

WRD 23.10

SUBJECT: Occupational Exposure to Asbestos

DATE ISSUED: April 30, 1997

I. Background:

OSHA amended the Occupational Exposure to Asbestos Standards for general industry, construction, and shipyard industry on August 10, 1994 with corrections issued on June 29, 1995 and September 29, 1995. The asbestos standard in WAC 296-62-077 was revised to reflect changes to the federal standards as well as to meet the legislatively driven changes to the asbestos certification law, RCW 49.26, in ESB 5397. The asbestos certification law was revised to reflect changes made in the EPA model accreditation plan requirements for asbestos on February 3, 1994.

The major revisions to WAC 296-62-077 include:

- Reduction of the time-weighted-average (TWA) permissible exposure limit (PEL) to 0.1 fibers per cubic centimeter for all occupational exposures to asbestos in all industries.
- Creation of a classification scheme for asbestos construction and shipyard industry work which ties mandatory work practices to work classification.
- Presumptive asbestos identification requirements for asbestos-containing materials (ACM).
- Notification requirements for employers who use unlisted compliance methods in high risk asbestos abatement.
- Mandatory methods of control for brake and clutch repair.

Subsequent to the adoption of the Asbestos Final Rule in 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001, OSHA has issued the following compliance memorandums establishing procedures and policies to ensure uniform application of the standards:

- CPL 95-3 Revised Compliance Policy: Occupational Exposure to Asbestos - Roofing Industry Settlement.
- CPL 95-9 Occupational Exposure to Asbestos - Flooring Industry Settlement.
- CPL 2-2.63 Inspection Procedures for Occupational Exposure to Asbestos Final Rule.

The settlement agreements and policy memorandums constitute federal program changes requiring state adoption of identical or equivalent policies. This WISHA Regional Directive (WRD) will replace the previously existing WRD 88-1A Inspection Procedures for the Asbestos Standard and WRD 92-4 Asbestos Abatement Scheduling System. Also, it will incorporate and replace previously existing WISHA policy memorandums regarding the evaluation of certification and abatement requirements for asbestos containing flooring and roofing materials and cement asbestos board.

II. Scope and Application:

- A. This WRD, which will remain in effect indefinitely, applies to WISHA inspections and consultations related to occupational exposure to asbestos and to the Asbestos Certification Program.

This WRD **replaces WRD 88-1A** Inspection Procedures for the Asbestos Standard, which is hereby repealed.

This WRD **incorporates and modifies** the substance of **WRD 92-4** Asbestos Abatement Scheduling, which is hereby repealed.

This WRD provides uniform guidance in the application and interpretation of safety and health rules related to **all occupational exposure to asbestos** in WAC 296-62-077 and to the asbestos certification of WAC 296-65.

- B. WAC 296-65, Safety Standards for Asbestos Removal and Encapsulation and WAC 296-62-077 apply to all occupational exposures to asbestos in **all industries**. However, there are **specific sections** or subsections of these rules that **apply only to general industries** and only to **construction** and **shipyard** work. Also, specific provisions affect **homeowners** and **building owners**.

Special consideration and attention must be given to the part of WAC 296-62-077 which applies to a specific work activity. In WAC 296-62-07701, construction work is defined by reference to WAC 296-155-012 and shipyard work is defined by reference to WAC 296-304-01001.

1. The following sections and subsections have specific application designated to an **industry by work activity**:

WAC 296-62-07706(2), (3), (4), and (5)	Construction and shipyard work only.
WAC 296-62-07709(2)	General industry application only.
WAC 296-62-07709(3)	Construction and shipyard work only.
WAC 296-62-07711(8)	Construction and shipyard work only.
WAC 296-62-07712	Construction and shipyard work only.
WAC 296-62-07713	General industry application only.
WAC 296-62-07717(4)	Construction and shipyard only.
WAC 296-62-07719(3)	Construction and shipyard work only.
WAC 296-62-07721(1)	General industry application only.
WAC 296-62-07721(2)	Construction and shipyard work only.
WAC 296-62-07723(7)	Construction and shipyard work only.
WAC 296-62-07728	Construction and shipyard work only.

2. Any direct references or requirements for **Class I, Class II, Class III, and Class IV imply construction and shipyard work only**. WAC 296-62-07712 has specifically classified construction and shipyard work activities into these four classes based on the potential of those activities to result in exposure to asbestos. An example is found in WAC 296-62-07715 where respiratory protection applies to all industries and work activities, but specific requirements for Class I, Class II, Class III, and Class IV work are also identified.

3. All other sections and subsections not designated " general industry only" or "construction and shipyard work only" apply to **all industries** and to all occupational exposures to asbestos.

4. There is a **mandatory appendix** for **general industry** only in WAC 296-62-07745, **Appendix F**, Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair, and Assembly.

- C. WAC 296-62-07721, Communication of Hazards to Employees, has specific requirements for building, facility, and vessel **owners** and their **agents**.

