duty, impermeable, plastic trash bags with minimum 6 mil wall thickness or leak-tight containers.
8. Garden sprayer.
9. A liquid dishwashing detergent which is stated to contain anionic, nonionic, and amphoteric surfactants. The detergent should be mixed with water to make a dilute solution (1 oz. of detergent to one gallon of water).
10. Pressure-sensitive labels 3" x 5" or larger.
11. Ground fault circuit interrupter for connection of HEPA vacuum and any other electrical equipment.

Whenever possible, existing tile floors should be left in place and the new floor adhered directly to the tile following manufacturer's directions.



Tools needed.

Occasionally, there is no alternative except to remove the tile; curling, poor bond and breakage are common reasons. If removal is unavoidable, consideration must also be given to subfloors coated with asphalt tile adhesive. The following procedures address the recommended work practice for removal of floor tile and preparation of adhesive-coated floors.

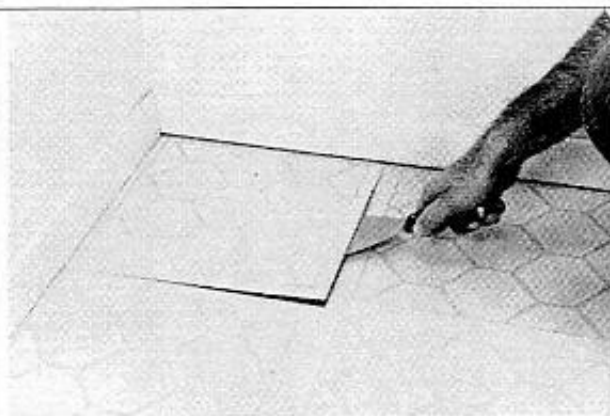
Removal Procedure

A. Preparation

1. Move all appliances and furniture from the work area.
2. Remove all binding strips or other restrictive molding from the doorways, walls, etc.
3. The entire floor should be cleaned with a wet/dry vacuum equipped with a HEPA Filtration System and a metal floor attachment (no brush). Do Not Sweep.
4. Floor tiles must be wetted (misted with a garden sprayer) before actual removal begins, unless heat will be used to remove tiles.

B. Those areas normally exposed to heavy foot traffic patterns usually have tiles adhered the tightest. As a matter of good practice in starting the tile removal, those sections which receive the least traffic should be the locations selected for starting the removal of the tile. It should be the goal to remove individual tiles as a complete unit although breakage of tiles is unavoidable.

C. Start the removal by carefully wedging the wall scraper in the seam of two adjoining tiles and gradually forcing the edge of one of the tiles up and



Start tile removal in corner

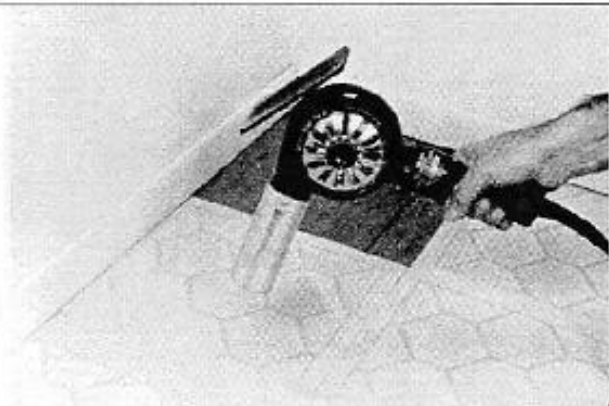
away from the floor. Continue to force the balance of the tile up by working the scraper beneath the tile and exerting both a forward pressure and a twisting action on the blade to promote release of the tile from the adhesive and the floor.

- D. When the first tile is removed, place it, without breaking it further into smaller pieces, in a heavy-duty impermeable trash bag or closed leak-tight container which will be used for disposal.
- E. With the removal of the first tile accessibility of the other tile is improved. Force the wall scraper under the exposed edge of another tile and continue to exert a prying twisting force to the scraper as it is moved under the tile until the tile releases from the floor. Again, dispose of the tile, and succeeding tiles, by placing in the heavy-duty bag or closed leak-tight container without additional breaking.
- F. Some tiles will release quite easily while others require varying degrees of force. Where the adhesive is spread heavily or is quite hard, it may prove easier to force the scraper through the tightly adhered areas by striking the scraper handle with a hammer using blows of moderate force while maintaining the scraper at a 25° to 30° angle to the floor.

Continue to wet (mist) the tiles with a garden sprayer.

Caution: Use safety goggles.

- G. If some areas are encountered where even the technique detailed in the previous paragraph proves to be inadequate, the removal procedure can be simplified by thoroughly heating the tile(s) with a hot air blower or a radiant heat source until the heat penetrates through the tile and softens the adhesive.



Use hot air blower to assist removal.

NOTE: Handle the hot air blower or a radiant heat source, tiles and adhesive carefully to avoid personal burns.

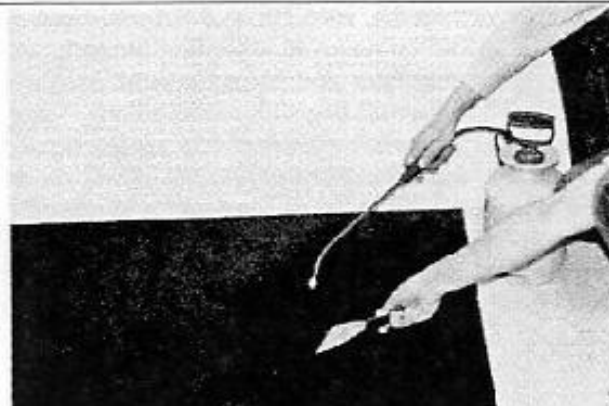
NOTE: Do not handle the heated tiles and adhesive without suitable glove protection for the hands.

- H. As small areas of subfloor are cleared of tile, the adhesive remaining on the floor must be treated. The degree of treatment for residual cut-back adhesive is dependent upon the type of new resilient floor covering material to be installed and the type of subfloor. See page 31 **Preparation of Adhesive Coated Subfloor** for special recommendations.

If new resilient floor tile is to be installed over a concrete subfloor using an asphaltic adhesive, the residual asphaltic "cut-back" adhesive must be left so that no ridges or puddles are evident and what remains is a thin, smooth film.

Wet Scraping Residual Adhesive

- (1) Start in the corner of the room farthest from the entrance door and moisten an area approximately 3' x 10' with water mixed with the specified liquid dishwashing detergent (1 oz. specified liquid dishwashing detergent to one gallon of water) to aid in wetting the adhesive. Wet scrape with a stiff-bladed wall or floor scraper removing ridges and any loose adhesive.
- (1) Place loosened adhesive residues into a heavy-duty impermeable trash bag or other leak-tight container and seal with ties, tape or string and label "Caution—Contains Asbestos. Avoid opening or breaking container. Breathing asbestos is hazardous to your health." Dispose in an approved landfill



Wet scraping adhesive ridges.

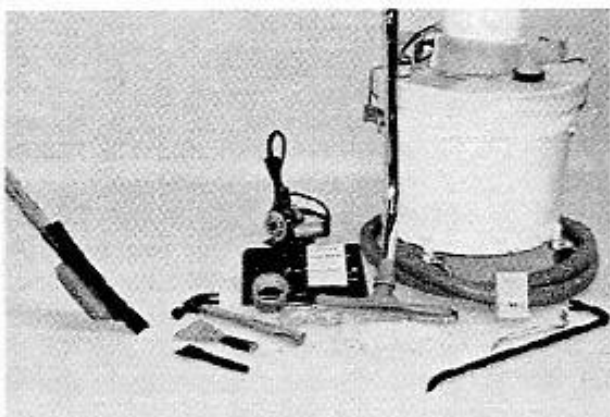
only.