1. Building, vessel, and facilities owners have the responsibility to notify contractors and tenants of the presence of asbestos-containing materials and presumed asbestos-containing materials (ACM/PACM) even though the **employees at risk are not the owner's direct employees**. WAC 296-62-07721 requires building, facility, and vessel owners to **notify in writing** the following persons of the presence, locations, and quantity of ACM or PACM:

- a. Prospective employers applying or bidding for work in or adjacent to the areas containing asbestos;
 - b. The owner's employees who work in or nearby these areas;
 - c. Other employers on multi-employer worksites with employees working in or adjacent to the area; and
 - d. Tenants who will occupy the areas containing such materials.
2. The definition of "**owner**" includes **lessee** in WAC 296-62-07703. However, the owner is not exempted from notification requirements by allowing a lessee to comply. The owner may transfer the management of the building to a long term lessee. When the lease is terminated, the records are to be transferred to the owner.
- D. RCW 49.26 expresses certain obligations of a "**person**" beyond the definition of employer found in RCW 49.17.020(3).
1. WAC 296-65-003 defines "person" as any individual, partnership, firm, association, corporation, sole proprietorship, or the State of Washington or its political subdivisions.
 2. Provisions for persons or individuals in WAC 296-65 go beyond the limitation of the scope of an employer-employee relationship.
 3. WAC 296-65-020 and WAC 296-65-030 have requirements applicable to persons who are subject to WISHA citations.
- E. Specific considerations for **homeowners** are found in WAC 296-62-077 and in WAC 296-65.
1. The definition of owner in WAC 296-62-07703 and WAC 296-65-003 does not include homeowners who work on their own private homes no part of which is used for commercial purposes.
 2. All other requirements related to "**person**" or "**individual**" in WAC 296-65 apply to homeowners. Examples of such applications are the notification requirements in WAC 296-65-020(1) and the certification requirements in WAC 296-65-030(1), WAC 296-65-030(3), and WAC 296-65-030(4). Homeowners are subject to WISHA citations for violations of these provisions in WAC 296-65.

- F. WAC 296-62-07721 has specific requirements for the **identification of ACM or PACM**.
1. ACM and PACM.
 - a. WAC 296-65-001 and WAC 296-62-07703 define ACM as any materials containing more than **1** percent asbestos.
 - b. PACM.
 - (1) Thermal system insulation and surfacing materials are PACM if installed no later 1980 (WAC 296-62-07703).
 - (2) The designation of PACM may be rebutted by the provisions of WAC 296-62-07721(3).
 - c. The provisions for labels in WAC 296-62-07721(7) has a threshold of 0.1 percent by weight. Labels are not required for a product containing less than **0.1** percent asbestos by weight.
 2. Good faith inspection and identification.
 - a. RCW 49.26.013 requires that a good faith inspection be performed when any owner or owner's agent allows or authorizes any construction, renovation, remodeling, maintenance, repair, or demolition project which has a reasonable possibility of disturbing or releasing asbestos into the air.
 - (1) A **good faith inspection** is to determine whether the proposed project will disturb or release any material containing asbestos into the air.
 - (2) The good faith inspection is performed by an **EPA accredited inspector**.
 - (3) A good faith inspection is not required if owner or owner's agent is reasonably certain that asbestos will not be disturbed or assumes that asbestos will be disturbed by the project.
 - (4) Each inspection or assumption statement is **documented by a written report**. The report is to be posted and accessible to employees.

- b. In addition to the good faith inspection requirements from RCW 49.26, OSHA derived rule changes have added requirements regarding the identification and notification of the presence of ACM or PACM.
 - (1) The notification requirements are more specific than the good faith inspection in that the presence, location, and quantity of ACM/PACM must be determined.
 - (2) **Notification is in written form** and retained as records for documentation.
 - (3) Performance of a good faith inspection does not replace the notification requirements.

III. Interpretive Guidance (Summary of Certification and Training Requirements for Asbestos Work):

- A. Training requirements for asbestos work can be found in WAC 296-65, WAC 296-62-07722, and WAC 296-62-07728.
 - 1. WAC 296-65 defines the general scope of certification requirements and uses the definitions, "asbestos project" and "asbestos abatement project" to define general certification requirements.
 - 2. WAC 296-62-07722 defines general training requirements for asbestos work and integrates the certification requirements into the asbestos work classification scheme (Class I, Class II, Class III, and Class IV).
 - 3. WAC 296-62-07728(4) defines certification and training requirements for the competent person.
- B. **General training specifications** for all employees with occupation exposure to asbestos.
 - 1. All required training is to be provided **prior to or at the time of initial** assignment to work in an area where ACM or PACM are present.
 - 2. All required training is provided **at least annually**.
 - 3. All employees excluded from certification requirements are provided training regardless of their exposure levels.

- 4. Training is to be provided at no cost to the employee.

5. Training must at a minimum contain the information required in WAC 296-62-07722(5).
 6. **Appendix B** has a **summary** of WISHA and EPA training requirements.
- C. **Methodology** to determine certification and training requirements.
1. **WISHA** certification and training requirements **differs from OSHA** training requirements because state specific provisions are established in RCW 49.26 and WAC 296-65.
 - a. OSHA's training scheme is based on work classification for construction and shipyard work. General industry work is based on the PEL and whether housekeeping work is being done.
 - b. WISHA certification is based on definitions not related to work classification. "**Asbestos project**" is defined in RCW 49.26.100(1) to mean "the construction, demolition, repair, maintenance, remodeling, or renovation of any public or private building or mechanical piping equipment or systems involving the demolition, removal, encapsulation, salvage, or disposal of material, or outdoor activity, releasing or likely to release asbestos fibers into the air."
 2. Certification requirements are based on the definition of **asbestos project** in WAC 296-65-003, not work classification. **Certification is required** if:
 - a. The condition of the ACM is not intact;
 - b. The ACM is damaged, or deteriorated;
 - c. Mechanical methods are used such as chipping, grinding, sawing, or sanding on ACM;
 - d. The employee performs Class II work requiring the use of critical barriers and/or negative pressure enclosures, see WAC 296-62-07722(3)(b)(ii);
 - e. Disturbance of **1** square foot or more of ACM will release or is likely to release asbestos fibers into the air;