- (3) Wet vacuum standing water with HEPA wet/dry vacuum.
- (4) Continue steps (1) through (3) until what remains of the residual asphaltic "cut-back" adhesive is a thin, smooth film.
- I. As indicated in previous paragraphs, tiles should be placed immediately in a heavy-duty impermeable trash bag or closed leak-tight container. Do not attempt to break tiles further after they are in the bag.
- J. When all tiles and adhesive residue have been removed from the floor and placed in heavy-duty polyethylene bags at least 6 mils thick or closed containers, seal the bags securely for disposal and label, "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause serious bodily harm." Dispose in an approved landfill only.
- K. Vacuum up any dirt in the area using a vacuum equipped with a HEPA filter and metal floor attachment (no brush).
- L. After vacuuming, used HEPA filters and cleaner bags should be removed according to manufacturer's instructions and placed in a heavy-duty impermeable trash bag or a leak-tight container with a label stating "Caution—Contains Asbestos. Avoid opening or breaking container. Breathing asbestos is hazardous to your health." Dispose in an approved landfill only. Close and seal the trash bags securely for disposal.

COMPLETE REMOVAL OF THIN WOOD UNDERLAYMENT COVERED WITH EXISTING TILE

Supplies and Tools

1. Chisel.
2. Hammer or mallet.
3. Short- and long-handled pry bars.
4. Heavy gloves.
5. Sharp stiff-blade floor scraper.
6. Weighted scraper with long handle.
7. Safety goggles.
8. Garden Sprayer.
9. Hammer.
10. Hot air gun.
11. Wet/dry vacuum with a HEPA Filtration System and metal floor attachment (no brush).
12. Heavy-duty, impermeable, plastic trash bags with minimum 6 mil wall thickness.
13. Pressure-sensitive labels 3" x 5" or larger.
14. Ground fault circuit interrupter for connection of HEPA vacuum and any other electrical equipment.



Tools and supplies.

Removal Procedure

A. Preparation

1. Move all appliances and furniture from the work area.
2. Remove any binding strips or other restrictive molding from doorways, walls, etc.
3. The entire floor should be cleaned with a wet/dry vacuum equipped with a HEPA Filtration System and a metal floor attachment (no

brush). Do Not Sweep.

4. Floor tiles must be wetted (misted with a garden sprayer) before actual removal begins, unless heat will be used to remove tiles.
- B. Starting at the doorway or a floor ventilation vent, locate a joint in an underlayment board.
- C. Start the removal by carefully wedging the wall scraper in the seam of two adjoining tiles and gradually forcing the edge of one of the tiles up and away from the floor. Continue to force the balance of the tile up by working the scraper beneath the tile and exerting both a forward pressure and a twisting action on the blade to promote release of the tile from the adhesive and the floor. Continue to remove tile in this manner at all joints, until all board joints are exposed.
- D. When the first tile is removed, place it, without breaking it further into smaller pieces, in a heavy-duty impermeable trash bag or closed leak-tight container which will be used for disposal.
- E. With the removal of the first tile accessibility of the other tile is improved. Force the wall scraper under the exposed edge of another tile and continue to exert a prying twisting force to the scraper as it is moved under the tile until the tile releases from the floor. Again, dispose of the tile, and succeeding tiles, by placing in the heavy-duty bag or closed leak-tight container without additional breaking.
- F. Some tiles will release quite easily while others require varying degrees of force. Where the adhesive is spread heavily or is quite hard, it may prove easier to force the scraper through the tightly adhered areas by striking the scraper handle with a



Removal of tile over subfloor joint.

hammer using blows of moderate force while maintaining the scraper at a 25° to 30° angle to the floor.

Continue to wet (mist) the tiles with a garden sprayer.

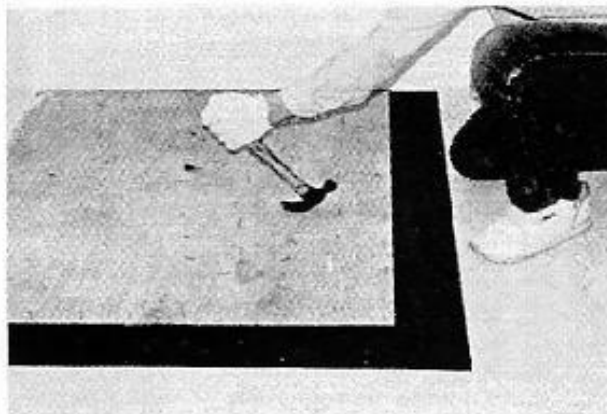
Caution: Use safety goggles.

- G. If some areas are encountered where even the technique detailed in the previous paragraph proves to be inadequate, the removal procedure can be simplified by thoroughly heating the tile(s) with a hot air gun until the heat penetrates through the tile and softens the adhesive.

NOTE: Handle the hot air gun, tiles and adhesive carefully to avoid personal burns.

NOTE: Do not handle the heated tiles and adhesive without suitable glove protection for the hands.

- H. After all the tiles have been removed from the underlayment joints, drive a chisel, using a hammer or a mallet, between the underlayment board and the subfloor. Use the chisel to pry up the underlayment enough to insert a pry bar and remove the chisel. Slowly and carefully use pry bars to pry up the underlayment board a little at a time until the board is completely loose and can be removed.
- I. Caution must be used to avoid breaking the underlayment board. The underlayment board should be removed in one piece. If the underlayment board breaks, heat and slice the tile at the break, then continue to remove broken underlayment.
- J. Wear heavy gloves and be very careful of wood splinters and fasteners sticking out of the back of the underlayment. Each underlayment board (or piece of board) should be removed from the work area as soon as it has been pried up to avoid injuries



Removing nails and staples from underlayment.

(such as stepping on a nail). Fasteners protruding from a removed board should be flattened with a hammer. Place removed underlayment boards on skids with the nails pointing downward. Wrap skid with 6 mil polyethylene plastic sheeting and secure with duct tape. Identify with a label stating "Caution-Contains Asbestos. Avoid opening or breaking container. Breathing asbestos may cause serious bodily harm." Dispose in an approved landfill only.

- K. After each board has been removed, pull out any nails or fasteners still in the subfloor. Dispose of these and any other nails or fasteners which have been removed but are still lying in the work area.
- L. A chisel is not needed to start the removal of boards after the first board has been removed. Simply work the pry bar under the exposed edge of the next board.
- M. When removal of the underlayment/existing tile floor is complete, thoroughly check the exposed subfloor. Renail loose areas and reset any "popped" nails or fasteners.
- N. Vacuum up any dirt in the area using the vacuum cleaner equipped with the HEPA filter and metal floor attachment (no brush).
- O. After the underlayment is completely removed, install the new underlayment and/or floor covering according to the manufacturer's installation instructions.



WARNING

Warning Regarding Complete Adhesive Removal: Some Solvent Based "Cut-Back" Asphaltic Adhesives May Contain Asbestos Fibers That Are Not Readily Identifiable. Do Not Use Power Devices Which Create Asbestos Dust in Removing These Adhesives. The Inhalation of Asbestos Dust May Cause Asbestosis or Other Serious Bodily Harm. Smoking Greatly Increases the Risk of Serious Bodily Harm.

PREPARATION OF ADHESIVE COATED SUBFLOORS

The removal of latex based adhesives commonly used with vinyl sheet floors and some tiles can be accomplished by wetting the adhesive residue (which will soften the adhesive) and scraping. Do not use an excessive amount of water which can damage wood subfloors.

The degree to which residual asphalt adhesive has

to be removed depends on the new flooring material which is being installed. Generally installation of Vinyl Composition Tile requires only the wet removal of adhesive ridges, excess adhesive, and loose adhesive residues. (See page 26, paragraph H).

Installation of sheet flooring and specialty tiles requiring latex, resin, or epoxy adhesives will require that the residual asphaltic adhesive be essentially completely removed.

I. Recommended Method for Preparing Concrete Subfloors Coated with Cut-Back or Emulsion Tile Adhesive.

Unless positively certain that the adhesive is a non-asbestos product presume it contains asbestos and treat it in the manner prescribed in the pamphlet for a cut-back or emulsion tile adhesive containing asbestos.