- f. If there is disturbance of pipe insulation the "less than 1 square foot" exclusion does not pertain to any disturbance of asbestos dealing with pipe insulation; or
 - g. Class II asbestos work involves more than one generic category of ACM.
3. **Exceptions** to worker certification may be used if:
- a. The exception is directly specified in WAC 296-65-003 or WAC 296-62-07722(3) and (4);
 - b. The ACM is intact and is not damaged or deteriorated;
 - c. An "initial exposure assessment" or "initial air monitoring" has been made according to the requirements of WAC 296-62-07709;
 - d. Mechanical methods such as chipping, grinding, sawing, or sanding will not be used on the ACM;
 - e. Critical barriers, enclosures, or isolation of processes producing asbestos containing dust, and/or negative pressure enclosures are not required by WAC 296-62-07712 or WAC 296-62-07713;
 - f. Intact ACM are removed according to the required work practices, controls, respiratory protection, and related provisions of WAC 296-62-077; and
 - g. Alternative training as specified in WAC 296-65-003 and WAC 296-62-07722 has been provided.
4. **Exceptions** to worker certification are specified in WAC 296-65-003 in the definition of asbestos project and in WAC 296-62-07722(3) and (4):
- a. WAC 296-65-003 excludes asbestos work of less than 1 square foot of ACM. This exclusion does not apply to pipe insulation.
 - b. WAC 296-65-003 excludes asbestos work involving **asbestos-cement water pipe if** approved training and procedures are used.
 - c. WAC 296-65-003 excludes the intact removal of **intact vinyl floor tile** and **intact roofing materials**. Mechanical methods are prohibited for

this exclusion to worker certification. Training is specified for this exclusion in WAC 296-62-07722(3)(b).

- d. WAC 296-62-07722(3)(b) excludes the removal of intact asbestos containing material for Class II asbestos work.
 - (1) This applies to Class II asbestos work involving **one generic category** of intact ACM such as intact roofing material, bituminous or asphaltic pipeline coatings, intact flooring or decking materials, siding materials, ceiling tiles, or transite panels.
 - (2) If an employer conducts Class II asbestos work involving **more than one generic category of ACM**, worker certification is required.
 - (3) Employees performing Class II work excluded from certification are required to have eight hours of training as required by the provisions of WAC 296-62-07722(3)(b).
 - (4) Appendix D has a training course outline that meets the eight-hour training course specified in WAC 296-62-07722(3)(b) for the removal of intact roofing materials.
 - (5) Appendix E has a training course outline that meets the eight-hour training course specified in WAC 296-62-07722(3)(b) for the removal of intact flooring materials.
- e. WAC 296-62-07722(4) excludes Class III and Class IV asbestos work that is **not** an "asbestos project" from worker certification.
 - (1) This would exclude from worker certification any work that is less than **1** square foot of ACM except for pipe insulation.
 - (2) Any ACM of **1** square foot or more of total surface area that is damaged or deteriorated, in the form of dust, debris, and waste that is not intact, or in a condition that is not intact requires worker certification.
 - (3) Employees performing Class III and Class IV work not considered an "asbestos project" shall be trained according to the provisions of WAC 296-62-077(4)(b) and (c).

- f. WAC 296-62-07722(6) requires that employers shall also provide **asbestos awareness training** to all employees performing housekeeping operations in a facility that contains ACM.
 - (1) This provision applies if work activity is not an asbestos project or not a Class I, Class II, Class III, or Class IV activity.
 - (2) Awareness training is required for all employees who are or will work in areas where ACM or PACM is present.
 - (3) Training is to be provided once a year.

IV. Special Inspection Protocols:

The following guidance provides the general framework to assist the Compliance Safety and Health Officer (CSHO) in conducting an inspection:

- A. The CSHO shall request that the employer provide copies of the **initial exposure assessment** and any monitoring data that may be available for review prior to the walk-around. This provides the CSHO with the basic information necessary to make the appropriate choice of personal protective equipment (PPE).
 - 1. If the employer has relied upon objective data, additional time may be needed to locate and review these data. If the material is not readily available, the CSHO shall presume initially that potential for over-exposure to ACM exists and shall evaluate the work area to select appropriate entry procedures.
 - 2. As a time-saving measure, the CSHO shall request during the opening conference that the employer begin collecting other required documents such as medical surveillance records, training records, respiratory protection program, etc. for all affected employees.
 - 3. For general industry activities where the PELs are exceeded, the employer is required to have established a written compliance program according to WAC 296-62-07713(3). The CSHO shall request this document and review it at a later time.
- B. The CSHO shall determine whether the required **training** and **certification** are provided for employees performing asbestos work or having occupational exposure to asbestos.

1. The CSHO shall verify that employees conducting work as an "asbestos project" are current certified asbestos workers. All employees performing asbestos work on an "asbestos project" are required to have **valid and current asbestos certificates** available for inspection at all times, see WAC 296-65-010(6).
 2. For asbestos work **excluded** from certification:
 - a. The CSHO shall verify that the asbestos work is not an asbestos project.
 - (1) Determine that the employer has conducted a "negative exposure assessment" or "initial air monitoring" indicating employee exposure is below the PEL.
 - (2) Determine that the ACM is in a intact state prior and during work activity.
 - b. The CSHO shall determine if there is sufficient documentation, through employee interviews and review of training records, that alternative training was provided.
- C. For **asbestos abatement projects**, an asbestos project involving **3 square feet** or **3 linear feet** or more of ACM, the CSHO shall determine whether the requirements of WAC 296-65-030, Methods of Compliance, have been met by verifying that:
1. Before submitting a bid or working on an asbestos abatement project, the employer, person, or individual has obtained an asbestos contractor certificate as provided in WAC 296-65-017.
 2. At least one certified supervisor is present on asbestos abatement project.
 - a. The asbestos abatement project shall have direct, on-site supervision by a certified asbestos supervisor.
 - b. If an asbestos abatement project is conducted by an employer in its own facility by its own employees, supervision can be performed in the regular course of a certified supervisor's duties. Access to a certified asbestos supervisor shall be maintained throughout the duration of the project.

- c. For asbestos contractors, at least one certified supervisor must be employed to be responsible for supervising all asbestos projects.
- D. The CSHO shall review the **notice of an asbestos project** required in WAC 296-65-020 for all asbestos projects involving **more than 48 square feet** or **10 linear feet** of ACM.
 - 1. The written notification shall meet the requirements of WAC 296-65-020(1) in content and accuracy, and be submitted to the department no later than **10 days prior to the project**.
 - 2. **Waiving the prenotification** requirement of WAC 296-65-020(2) shall be approved by the Industrial Hygiene Regional Supervisor (IHRS) in the region office having jurisdiction on the project.
 - a. Prenotification can be waived for owners of **large-scale and ongoing projects** as per WAC 296-65-020(4). Employers can submit annual notices to the department for ongoing or unscheduled maintenance work upon approval of the IHRS.
 - b. The IHRS may waive prenotification for **emergency projects**. Planning errors by contractors are not emergencies. The IHRS shall exercise good judgment in determining if an emergency exists.
 - 3. The CSHO shall determine whether a violation of WAC 296-65-020(1) exists if there has been incremental phasing of the asbestos project to avoid the notification threshold. The CSHO shall consult with the IHRS to decide whether the intent of the individual or employer is to avoid the notification requirements.
- E. The CSHO shall review the **good faith inspection report** if required and shall determine whether the notification and communication of hazard requirements of WAC 296-62-07721 have been completed.
- F. The CSHO shall review whether the employer is meeting the **respiratory protection requirements** for employees conducting asbestos work. A series of decision-logic charts have been included in Appendix A to assist with evaluating compliance with the respirator selection requirements of the standard.
- G. Classification and grouping of violations shall be according to the procedures and policies outlined in the WISHA Compliance Manual.

- H. Authorization to review medical information related to compliance with the asbestos standard: CSHO under the direction of the IHRS are authorized to review medical records and medical opinions according to the provisions of WAC 296-62-052, Access to Employee Exposure and Medical Records and the procedures found in the most recent issuance of the department's WRD related to access, review, and handling of specific employee exposure and medical records and related data.

- I. **Guidelines and clarifications** relating to specific provisions of WAC 296-65 and WAC 296-62-077 are **provided in the appendices** attached to this WRD to assist CSHOs in conducting inspections.
 - 1. **Appendix A**, Asbestos Regulation Summary. Summary of requirements for construction and shipyard asbestos work activities. This includes charts related to classification and specific requirements for asbestos work, requirements for roofing work, and **decision logic charts** covering selection of respiratory protection.
 - 2. **Appendix B**, Summary of **WISHA/EPA Training Requirements**. This includes an outline of WISHA and EPA training requirements for asbestos work and a **chart** indicating asbestos training requirements for each class of asbestos work.
 - 3. **Appendix C, Questions and Answers.**
 - 4. **Appendix D**, Training Course Outline for the Removal of Intact Roofing Materials.
 - 5. **Appendix E**, Training Course Outline for the Removal of Intact Resilient Floor Coverings.

V. Asbestos Abatement Scheduling System:

This section establishes a policy for scheduling inspections of asbestos projects. The asbestos abatement scheduling system generates programmed inspection activity on asbestos projects. The scheduling system is driven by the written prenotifications received by the department as required in WAC 296-65-020. These notices are submitted to the regional offices of the department to establish a regional file of asbestos abatement activity.

- A. The IHRS will review each notice to evaluate employer history and recent inspection activity (six months or less) of the employer.

- B. The following **scheduling guidelines** will be used by the IHRS to assign programmed asbestos inspections:
1. If compliance history is good and no violations are issued during recent inspection activity, no inspection will be scheduled.
 2. If recent inspection activity has open abatement dates and compliance history is significant, the employer shall be scheduled for a follow-up inspection.
 3. All remaining notices shall be used by the IHRS to develop an inspection scheduling list for each respective region. Notices shall be ranked and prioritized into an inspection scheduling list based upon:
 - a. Extent of compliance activity of the employer; and
 - b. Characteristics of the abatement project.