A. Trowelable Underlayment

Cover the adhesive residue with trowelable underlayment following the manufacturer's recommended application procedures. (Recommended for residential use only.) Patching compounds are not effective barriers to material migrating from asphaltic adhesives.

B. Self-Leveling Cementitious Underlayment

Follow manufacturer's recommendations for use of these types of underlayments as a covering for adhesive coated concrete.

NOTE: All warranties and recommendations as to the suitability and performance of these products are the responsibility of the manufacturer of the underlayment.

C. Adhesive Removers

The Resilient Floor Covering Institute does not recommend or approve the use of those products. There are a number of commercial adhesive removers on the market that will properly remove cut-back or emulsion adhesive residue from a subfloor; however, there are concerns that these products may adversely effect the new adhesive and new floor covering.

D. Wet Removal

Supplies and Tools

1. Broad stiff-bladed wall or floor scrapers, a 4-inch wide blade with handle is recommended.
2. No. 1 sandblasting sand (clean, sharp, coarse cutting sand).

3. Terrazzo or low-speed floor machine fitted with a floor plate attachment (Clark Assy. 500212-6).
4. Hand-held rubbing stones.
5. Wet/dry tank-type vacuum cleaner equipped with High Efficiency Particulate Air (HEPA) filter and metal floor attachment (no brush).
6. Heavy-duty polyethylene bags at least 6 mil thick, tape or ties, and labels.
7. Slip-resistant shoes or rubber heels.
8. Ground fault circuit interrupter for electrical connection of the HEPA vacuum and any other electrical connections required.
9. Garden sprayer.
10. A liquid dishwashing detergent which is stated to contain anionic, nonionic, and amphoteric surfactants. The detergent should be mixed with water to make a dilute solution (1 oz. of liquid in one gallon of water).

Procedure

1. Start in the corner of the room farthest from the entrance door and moisten an area of the adhesive approximately 3' x 10' with water mixed with liquid dishwashing detergent (to aid in wetting the adhesive). Wet scrape with a stiff-bladed wall or floor scraper removing ridges and any loose adhesives, until only a thin smooth film remains.
2. Place loosened adhesive residues into a heavy-duty impermeable trash bag or other impermeable container and seal with ties, tape or string and label "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause bodily harm." Dispose in an approved landfill only.
3. Wet vacuum standing water with HEPA wet/dry vacuum.
4. Continue steps 1 through 3 until entire area is wet scraped.
5. Place cutting sand into a container (enough to cover an approximate 6' x 6' area), add water mixed with liquid detergent (1 oz. of the specified detergent [See #10 above] to one gallon of water) to the sand to dampen (20 lbs. of sand to ½ gallon of solution).
6. Place sand over a 6' x 6' area and wet remove the existing adhesive residue using a terrazzo floor machine. Keep sand under rubbing stones when operating the machine. The sand and the subfloor

must be continuously kept wet.

7. Occasionally push away cutting sand from the subfloor with a wall or floor scraper to check for complete removal.
8. Adhesive around the edge of the room and areas that were missed can be removed with dampened, clean, sharp cutting sand and a hand-held rubbing stone.
9. Wet scrape sand into a pile using a stiff-bladed floor or wall scraper and place sand and adhesive residue in a heavy-duty impermeable container, seal with ties or tape and label "Caution—Contains Asbestos. Avoid opening or breaking bag or container. Breathing asbestos may cause bodily harm." Dispose in an approved landfill only.
10. Rinse area with clear, clean water using the hand sprayer. Worker boots should also be rinsed and cleaned.
11. Wet vacuum standing water with a wet/dry vacuum equipped with a HEPA filter and metal floor attachment (no brush).
12. Continue steps 1 through 8 until the entire room is complete.
13. Allow subfloor to dry and vacuum up any remaining dirt or sand using a vacuum equipped with a HEPA filter and metal attachment (no brush).
14. After vacuuming, used HEPA filters and cleaner bags should be removed according to manufacturer's instructions and placed in a heavy-duty impermeable trash bag or a leak-tight container with a label stating "Caution—Contains Asbestos. Avoid opening or breaking container. Breathing asbestos is hazardous to your health." Close and seal the trash bags or container securely for disposal. Dispose in an approved landfill only.

E. Alternate Wet Removal Method

Supplies and Tools

1. Supplies and tools listed as items 1, 5, 6, 7, 8, 9 and 10 in Section D above, as well as the following:
2. Floor machine fitted with a 3M black floor pad (or equivalent).
3. Removal solution: "mop on, mop off, no machine scrub," stripping solution.
4. Water-absorbent material.

Procedure

1. Start in corner of the room farthest from the entrance door. Put the removal solution onto the residual

adhesive with a hand sprayer or mop over a 6' x 6' area. Put enough removal solution ("mop on, mop off, no machine scrub," stripping solution) on to ensure that the area is thoroughly wet. Allow the area to soak for 5-10 minutes. Remove the adhesive using a floor machine equipped with a 3M black floor pad (or equivalent). **The subfloor must be continuously kept wet.**

2. Occasionally push away the adhesive slurry from the subfloor with a wall or floor scraper to check for complete removal. Continue to use the floor machine, equipped with the black pad, in the same area until the concrete subfloor is cleaned to the desired degree. (This depends on what material will be reinstalled.)
3. Adhesive around the edge of the room and areas that were missed or difficult to reach with the machine can be removed with handheld piece of the black floor pad using the above procedures.
4. Wet HEPA vacuum the adhesive slurry. When the HEPA vacuum is full, place a commercially suitable water absorbent into the HEPA container until the adhesive slurry is absorbed. Place adhesive waste from the HEPA vacuum into heavy-duty impermeable bags or leak-tight container and seal with ties or tape and label "Caution—Contains Asbestos. Avoid Creating Dust. Breathing Asbestos May Cause Bodily Harm." Dispose in an approved landfill only.
5. Rinse floor area with clear, clean water using a hand sprayer or mop.
6. Wet vacuum standing water with HEPA wet/dry vacuum.
7. Continue steps 1 through 6 until the entire room is complete.
8. Allow subfloor to dry and vacuum with a HEPA vacuum.



WARNING

ELECTRICAL SHOCK HAZARD EXISTS. USE A GROUND FAULT CIRCUIT INTERRUPTER FOR ANY ELECTRICAL CONNECTIONS IN A WET ENVIRONMENT.

II. Recommended Methods for Preparing Wood Subfloor Coated with Cut-Back or Emulsion Adhesive

A. Trowelable Underlayment

Cover the adhesive residue with trowelable underlayment following manufacturer's recom-

mended application procedures. (Recommended for residential use only.)

B. Wood Panel Underlayment

Normally it will not be necessary to remove the old tile when installing underlayment* over a single layer of tile. However, if the tile must be removed, the tackiness of the adhesive must be "dried-up" before installing new underlayment. This can be done by spreading a layer of powder from latex patching compound (either type) and vacuuming up the excess. Another method is to place a layer of asphalt saturated pattern scribing felt or two layers of newspaper over the tacky adhesive residue before the underlayment is installed. If the old adhesive is not "dried-up" before the underlayment is installed, there is the possibility that a "cracking" sound will be heard when the new floor is walked on, creating an unsatisfactory condition. This occurs because the underlayment is pressed into the tacky adhesive by foot traffic. When the pressure is released, the underlayment sticks momentarily and then springs from the tacky adhesive, creating a "cracking" noise.

C. Removal of Adhesive Coated Underlayment Panels

If removal of the existing underlayment panels is necessary, follow the procedure outlined under "Complete Removal of Thin Wood Underlayment Covered with Existing Resilient Flooring" steps G-M (page 28-31).

*See manufacturer's recommendations for approved underlayment types.



WARNING

Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt or asphaltic "cut-back" adhesives.

These products may contain either *asbestos fibers* or *crystalline silica*.

Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard.

Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm.

Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.

The RFCI's *Recommended Work Practices for Removal of Resilient Floor Coverings* are a defined set of instructions which should be followed if you must remove existing resilient floor covering structures.

Issued by
Resilient Floor Covering Institute
966 Hungerford Drive, Suite 12B
Rockville, MD 20850
(301) 340-8580

August 1995

This publication replaces prior editions of these work practices. Future editions of these work practices may be issued to replace this publication.

APPENDIX C

Training Course Outline: Removal of Resilient Floor Coverings in Accordance with Appendix B

These courses are designed to train Workers to remove asbestos containing flooring materials in accordance with Appendix B to this regulation. Unless the flooring materials are removed in accordance with Sections I., II., and III. of this regulation, persons who remove asbestos-containing flooring materials must complete the 8-hour employee training course, including receiving a passing examination grade; persons who supervise the removal of asbestos-containing flooring materials must complete the 8-hour employee training course (including receiving a passing examination grade) and then successfully complete the additional course, including receiving a passing grade on a separate examination covering Sections 10-13 of this outline. NOTE: Completion of these training courses does not satisfy the training requirements for Colorado certification as an asbestos abatement Worker or asbestos abatement Supervisor as provided in Section II. of this regulation.

8-HOUR EMPLOYEE TRAINING COURSE

Section 1 Background Information on Asbestos (slides, lecture, workbook, quiz)

- Characteristics of asbestos
- Categories of asbestos-containing building materials
- Friable and nonfriable condition of materials
- List of suspect asbestos-containing materials
- Determination/identification of asbestos-containing materials (including presumptions regarding flooring materials)
- Control options
- Potential health effects related to exposure to airborne asbestos
- Hazards of smoking and asbestos exposure
- Protective work practices and controls to minimize asbestos exposure

Section 2 Laws and Regulations (video, slides, lecture, workbook, quiz)

- Current regulations concerning the removal and disposal of asbestos-containing materials
- Regulated areas/Respirators/Negative Air Pressure/Protective Clothing/Decontamination Procedures
- How regulations are enforced
- Federal Government agencies that regulate asbestos removal: OSHA Asbestos Standard, EPANESHAP, EPA AHERA and ASHARA, DOT Regulations
- Difference between federal and state asbestos laws
- State and local asbestos regulations

- Hazard Communication Standard and safety issues

Section 3 Asbestos-Containing Resilient Flooring Materials (slides, lecture, workbook, quiz)

- Walk-through survey versus bulk sample analysis
- Types of floor coverings, which contain asbestos
- Determining friability of resilient floor coverings (EPA Recommended Test)
- Flooring adhesives, which contain asbestos
- Alternatives to removing asbestos-containing floor covering and adhesives
- Methods which should not be used to remove resilient floor covering materials
- Waste disposal procedures
- Notification requirements

Section 4 Removal of Resilient Floor Tile

- Video demonstration of properly removing floor tile
- Live demonstration of properly removing floor tile
- “Hands on” student practice removing floor tiles using heat and without heat
- Quiz

Section 5 Removal of Residual Asphaltic Adhesive

- Video demonstration of proper procedure for removing adhesive
- Review of proper procedure for removing adhesive
- “Hands on” student practice removing adhesive
- Quiz

Section 6 Removal of Resilient Sheet Flooring

- Video demonstration of proper procedure for removing sheet flooring
- Live demonstration of proper procedure for removing sheet flooring
- “Hands on” student practice removing sheet flooring
- Quiz

Section 7 Complete Removal of Wood Underlayment

- Video demonstration of proper procedures for removing resilient flooring complete with underlayment

- Review of proper procedures for complete removal of wood underlayment

Section 8 Review

- Review previous instruction and clarify any unanswered questions

Section 9 Examination Covering Sections 1-7

ADDITIONAL TRAINING COURSE FOR PERSONS SUPERVISING THE REMOVAL OF FLOORING MATERIALS (4-Hour Minimum)

Section 10 Prewrite Activities and Considerations

- Determination of asbestos-containing materials: Methods of identification, walk through survey/bulk sampling, Common building materials containing asbestos
- Review of regulations: OSHA, EPA, DOT, State and Local

Section 11 Assessment of the Work Area

- Site preparation considerations
- Conducting a Negative Exposure Assessment
- Isolating the work area
- Adjacent areas
- Regulated areas
- Safety hazards

Section 12 Notification, Recordkeeping, and Waste Disposal

- Recordkeeping requirements
- Notification requirements
- Warning signs
- Special equipment
- Transport and disposal of asbestos waste

Section 13 Supervising Workers

- Establishing goals
- Providing clear instructions
- Establishing expectations
- Use of Supervisory authority
- Motivating Workers

Section 14 Review and Examination

- Review
- Examination (covering Sections 10-13)



TRAINING MADE PERSONAL

OSHA CONSTRUCTION

STANDARD ON ASBESTOS

29 CFR 1926.1101

(720)441-5049

3900 S. Federal Blvd. Englewood, CO 80110

info@metraining247.com – www.metraining247.com



**OSHA Regulations (Standards – 29 CFR)
Asbestos – 1926.1101**

OSHA Regulations (Standards – 29 CFR) – Table of Contents

- **Standard Number: 1926.1101**
- **Standard Title: Asbestos**
- **SubPart Number: Z**
- **SubPart Title: Toxic and Hazardous Substances**

(a)

Scope and application. This section regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b), including but not limited to the following:

(a)(1)

Demolition or salvage of structures where asbestos is present;

(a)(2)

Removal or encapsulation of materials containing asbestos;

(a)(3)

Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;

(a)(4)

Installation of products containing asbestos;

(a)(5)

Asbestos spill/emergency cleanup; and

(a)(6)

Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.

(a)(7)

Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.

(a)(8)

This section does not apply to asbestos-containing asphalt roof coatings, cements and mastics.

(b)

Definitions.

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 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 TSI and surfacing ACM and PACM, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

Clean room 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, in addition to the definition in 29 CFR 1926.32 (f), 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, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 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 activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. 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 not more than a 60 x 60 inch 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 the asbestos 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) 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)(5) 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) 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.

(c)

Permissible exposure limits (PELS).

(c)(1)

Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed 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 (TWA), as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(c)(2)

Excursion limit. The employer shall ensure that no employee is 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, as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(d)

Multi-employer worksites.

(d)(1)

On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(d)(2)

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.

(d)(3)

In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to (f) of this section.

(d)(4)

All employers of employees working adjacent to regulated areas established by another employer on a multi-employer work-site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(d)(5)

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

(e)

Regulated areas.

(e)(1)

All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of paragraphs (2), (3),(4) and (5) of this section.

(e)(2)

Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(7) of this section.

(e)(3)

Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

(e)(4)

Respirators. All persons entering a regulated area where employees are required pursuant to paragraph (h)(1) of this section to wear respirators shall be supplied with a respirator selected in accordance with paragraph (h)(2) of this section.

(e)(5)

Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(e)(6)

Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in paragraph (b) of this section. The duties of the competent person are set out in paragraph (o) of this section.

(f)

Exposure assessments and monitoring.

(f)(1)

General monitoring criteria.

(f)(1)(i)

Each employer who has a workplace or work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

(f)(1)(ii)

Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(f)(1)(iii)

Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(f)(2)

Initial Exposure Assessment.

(f)(2)(i)

Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

(f)(2)(ii)

Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to paragraph (f)(2)(iii) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to paragraph (f)(1)(iii) of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(f)(2)(iii)

Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria;

(f)(2)(iii)(A)

Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

(f)(2)(iii)(B)

Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

(f)(2)(iii)(C)

The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(f)(3)

Periodic monitoring.

(f)(3)(i)

Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to (f)(2)(iii) of this section, has made a negative exposure assessment for the entire operation.

(f)(3)(ii)

All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(f)(3)(iii)

Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the pressure demand mode, or other positive pressure mode respirator, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method which is not listed in paragraph (g)(4)(i), (ii), or (iii) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(f)(4)

Termination of monitoring.

(f)(4)(i)

If the periodic monitoring required by paragraph (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(f)(4)(ii)

Additional monitoring. Notwithstanding the provisions of paragraph (f)(2) and (3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under paragraph (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(f)(5)

Employee notification of monitoring results. The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

(f)(5)(i)

The employer shall notify affected employees of the monitoring results that represent that employee's exposure as soon as possible following receipt of monitoring results.