VI. Training for Labor and Industries Personnel:

For all inspections where asbestos exposures are expected to be above the TWA or excursion limit or where Class I, Class II, Class III, and Class IV asbestos work is being conducted, only experienced and properly trained CSHOs shall perform the on-site asbestos evaluation.

- A. CSHOs are expected to be knowledgeable of the:
1. Potential hazards which may be encountered at the site, including the potential hazards of asbestos, as well as the relationship between smoking and asbestos in producing lung cancer.
 2. The contents of the asbestos standards including this WRD and its appendices.
 3. Appropriate PPE to be worn. Each CSHO who will be expected to use PPE shall be trained in the proper care, use, and limitation of the PPE. Use of respiratory protection by CSHOs is contained in the internal safety and health program respiratory protection policy, the most recent version of Safety and Health Policy 4.08.
 4. Emergency procedures.
 5. Disposal of asbestos-related waste generated by the CSHO and decontamination procedures.

- B. CSHOs inspecting asbestos abatement projects shall be trained to the equivalent of the content of the Washington asbestos worker training course in WAC 296-65-005.
- C. CSHOs shall meet the requirements of the most recent version of Labor and Industries Internal Safety and Health Program Policy 4.14 on Asbestos/Hazardous Waste.

VII. Medical Examination for Compliance Personnel:

- A. Many of the other hazards that the CSHOs may encounter are already regulated by the medical surveillance requirements in other WISHA standards and the department's internal safety and health program's medical surveillance program. In addition, the regional Safety and Health Coordinator and the IHRS are responsible for CSHO participation in the medical surveillance program. For the implementation of the CSHO medical examination program, see the most recent version of Safety and Health Policy 7.00 (Medical Surveillance).
- B. For CSHOs who are required to wear any respiratory protection, PPE shall be medically cleared via the CSHO physical examination procedures in the internal safety and health program's medical surveillance program.

VIII. Protection of Compliance Personnel:

- A. PPE.
 - 1. IHRSs and regional Safety and Health Coordinators shall ensure that appropriate PPE is available for and used by the CSHO.
 - 2. Respirators shall be selected and worn in accordance with the most recent version of the internal safety and health program respiratory protection policy 4.08(a). Respirators are selected in accordance with the provisions of WAC 296-62-071 and WAC 296-62-07715. CSHOs shall be provided semi-annual fit-testing in accordance with WAC 296-62-7715(5)(B) when using negative pressure respirators.
 - 3. When the CSHO enters a regulated area, disposable coveralls, head covering, foot covering, and gloves shall be worn.
- B. Decontamination procedures for compliance personnel:

1. Prior to entry of a regulated area, CSHOs shall determine if decontamination facilities exist, whether they are adequate for the expected conditions of the site, and if they will be available for use.
 2. When a CSHO enters areas at the worksite where WAC 296-62-077 requires decontamination, then the CSHO shall also utilize decontamination procedures.
 3. In the event that decontamination facilities are nonexistent, inadequate, or not available for use, the CSHO shall contact the supervisor to determine if adequate decontamination can be provided.
- C. Entry into negative pressure enclosures and containment areas:
1. When entering into containment areas requiring air-supplied respirators or powered air-purifying respirators (PAPR), the CSHO shall consult with the IHRS to determine if entry is necessary. CSHOs shall be trained in the use of the specific supplied-air respirators used and comply with the most current provisions of the internal safety and health respiratory protection policies.
 2. In the event decontamination facilities are nonexistent, inadequate, or not available for use, the CSHO shall determine if adequate decontamination can be provided. If the CSHO determines that decontamination cannot be adequately provided, entry shall not occur and the IHRS shall be contacted for guidance.

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APPENDIX A

Asbestos Regulations

Summary:

Appendix A is intended as a **general guidance document** in situations where all of the construction and shipyard requirements apply. **It is not a substitute for the standard.** CSHOs must use this Appendix as a companion guide to the construction and shipyard requirements in WAC 296-62-077, as well as interpretations found in Appendix C.

Glossary:

ACM	Asbestos containing material
AHERA	Asbestos Hazard Emergency Response Act
1/2 APR	Half mask air purifying respirator (HEPA)
ASHARA	Asbestos School Hazard Abatement Reauthorization Act
bz	Breathing zone
CAB	Cement asbestos board
CAS	Certified asbestos supervisor as per WAC 296-65-030
CIH	Certified industrial hygienist
CP	Competent person
EL	Excursion limit
GB	Glovebag
HEPA	High efficiency particulate air
HVAC	Heating ,ventilation, air conditioning system
NEA	Negative exposure assessment
NP	Negative pressure
NPE	Negative pressure enclosure
NP glovebag/box	Negative pressure glovebag or box
O & M	Operations and Maintenance (AHERA / ASHARA) for work less than 3 sq. ft. or 3 linear ft.
PACM	Presumed asbestos containing material
PD	Project designer (AHERA /ASHARA)
PE	Professional engineer
PEL	Permissible exposure limit
PPE	Personal protective equipment
SARpd	Supplied air pressure demand respirator with SCBA escape bottle
SARpp	Supplied air positive pressure respirator
SM	Presumed and confirmed asbestos containing surfacing material
TSI	Presumed and confirmed asbestos containing thermal system insulation
25/10	25 linear feet /10 square feet

GENERAL REQUIREMENTS FOR ALL JOBS (Regardless of Air Monitoring Results)

- wet methods
- HEPA vacuum
- prompt clean-up/disposal

REQUIRED FOR ALL JOBS TO COMPLY WITH PEL

- HEPA local exhaust
- enclosure
- directed ventilation away from breathing zone
- other work practices deemed feasible
- supplementation of feasible work practices with respirators

PROHIBITED ON ALL JOBS

- high speed abrasive disc saws without HEPA
- asbestos removal using compressed air without a capture devise
- dry sweeping/shoveling
- employee rotation

SPECIFIC JOB CLASS REQUIREMENTS

CLASS 1	CLASS 2	CLASS 3	CLASS 4
TSI and SM removal	Removal of all other asbestos not TSI or SM	All disturbances of ACM (60" bag active disturbance limit)	Housekeeping Includes construction site cleanup
REGULATED AREA	REGULATED AREA	REGULATED AREA	REGULATED AREA > PEL
<ul style="list-style-type: none"> signs 	<ul style="list-style-type: none"> signs 	<ul style="list-style-type: none"> signs 	<ul style="list-style-type: none"> signs
Competent person(CAS)	Competent person(CAS)	Competent person (CAS) O and M for work not an asbestos abatement project	Competent person(CAS), O and M for work not an asbestos abatement project
<ul style="list-style-type: none"> regular inspections 	<ul style="list-style-type: none"> regular inspections 	<ul style="list-style-type: none"> regular inspections 	<ul style="list-style-type: none"> regular inspections,
Critical barriers/isolation	Critical barriers/isolation (indoor work only)	Critical barriers/drop cloth	
<ul style="list-style-type: none"> > 25/10 required < 25/10 required if no NEA or adjacent workers 	<ul style="list-style-type: none"> if no NEA if likely > PEL 	<ul style="list-style-type: none"> if no NEA or > PEL 	
	<ul style="list-style-type: none"> if not intact removal 		
HVAC isolation	Intact removal	Local HEPA exhaust	
Drop cloths/plastic	Drop cloths	Drop cloths if TSI/SM and	
Directed ventilation	Additional requirements	<ul style="list-style-type: none"> drilling, cutting, sanding abrading, chipping, sawing 	
<ul style="list-style-type: none"> if no NEA 	<ul style="list-style-type: none"> conditional "prohibition" of cutting, breaking and abrading 	<ul style="list-style-type: none"> chipping 	
<ul style="list-style-type: none"> or > PEL 	<ul style="list-style-type: none"> if > PEL local HEPA exhaust process isolation directed ventilation other workpractices eng. control/suppl. resp. 		
NPE	NPE	(may use Class I methods)	
<ul style="list-style-type: none"> 4 air changes -.02" H2O gauge neg throughout directed air smoke test power lockout-gfci 	<ul style="list-style-type: none"> 4 air changes -.02" H2O gauge neg throughout directed air smoke test power lockout-gfci 		
GLOVEBAG STRAIGHT RUNS	GLOVEBAG STRAIGHT RUNS	GLOVEBAG STRAIGHT RUNS	
<ul style="list-style-type: none"> 6 mil seamless covers completely smoke test 1 use, no moving <150° surface HEPA collapse disposal pre removal pipe wrap attached waste bag integ. 	<ul style="list-style-type: none"> 6 mil seamless covers completely smoke test 1 use, no moving <150° surface HEPA collapse disposal pre removal pipe wrap attached waste bag integ. 	<ul style="list-style-type: none"> if TSI or SM and is drilled cut abraded sanded sawed chipped 	
<ul style="list-style-type: none"> sliding valve separation two person 	<ul style="list-style-type: none"> sliding valve separation one person 	<ul style="list-style-type: none"> (method same as Class I procedure) one person 	

CLASS 1	CLASS 2	CLASS 3	CLASS 4
NP GLOVE BAG PIPE RUNS	NP GLOVE BAG PIPE RUNS	NP GLOVE BAG PIPE RUNS	
• attached HEPA	• attached HEPA	• if TSI or SM and is	
• GB work practices the same	• GB work practices the same	• drilled	
• separate waste bag reuse	• separate waste bag reuse	• cut	
• two persons	• one person	• abraded	
		• sanded	
		• sawed	
		• chipped	
		(method same as Class I procedure)	
		• one person	
NP GLOVE BOX PIPE RUNS	NP GLOVE BOX PIPE RUNS	NP GLOVE BOX PIPE RUNS	
• rigid construction	• rigid construction	• if TSI or SM and is	
• neg pressure generator	• neg pressure generator	• drilled	
• air filter unit attached	• air filter unit attached	• cut	
• ACM outlet	• ACM outlet	• abraded	
• back up generator	• back up generator	• sanded	
• 6 mil waste bags	• 6 mil waste bags	• sawed	
• two persons	• one person	• chipped	
• smoke tested	• smoke tested	(method same as Class I procedure)	
• pre removal pipe wrap	• pre removal pipe wrap	• one person	
• HEPA filtration	• HEPA filtration		
• two persons	• one person		
WATER SPRAY PROCESS	WATER SPRAY PROCESS		
MINI ENCLOSURE	MINI ENCLOSURE	MINI ENCLOSURE req.	
• holds \leq 2 people	• holds \leq 2 people	• if TSI or SM and is	
• 6 mil	• 6 mil	• drilled	
• neg pressure required	• neg pressure required	• cut	
• seal holes	• seal holes	• abraded	
• smoke test	• smoke test	• sanded	
• clean before reuse	• clean before reuse	• sawed	
• directed ventilation	• directed ventilation	• chipped	
		(method same as Class I procedure)	
ALTERNATE METHOD > 25/10 ft	ALTERNATE METHOD		
• isolate from bz	• CP certified < PEL		
• CIH/PE-pd certified < PEL	• no perimeter monitoring		
• perimeter monitoring <.01 f/cc	• worse case monitoring		
• worse case monitoring			
• OSHA notification			
ALTERNATE METHOD < 25/10 ft			
• CP certified			
• no perimeter monitoring.			
• worse case monitoring			