(f)(5)(ii)

The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

(f)(6)

Observation of monitoring.

(f)(6)(i)

The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(f)(6)(ii)

When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g)

Methods of compliance.

(g)(1)

Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

(g)(1)(i)

Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in paragraph (g)(8)(ii) of this section in the case of roofing material.

(g)(1)(ii)

Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, except as provide in paragraph (g)(8)(ii) of this section; and

(g)(1)(iii)

Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in paragraph (g)(8)(ii) of this section apply.

(g)(2)

In addition to the requirements of paragraph (g)(1) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by paragraph (c) of this section;

(g)(2)(i)

Local exhaust ventilation equipped with HEPA filter dust collection systems;

(g)(2)(ii)

Enclosure or isolation of processes producing asbestos dust;

(g)(2)(iii)

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;

(g)(2)(iv)

Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

(g)(2)(v)

Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (h) of this section.

(g)(3)

Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(g)(3)(i)

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

(g)(3)(ii)

Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

(g)(3)(iii)

Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

(g)(3)(iv)

Employee rotation as a means of reducing employee exposure to asbestos.

(g)(4)

Class I Requirements. In addition to the provisions of paragraphs (g)(1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

(g)(4)(i)

All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in paragraph (b) of this section;

(g)(4)(ii)

For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(g)(4)(ii)(A)

Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

(g)(4)(ii)(B)

The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpt. E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring. Exception: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this paragraph (g)(4)(ii) is satisfied when the specific control methods in paragraph (g)(5) of this section are used.

(g)(4)(iii)

For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(g)(4)(iv)

For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(g)(4)(v)

For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

(g)(4)(vi)

For all Class I jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(g)(5)

Specific control methods for Class I work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(g)(5)(i)

Negative Pressure Enclosure (NPE) systems: NPE systems may be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

(g)(5)(i)(A)

Specifications:

(g)(5)(i)(A)(1)

The negative pressure enclosure (NPE) may be of any configuration,

(g)(5)(i)(A)(2)

At least 4 air changes per hour shall be maintained in the NPE,

(g)(5)(i)(A)(3)

A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,

(g)(5)(i)(A)(4)

The NPE shall be kept under negative pressure throughout the period of its use, and

(g)(5)(i)(A)(5)

Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(g)(5)(i)(B)

Work Practices:

(g)(5)(i)(B)(1)

Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

(g)(5)(i)(B)(2)

Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(g)(5)(ii)

Glove bag systems may be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

(g)(5)(ii)(A)

Specifications:

(g)(5)(ii)(A)(1)

Glovebags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

(g)(5)(ii)(A)(2)

Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

(g)(5)(ii)(B)

Work Practices:

(g)(5)(ii)(B)(1)

Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

(g)(5)(ii)(B)(2)

Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

(g)(5)(ii)(B)(3)

Glovebags may be used only once and may not be moved.

(g)(5)(ii)(B)(4)

Glovebags shall not be used on surfaces whose temperature exceeds 150 deg. F.

(g)(5)(ii)(B)(5)

Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

(g)(5)(ii)(B)(6)

Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact,

(g)(5)(ii)(B)(7)

Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity:

(g)(5)(ii)(B)(8)

Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

(g)(5)(ii)(B)(9)

At least two persons shall perform Class I glovebag removal operations.

(g)(5)(iii)

Negative Pressure Glove Bag Systems. Negative pressure glove bag systems may be used to remove ACM or PACM from piping.

(g)(5)(iii)(A)

Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

(g)(5)(iii)(B)

Work Practices:

(g)(5)(iii)(B)(1)

The employer shall comply with the work practices for glove bag systems in paragraph (g)(5)(ii)(B)(4) of this section.

(g)(5)(iii)(B)(2)

The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe.

(g)(5)(iii)(B)(3)

Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

(g)(5)(iv)

Negative Pressure Glove Box Systems: Negative pressure glove boxes may be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

(g)(5)(iv)(A)

Specifications:

(g)(5)(iv)(A)(1)

Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

(g)(5)(iv)(A)(2)

A negative pressure generator shall be used to create negative pressure in the system:

(g)(5)(iv)(A)(3)

An air filtration unit shall be attached to the box:

(g)(5)(iv)(A)(4)

The box shall be fitted with gloved apertures:

(g)(5)(iv)(A)(5)

An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

(g)(5)(iv)(A)(6)

A back-up generator shall be present on site:

(g)(5)(iv)(A)(7)

Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

(g)(5)(iv)(B)

Work practices:

(g)(5)(iv)(B)(1)

At least two persons shall perform the removal:

(g)(5)(iv)(B)(2)

The box shall be smoke-tested for leaks and any leaks sealed prior to each use:

(g)(5)(iv)(B)(3)

Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

(g)(5)(iv)(B)(4)

A HEPA filtration system shall be used to maintain pressure barrier in box.

(g)(5)(v)

Water Spray Process System. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

(g)(5)(v)(A)

Specifications:

(g)(5)(v)(A)(1)

Piping shall be surrounded on 3 sides by rigid framing,

(g)(5)(v)(A)(2)

A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

(g)(5)(v)(A)(3)

The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

(g)(5)(v)(B)

Work Practices:

(g)(5)(v)(B)(1)

The system shall be run for at least 10 minutes before removal begins.

(g)(5)(v)(B)(2)

All removal shall take place within the water barrier.

(g)(5)(v)(B)(3)

The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

(g)(5)(v)(B)(4)

After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(g)(5)(vi)

A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

(g)(5)(vi)(A)

Specifications:

(g)(5)(vi)(A)(1)

The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

(g)(5)(vi)(A)(2)

The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

(g)(5)(vi)(B)

Work practices:

(g)(5)(vi)(B)(1)

Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and breaches sealed.

(g)(5)(vi)(B)(2)

Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

(g)(5)(vi)(B)(3)

During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

(g)(6)

Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in paragraph (g)(5) of this section, or which modifies a control method referenced in paragraph (g)(5) of this section, if the following provisions are complied with:

(g)(6)(i)

The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(g)(6)(ii)

A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(ii)(B) of this section.

(g)(6)(ii)(A)

Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in paragraph (g)(6) of this section may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

(g)(6)(ii)(B)

The evaluation of employee exposure required in paragraph (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

(g)(7)

Work Practices and Engineering Controls for Class II work.

(g)(7)(i)

All Class II work shall be supervised by a competent person as defined in paragraph (b) of this section.

(g)(7)(ii)

For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where during the job, changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area;

(g)(7)(ii)(A)

Critical barriers shall be placed over all openings to the regulated area; or,

(g)(7)(ii)(B)

The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in paragraph (g)(4)(ii)(B) of this section.

(g)(7)(ii)(C)

Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(g)(7)(iii)

[Reserved]

(g)(7)(iv)

All Class II asbestos work shall be performed using the work practices and requirements set out above in paragraph (g)(1)(i) through (g)(1)(iii) of this section.

(g)(8)

Additional Controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(g)(8)(i)

For removing vinyl and asphalt flooring materials which contain ACM or for which in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to paragraph (g)(8)(i)(I) of this section. The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to paragraph (k)(9) of this section:

(g)(8)(i)(A)

Flooring or its backing shall not be sanded.

(g)(8)(i)(B)

Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

(g)(8)(i)(C)

Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

(g)(8)(i)(D)

All scraping of residual adhesive and/or backing shall be performed using wet methods.

(g)(8)(i)(E)

Dry sweeping is prohibited.

(g)(8)(i)(F)

Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(i) of this section.

(g)(8)(i)(G)

Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

(g)(8)(i)(H)

When tiles are heated and can be removed intact, wetting may be omitted.

(g)(8)(i)(I)

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.

(g)(8)(ii)

For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

(g)(8)(ii)(A)

Roofing material shall be removed in an intact state to the extent feasible.

(g)(8)(ii)(B)

Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

(g)(8)(ii)(C)

Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

(g)(8)(ii)(D)

When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.

(g)(8)(ii)(E)

Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist:

(g)(8)(ii)(E)(1)

Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

(g)(8)(ii)(E)(2)

Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

(g)(8)(ii)(F)

Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

(g)(8)(ii)(G)

Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

(g)(8)(ii)(H)

Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

(g)(8)(iii)

When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where paragraph (g)(8)(ii) of this section applies) the employer shall ensure that the following work practices are followed:

(g)(8)(iii)(A)

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.

(g)(8)(iii)(B)

Each panel or shingle shall be sprayed with amended water prior to removal.

(g)(8)(iii)(C)

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.

(g)(8)(iii)(D)

Nails shall be cut with flat, sharp instruments.

(g)(8)(iv)

When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

(g)(8)(iv)(A)

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.

(g)(8)(iv)(B)

[Reserved]

(g)(8)(iv)(C)

The gasket shall be immediately placed in a disposal container.

(g)(8)(iv)(D)

Any scraping to remove residue must be performed wet.

(g)(8)(v)

When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in paragraph (g)(8)(iv)(A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

(g)(8)(v)(A)

The material shall be thoroughly wetted with amended water prior to and during its removal.

(g)(8)(v)(B)

The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

(g)(8)(v)(C)

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.

(g)(8)(v)(D)

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.

(g)(8)(vi)

Alternative Work Practices and Controls. Instead of the work practices and controls listed in paragraph (g)(8)(i) through (v) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

(g)(8)(vi)(A)

The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

(g)(8)(vi)(B)

A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(g)(9)

Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(g)(9)(i)

The work shall be performed using wet methods.

(g)(9)(ii)

To the extent feasible, the work shall be performed using local exhaust ventilation.

(g)(9)(iii)

Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to paragraph (g)(5) of this section or another isolation method.

(g)(9)(iv)

Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been exceeded, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with paragraph (g)(5) of this section.

(g)(9)(v)

Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(g)(10)

Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(9) of this section. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

(g)(10)(i)

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 (h) of this section.

(g)(10)(ii)

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 contains asbestos.

(g)(11)

Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing and pipeline coating materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of this paragraph (g)(11) when installing, removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this paragraph (g)(11) or if during the course of the job the material does not remain intact, the provisions of paragraph (g)(8) of this section apply instead of this paragraph (g)(11).

(g)(11)(i)

Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(g)(11)(ii)

All employees performing work covered by this paragraph (g)(11) shall be trained in a training program that meets the requirements of paragraph (k)(9)(viii) of this section.

(g)(11)(iii)

The material shall not be sanded, abraded, or ground. Manual methods which do not render the material non-intact shall be used.

(g)(11)(iv)

Material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(g)(11)(v)

Where roofing products which have been labeled as containing asbestos pursuant to paragraph (k)(8) of this section are installed on non-residential roofs during operations covered by this paragraph (g)(11), the employer shall notify the building owner of the presence and location of such materials no later than the end of the job.

(g)(11)(vi)

All removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

(h)

Respiratory protection.

(h)(1)

General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

(h)(1)(i)

Class I asbestos work.

(h)(1)(ii)

Class II asbestos work when ACM is not removed in a substantially intact state.

(h)(1)(iii)

Class II and III asbestos work that is not performed using wet methods, except for removal of ACM from sloped roofs when a negative-exposure assessment has been conducted and ACM is removed in an intact state.

(h)(1)(iv)

Class II and III asbestos work for which a negative-exposure assessment has not been conducted.

(h)(v)

Class III asbestos work when TSI or surfacing ACM or PACM is being disturbed.

(h)(1)(vi)

Class IV asbestos work performed within regulated areas where employees who are performing other work are required to use respirators.

(h)(1)(vii)

Work operations covered by this section for which employees are exposed above the TWA or excursion limit.


(h)(1)(viii)

Emergencies.

(h)(2)

Respirator program.

(h)(2)(i)

The employer must implement a respiratory protection program in accordance with  1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

(h)(2)(ii)

No employee shall be assigned to asbestos work that requires respirator use if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally while using a respirator, or that the safety or health of the employee or other employees will be impaired by the employee's respirator use. Such employees must be assigned to another job or given the opportunity to transfer to a different position that they can perform. If such a transfer position is available, it must be with the same employer, in the same geographical area, and with the same seniority, status, rate of pay, and other job benefits the employee had just prior to such transfer.

(h)(3)

Respirator selection.

(h)(3)(i)

Employers must:

(h)(3)(i)(A)

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134; however, employers must not select or use filtering facepiece respirators for use against asbestos fibers.

(h)(3)(i)(B)

Provide HEPA filters for powered and non-powered air-purifying respirators.

(h)(3)(ii)

Employers must provide an employee with tight-fitting, powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected according to paragraph (h)(3)(i)(A) of this standard when the employee chooses to use a PAPR and it provides adequate protection to the employee.

(h)(3)(iii)

Employers must provide employees with an air-purifying half mask respirator, other than a filtering facepiece respirator, whenever the employees perform:

(h)(3)(iii)(A)

Class II or Class III asbestos work for which no negative exposure assessment is available.

(h)(3)(iii)(B)

Class III asbestos work involving disturbance of TSI or surfacing ACM or PACM.

(h)(3)(iv)

Employers must provide employees with:

(h)(3)(iv)(A)

A tight-fitting powered air-purifying respirator or a full facepiece, supplied-air respirator operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA) whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be at or below 1 f/cc as an 8-hour time-weighted average (TWA).

(h)(3)(iv)(B)

A full facepiece supplied-air respirator operated in the pressure-demand mode and equipped with an auxiliary positive-pressure SCBA whenever the employees are in a regulated area performing Class I asbestos work for which a negative exposure assessment is not available and the exposure assessment indicates that the exposure level will be above 1 f/cc as an 8-hour TWA.

(i)

Protective clothing.

(i)(1)

General. The employer shall provide and require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed in paragraph (c) of this section, or for which a required negative exposure assessment is not produced, or for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(i)(2)

Laundering.

(i)(2)(i)

The employer shall ensure that laundering of contaminated clothing is done so as to prevent the release of airborne asbestos in excess of the TWA or excursion limit prescribed in paragraph (c) of this section.

(i)(2)(ii)

Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in paragraph (i)(2)(i) of this section to effectively prevent the release of airborne asbestos in excess of the TWA and excursion limit prescribed in paragraph (c) of this section.

(i)(3)

Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with paragraph (k) of this section.

(i)(4)

Inspection of protective clothing.

(i)(4)(i)

The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(i)(4)(ii)

When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

(j)

Hygiene facilities and practices for employees.

(j)(1)

Requirements for employees performing Class I asbestos jobs involving over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(j)(1)(i)

Decontamination areas. the employer shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

(j)(1)(i)(A)

Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

(j)(1)(i)(B)

Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3), unless the employer can demonstrate that they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless the employer can demonstrate that this location is not feasible. Where the employer can demonstrate that it is not feasible to locate the shower between the equipment room and the clean room, or where the work is performed outdoors, the employers shall ensure that employees:

(j)(1)(i)(B)(1)

Remove asbestos contamination from their worksuits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or

(j)(1)(i)(B)(2)

Remove their contaminated worksuits in the equipment room, then don clean worksuits, and proceed to a shower that is not adjacent to the work area.

(j)(1)(i)(C)

Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. When the employer can demonstrate that it is not feasible to provide a clean change area adjacent to the work area or where the work is performed outdoors, the employer may permit employees engaged in Class I asbestos jobs to clean their protective clothing with a portable HEPA-equipped vacuum before such employees leave the regulated area. Following showering, such employees however must then change into street clothing in clean change areas provided by the employer which otherwise meet the requirements of this section.

(j)(1)(ii)

Decontamination area entry procedures. The employer shall ensure that employees:

(j)(1)(ii)(A)

Enter the decontamination area through the clean room;

(j)(1)(ii)(B)

Remove and deposit street clothing within a locker provided for their use; and

(j)(1)(ii)(C)

Put on protective clothing and respiratory protection before leaving the clean room.