CLASS 1	CLASS 2	CLASS 3	CLASS 4
VAT/ SHEET VINYL/ ASPHALT FLOORS flooring and mastic presumed asbestos w/o analysis (1980 & before)	VAT/ SHEET VINYL/ ASPHALT FLOORS flooring and mastic presumed asbestos w/o analysis (1980 & before)		
<ul style="list-style-type: none"> if mechanically chipped, or non-intact removal (requires full NPE) 	<ul style="list-style-type: none"> No mechanical chipping 		
	<ul style="list-style-type: none"> no sanding 		
	<ul style="list-style-type: none"> HEPA vac metal floor tool 		
	<ul style="list-style-type: none"> wet methods 		
	<ul style="list-style-type: none"> no dry sweeping 		
	<ul style="list-style-type: none"> intact removal 		
	<ul style="list-style-type: none"> dry removal ok if intact and done with heat 		
	<ul style="list-style-type: none"> sheet vinyl (no rip up) 		
	ROOFING		
	<ul style="list-style-type: none"> intact removal 		
	<ul style="list-style-type: none"> wet methods 		
	<ul style="list-style-type: none"> cutting machine misting 		
	<ul style="list-style-type: none"> HEPA vac debris 		
	<ul style="list-style-type: none"> dust tight chute, crane, hoist or bag on roof 		
	<ul style="list-style-type: none"> off roof & bagged by days end 		
	<ul style="list-style-type: none"> dust control unbagged material 		
	<ul style="list-style-type: none"> roof vent system isolated 		
	CAB		
	<ul style="list-style-type: none"> intact removal unless not feasible 		
	<ul style="list-style-type: none"> wet methods 		
	<ul style="list-style-type: none"> dust tight chute, crane, hoist or bag on roof 		
	<ul style="list-style-type: none"> down and bagged by days end 		
	<ul style="list-style-type: none"> nail head cut off tool 		
	GASKETS		
	<ul style="list-style-type: none"> non intact, use glovebag 		
	<ul style="list-style-type: none"> wet removal 		
	<ul style="list-style-type: none"> prompt disposal 		
	<ul style="list-style-type: none"> wet scraping 		
AIR MONITORING	AIR MONITORING	AIR MONITORING	AIR MONITORING
<ul style="list-style-type: none"> PEL = 0.1 f/cc TWA EL = 1.0 f/cc(30min) breathing zone sample 	<ul style="list-style-type: none"> PEL = 0.1 f/cc TWA EL = 1.0 f/cc(30min) breathing zone sample 	<ul style="list-style-type: none"> PEL = 0.1 f/cc TWA EL = 1.0 f/cc(30min) breathing zone sample 	<ul style="list-style-type: none"> PEL = 0.1 f/cc TWA EL = 1.0 f/cc(30min) breathing zone sample
<ul style="list-style-type: none"> CP exposure assessment 	<ul style="list-style-type: none"> CP exposure assessment 	<ul style="list-style-type: none"> CP exposure assessment 	<ul style="list-style-type: none"> CP exposure assessment
<ul style="list-style-type: none"> initial if no NEA 	<ul style="list-style-type: none"> initial if no NEA 	<ul style="list-style-type: none"> initial if no NEA 	<ul style="list-style-type: none"> initial exposure assessment
<ul style="list-style-type: none"> periodic monitoring done daily if no NEA or if likely > PEL 	<ul style="list-style-type: none"> periodic monitoring done daily if no NEA or if likely > PEL 	<ul style="list-style-type: none"> periodic monitoring to validate exposure assessment 	<ul style="list-style-type: none"> periodic monitoring to validate exposure assessment
<ul style="list-style-type: none"> no daily monitoring if in SARpp unless alternate method is used 	<ul style="list-style-type: none"> no daily monitoring if in SARpp 	<ul style="list-style-type: none"> termination if < PEL / EL 	<ul style="list-style-type: none"> termination if < PEL / EL
<ul style="list-style-type: none"> termination if < PEL / EL 	<ul style="list-style-type: none"> termination if < PEL / EL 	<ul style="list-style-type: none"> additional if conditions change 	<ul style="list-style-type: none"> additional if conditions change
<ul style="list-style-type: none"> additional if conditions change 	<ul style="list-style-type: none"> additional if conditions change 		