(j)(1)(ii)(D)

Before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

(j)(1)(iii)

Decontamination area exit procedures. The employer shall ensure that:

(j)(1)(iii)(A)

Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.

(j)(1)(iii)(B)

Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.

(j)(1)(iii)(C)

Employees shall not remove their respirators in the equipment room.

(j)(1)(iii)(D)

Employees shall shower prior to entering the clean room.

(j)(1)(iii)(E)

After showering, employees shall enter the clean room before changing into street clothes.

(j)(1)(iv)

Lunch Areas. Whenever food or beverages are consumed at the worksite where employees are performing Class I asbestos work, the employer shall provide lunch areas in which the airborne concentrations of asbestos are below the permissible exposure limit and/or excursion limit.

(j)(2)

Requirements for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM and PACM, and for Class II and Class III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation.

(j)(2)(i)

The employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor or horizontal working surface.

(j)(2)(ii)

The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area (as determined by visible accumulations).

(j)(2)(iii)

Work clothing must be cleaned with a HEPA vacuum before it is removed.

(j)(2)(iv)

All equipment and surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.

(j)(2)(v)

The employer shall ensure that employees enter and exit the regulated area through the equipment room or area.

(j)(3)

Requirements for Class IV work. Employers shall ensure that employees performing Class IV work within a regulated area comply with the hygiene practice required of employees performing work which has a higher classification within that regulated area. Otherwise employers of employees cleaning up debris and material which is TSI or surfacing ACM or identified as PACM shall provide decontamination facilities for such employees which are required by paragraph (j)(2) of this section.

(j)(4)

Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(k)

Communication of hazards.

(k)(1)

Hazard communication.

(k)(1)(i)

This section applies to the communication of information concerning asbestos hazards in construction activities to facilitate compliance with this standard. Most asbestos-related construction activities involve previously installed building materials. Building owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building Material. Employers and building owners shall identify TSI and sprayed or troweled on surfacing materials in buildings as asbestos-containing, unless they determine in compliance with paragraph (k)(5) of this section that the material is not asbestos-containing. Asphalt and vinyl flooring material installed no later than 1980 must also be considered as asbestos containing unless the employer, pursuant to paragraph (g)(8)(i)(I) of this section determines that it is not asbestos-containing. If the employer/building owner has actual knowledge, or should have known through the exercise of due diligence, that other materials are asbestos-containing, they too must be treated as such. When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multi-employer worksites are set out in paragraph (d) of this section.

(k)(1)(ii)

The employer shall include asbestos in the program established to comply with the Hazard Communication Standard (HCS) (◆ 1910.1200). The employer shall ensure that each employee has access to labels on containers of asbestos and safety data sheets, and is trained in accordance with the provisions of HCS and paragraphs (k)(9) and (10) of this section. The employer shall provide information on at least the following hazards: Cancer and lung effects.

(k)(2)

Duties of building and facility owners.

(k)(2)(i)

Before work subject to this standard is begun, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to paragraph (k)(1)(i) of this section.

(k)(2)(ii)

Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

(k)(2)(ii)(A)

Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(k)(2)(ii)(B)

Employees of the owner who will work in or adjacent to areas containing such material:

(k)(2)(ii)(C)

On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(k)(2)(ii)(D)

Tenants who will occupy areas containing such material.

(k)(3)

Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/facility owners whose employees perform such work shall comply with these provisions to the extent applicable.

(k)(3)(i)

Before work in areas containing ACM and PACM is begun; employers shall identify the presence, location, and quantity of ACM, and/or PACM therein pursuant to paragraph (k)(1)(i) of this section.

(k)(3)(ii)

Before work under this standard is performed employers of employees who will perform such work shall 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.

(k)(3)(ii)(A)

Owners of the building/facility;

(k)(3)(ii)(B)

Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas.

(k)(3)(iii)

Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

(k)(4)

In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(k)(5)

Criteria to rebut the designation of installed material as PACM.

(k)(5)(i)

At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (k)(5)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (n) of this section.

(k)(5)(ii)

An employer or owner may demonstrate that PACM does not contain more than 1 percent asbestos by the following:

(k)(5)(ii)(A)

Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM; or

(k)(5)(ii)(B)

Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. 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) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

(k)(5)(iii)

The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

(k)(6)

At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(k)(7)

Signs.

(k)(7)(i)

Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by paragraph (e) of this section. Signs shall 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.

(k)(7)(ii)(A)

The warning signs required by paragraph (k)(7) of this section shall bear the following information.

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

(k)(7)(ii)(B)

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA

(k)(7)(ii)(C)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (k)(7)(ii)(A) of this section:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

(k)(7)(ii)(D)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (k)(7)(ii)(B) of this section:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

(k)(7)(iii)

The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (k)(7)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

(k)(8)

Labels.

(k)(8)(i)

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.

(k)(8)(ii)

The employer shall ensure that such labels comply with paragraphs (k) of this section.

(k)(8)(iii)

The employer shall ensure that labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers bear the following information:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

(k)(8)(iv)(A)

Prior to June 1, 2015, employers may include the following information on raw materials, mixtures or labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers in lieu of the labeling requirements in paragraphs (k)(8)(ii) and (k)(8)(iii) of this section:

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

(k)(8)(iv)(B)

Labels shall also contain a warning statement against breathing asbestos fibers.

(k)(8)(v)

Labels shall contain a warning statement against breathing asbestos fibers.

(k)(8)(vi)

The provisions for labels required by paragraphs (k)(8)(i) through (k)(8)(iii) of this section do not apply where:

(k)(8)(vi)(A)

Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that, during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released, or

(k)(8)(vi)(B)

Asbestos is present in a product in concentrations less than 1.0 percent.

(k)(8)(vii)

When a building owner or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (k)(6) of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs or labels can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(k)(9)

Employee Information and Training.

(k)(9)(i)

The employer shall train each employee who is likely to be exposed in excess of a PEL, and each employee who performs Class I through IV asbestos operations, in accordance with the requirements of this section. Such training shall be conducted at no cost to the employee. The employer shall institute a training program and ensure employee participation in the program.

(k)(9)(ii)

Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(k)(9)(iii)

Training for Class I operations and for Class II operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures under this section shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR Part 763, subpart E, appendix C).

(k)(9)(iv)

Training for other Class II work.

(k)(9)(iv)(A)

For work with asbestos containing roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours.

(k)(9)(iv)(B)

An employee who works with more than one of the categories of material specified in paragraph (k)(9)(iv)(A) of this section shall receive training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

(k)(9)(iv)(C)

For Class II operations not involving the categories of material specified in paragraph (k)(9)(iv)(A) of this section, training shall be provided which shall include at a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to the category of material being removed, and shall include "hands-on" training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

(k)(9)(v)

Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands-on" training and shall take at least 16 hours. Exception: For Class III operations for which the competent person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in paragraph (k)(9)(viii) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that activity, and shall include "hands-on" training in the work practices applicable to each category of material that the employee disturbs.

(k)(9)(vi)

Training for employees performing Class IV operations shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(k)(9)(vii)

Training for employees who are likely to be exposed in excess of the PEL and who are not otherwise required to be trained under paragraph (k)(9)(iii) through (vi) of this section, shall meet the requirements of paragraph (k)(9)(viii) of this section.

(k)(9)(viii)

The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraphs (k)(9)(iii) through (vi) of this section, the employer shall ensure that each such employee is informed of the following:

(k)(9)(viii)(A)

Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos;

(k)(9)(viii)(B)

The health effects associated with asbestos exposure;

(k)(9)(viii)(C)

The relationship between smoking and asbestos in producing lung cancer;

(k)(9)(viii)(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; where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

(k)(9)(viii)(E)

The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(k)(9)(viii)(F)

The appropriate work practices for performing the asbestos job;

(k)(9)(viii)(G)

Medical surveillance program requirements;

(k)(9)(viii)(H)

The content of this standard including appendices;

(k)(9)(viii)(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 J to this section, to comply with this requirement; and

(k)(9)(viii)(J)

The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(k)(10)

Access to training materials.

(k)(10)(i)

The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

(k)(10)(ii)

The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

(k)(10)(iii)

The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No, 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J to this section.

(l)

Housekeeping --

(l)(1)

Vacuuming. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.

(l)(2)

Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers except in roofing operations where the procedures specified in paragraph (g)(8)(ii) of this section apply.

(l)(3)

Care of asbestos-containing flooring material.

(l)(3)(i)

All vinyl and asphalt flooring material shall be maintained in accordance with this paragraph unless the building/facility owner demonstrates, pursuant to paragraph (g)(8)(i)(I) of this section that the flooring does not contain asbestos.

(l)(3)(ii)

Sanding of flooring material is prohibited.

(l)(3)(iii)

Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

(l)(3)(iv)

Burnishing or dry buffing may be performed only on flooring which has sufficient finish so that the pad cannot contact the flooring material.

(1)(4)

Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM:

(1)(4)(i)

shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

(1)(4)(ii)

shall be promptly cleaned up and disposed of in leak tight containers.

(m)

Medical surveillance.

(m)(1)

General --

(m)(1)(i)

Employees covered.

(m)(1)(i)(A)

The employer shall institute a medical surveillance program 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 a permissible exposure limit. For purposes of this paragraph, any day in which a worker engages in Class II or Class III operations or a combination thereof on intact material for one hour or less (taking into account the entire time spent on the removal operation, including cleanup) and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

(m)(1)(i)(B)

For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This determination shall be made under the supervision of a physician.

(m)(1)(ii)

Examination.

(m)(1)(ii)(A)

The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.

(m)(1)(ii)(B)

Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(m)(2)

Medical examinations and consultations.

(m)(2)(i)

Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (m)(1)(i) of this section on the following schedules:

(m)(2)(i)(A)

Prior to assignment of the employee to an area where negative-pressure respirators are worn;

(m)(2)(i)(B)

When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II, or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

(m)(2)(i)(C)

And at least annually thereafter.

(m)(2)(i)(D)

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

(m)(2)(i)(E)

Exception: 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.

(m)(2)(ii)

Content. Medical examinations made available pursuant to paragraphs (m)(2)(i)(A) through (m)(2)(i)(C) of this section shall include:

(m)(2)(ii)(A)

A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.

(m)(2)(ii)(B)

On initial examination, the standardized questionnaire contained in Part 1 of Appendix D to this section, and, on annual examination, the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section.

(m)(2)(ii)(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 this section.

(m)(2)(ii)(D)

Any other examinations or tests deemed necessary by the examining physician.

(m)(3)

Information provided to the physician. The employer shall provide the following information to the examining physician:

(m)(3)(i)

A copy of this standard and Appendices D, E, and I to this section;

(m)(3)(ii)

A description of the affected employee's duties as they relate to the employee's exposure;

(m)(3)(iii)

The employee's representative exposure level or anticipated exposure level;

(m)(3)(iv)

A description of any personal protective and respiratory equipment used or to be used; and

(m)(3)(v)

Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(m)(4)

Physician's written opinion.

(m)(4)(i)

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

(m)(4)(i)(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;

(m)(4)(i)(B)

Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and

(m)(4)(i)(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.

(m)(4)(i)(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.

(m)(4)(ii)

The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(m)(4)(iii)

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

(n)

Recordkeeping.

(n)(1)

Objective data relied on pursuant to paragraph (f) to this section.

(n)(1)(i)

Where the employer has relied on 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 to satisfy the requirements of paragraph (f), the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(n)(1)(ii)

The record shall include at least the following information:

(n)(1)(ii)(A)

The product qualifying for exemption;

(n)(1)(ii)(B)

The source of the objective data;

(n)(1)(ii)(C)

The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

(n)(1)(ii)(D)

A description of the operation exempted and how the data support the exemption; and

(n)(1)(ii)(E)

Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(n)(1)(iii)

The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(n)(2)

Exposure measurements.

(n)(2)(i)

The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f) of this section. NOTE: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

(n)(2)(ii)

This record shall include at least the following information:

(n)(2)(ii)(A)

The date of measurement;

(n)(2)(ii)(B)

The operation involving exposure to asbestos that is being monitored;

(n)(2)(ii)(C)

Sampling and analytical methods used and evidence of their accuracy;

(n)(2)(ii)(D)

Number, duration, and results of samples taken;

(n)(2)(ii)(E)

Type of protective devices worn, if any; and

(n)(2)(ii)(F)

Name, social security number, and exposure of the employees whose exposures are represented.

(n)(2)(iii)

The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.20.

(n)(3)

Medical surveillance.

(n)(3)(i)

The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (m) of this section, in accordance with 29 CFR 1910.20.

(n)(3)(ii)

The record shall include at least the following information:

(n)(3)(ii)(A)

The name and social security number of the employee;

(n)(3)(ii)(B)

A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.

(n)(3)(ii)(C)

Physician's written opinions;

(n)(3)(ii)(D)

Any employee medical complaints related to exposure to asbestos; and

(n)(3)(ii)(E)

A copy of the information provided to the physician as required by paragraph (m) of this section.

(n)(3)(iii)

The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.20.

(n)(4)

Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment by that employer.

(n)(5)

Data to Rebut PACM. Where the building owner and employer 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.

(n)(6)

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.

(n)(7)

Availability.

(n)(7)(i)

The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

(n)(7)(ii)

The employer must comply with the requirements concerning availability of records set forth in 29 CFR 1910.1020.

(n)(8)

Transfer of records. The employer must comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h).

(o)

Competent person.

(o)(1)

General. On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).

(o)(2)

Required Inspections by the Competent Person. Section 1926.20(b)(2) which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

(o)(3)

Additional Inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in paragraph (o)(3)(i) and (ii) of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III, and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(o)(3)(i)

On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with paragraph (e)(6) of this section shall perform or supervise the following duties, as applicable:

(o)(3)(i)(A)

Set up the regulated area, enclosure, or other containment;

(o)(3)(i)(B)

Ensure (by on-site inspection) the integrity of the enclosure or containment;

(o)(3)(i)(C)

Set up procedures to control entry to and exit from the enclosure and/or area;

(o)(3)(i)(D)

Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by paragraph (f) of this section;

(o)(3)(i)(E)

Ensure that employees working within the enclosure and/or using glove bags wear respirators and protective clothing as required by paragraphs (h) and (i) of this section;

(o)(3)(i)(F)

Ensure through on-site supervision, that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

(o)(3)(i)(G)

Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in paragraph (j) of this section;

(o)(3)(i)(H)

Ensure that through on-site inspection, engineering controls are functioning properly and employees are using proper work practices; and,

(o)(3)(i)(I)

Ensure that notification requirement in paragraph (k) of this section are met.

(o)(3)(ii)

[Reserved]

(o)(4)

Training for the competent person.

(o)(4)(i)

For Class I and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meets the criteria of EPA's Model Accredited Plan (40 CFR part 763, subpart E, Appendix C), such as a course conducted by an EPA-approved or state-approved training provider, certified by EPA or a state, or a course equivalent in stringency, content, and length.

(o)(4)(ii)

For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) of this section.

(p)

Appendices.

(p)(1)

Appendices A, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(p)(2)

Appendices B, F, H, I, J, and K to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

[59 FR 40964, Aug. 10, 1994; 60 FR 9624, Feb. 21, 1995; 60 FR 33343, June 28, 1995; 60 FR 33972, June 29, 1995; 60 FR 36043, July 13, 1995; 60 FR 50411, Sept. 29, 1995; 61 FR 5507, Feb. 13, 1996; 61 FR 43454, August 23, 1996; 63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998; 63 FR 35138, June 29, 1998; 70 FR 1143, Jan. 5, 2005; 71 FR 16675, April 3, 2006; 71 FR 50191, August 24, 2006; 73 FR 755889, Dec. 12, 2008; 76 FR 33612, June 8, 2011; 77 FR 17895, March 26, 2012]