CLASS 1	CLASS 2	CLASS 3	CLASS 4
REQUIREMENTS by WAC rule	REQUIREMENTS by WAC rule	REQUIREMENTS by WAC rule	REQUIREMENTS by WAC rule
WAC 296-62-07712(6) Work practices and engineering controls	WAC 296-62-07712(9) Work practices and engineering controls and WAC 296-62-07712(10) Additional controls	WAC 296-62-07712(11) Work Practices and engineering controls	WAC 296-62-07712(12) Work practices and engineering controls
WAC 296-62-07712(7) Specific Control Methods	WAC 296-62-07712(10)(a) Removal of vinyl and asphalt flooring		
WAC 296-62-07712(8) Alternative Control Methods	WAC 296-62-07712(10)(b) Removal of roofing materials		
	WAC 296-62-07712(10)(c) Removal of cementitious siding and shingles or transite panels on building exteriors		
	WAC 296-62-07712(10)(E) Other class II materials and WAC 296-62-07712(10)(f) Alternative work practices and controls		
	WAC 296-62-07712(13) Alternative methods of compliance for roofing and pipeline coating materials		
PROTECTIVE CLOTHING	PROTECTIVE CLOTHING	PROTECTIVE CLOTHING	PROTECTIVE CLOTHING
<ul style="list-style-type: none"> all jobs > PEL / EL all jobs no NEA all jobs >25/10 	<ul style="list-style-type: none"> all jobs > PEL / EL all jobs no NEA 	<ul style="list-style-type: none"> all jobs > PEL / EL all jobs no NEA 	<ul style="list-style-type: none"> all jobs > PEL / EL all jobs no NEA
RESPIRATORS (see selection charts R1-R3)	RESPIRATORS (see selection charts R1-R3)	RESPIRATORS (see selection charts R1-R3)	RESPIRATORS (see selection charts R1-R3)
DECONTAMINATION	DECONTAMINATION	DECONTAMINATION	DECONTAMINATION
<ul style="list-style-type: none"> TSI/SM >25/10 full decon (if infeasible or outdoor, vacuum off, remote decon) TSI/SM < 25/10 equip room/area/drop cloth 	<ul style="list-style-type: none"> equip room/area/drop cloth if no NEA, >PEL 	<ul style="list-style-type: none"> equip room/area/drop cloth if no NEA, >PEL 	<ul style="list-style-type: none"> equip room/area/drop cloth if no NEA, >PEL
<ul style="list-style-type: none"> area must accommodate cleanup must decon all equip/ppe enter reg area through equip room/decon area 	<ul style="list-style-type: none"> area must accommodate cleanup must decon all equip/ppe enter reg area through equip room/decon area 	<ul style="list-style-type: none"> area must accommodate cleanup must decon all equip/ppe enter reg area through equip room/decon area 	<ul style="list-style-type: none"> area must accommodate cleanup must decon all equip/ppe enter reg area through equip room/decon area
<ul style="list-style-type: none"> area must accommodate cleanup must decon all equip/ppe enter reg area through equip room/decon area 	<ul style="list-style-type: none"> no smoking in work area 	<ul style="list-style-type: none"> no smoking in work area 	<ul style="list-style-type: none"> if in other regulated areas follow their decon procedure
<ul style="list-style-type: none"> lunch area 			<ul style="list-style-type: none"> no smoking in work area

CLASS 1	CLASS 2	CLASS 3	CLASS 4
WORKER TRAINING	WORKER TRAINING	WORKER TRAINING	WORKER TRAINING
<ul style="list-style-type: none"> CERTIFIED WORKER 32hr Annual refresher 8hr 	<ul style="list-style-type: none"> CERTIFIED WORKER 32hr Annual refresher 8hr 	<ul style="list-style-type: none"> CERTIFIED WORKER for Asbestos projects, AHERA 16 hr O & M for work not an Asbestos project Annual refresher 	<ul style="list-style-type: none"> CERTIFIED WORKER for Asbestos projects, AHERA AWARENESS 2hr for work not an asbestos project Annual refresher
	<ul style="list-style-type: none"> Exemption for single generic material, 8hr 		
CP TRAINING	CP TRAINING	CP TRAINING	CP TRAINING
<ul style="list-style-type: none"> WISHA CAS 40 hr 	<ul style="list-style-type: none"> WISHA CAS 40 hr 	<ul style="list-style-type: none"> WISHA CAS for asbestos abatement projects, AHERA O & M 16 hr for work not an asbestos abatement project (less than 3 sq. ft. or 3 ft.) 	<ul style="list-style-type: none"> WISHA CAS for asbestos abatement projects, AHERA O & M 16 hr for work not an asbestos abatement project (less than 3 sq. ft. or 3 ft.)
HOUSEKEEPING	HOUSEKEEPING	HOUSEKEEPING	HOUSEKEEPING
<ul style="list-style-type: none"> HEPA vacuums leak tight disposal 	<ul style="list-style-type: none"> HEPA vacuums leak tight disposal 	<ul style="list-style-type: none"> HEPA vacuums leak tight disposal 	<ul style="list-style-type: none"> HEPA vacuums leak tight disposal
Flooring care	Flooring care	Flooring care	Flooring care
<ul style="list-style-type: none"> no sanding < 300 rpm stripping dry buff/burnish wax only 	<ul style="list-style-type: none"> no sanding < 300 rpm stripping dry buff/burnish wax only 	<ul style="list-style-type: none"> no sanding < 300 rpm stripping dry buff/burnish wax only 	<ul style="list-style-type: none"> no sanding < 300 rpm stripping dry buff/burnish wax only Debris and waste cleaned where TSI & SM is present is presumed ACM
MEDICALS	MEDICALS	MEDICALS	MEDICALS
<ul style="list-style-type: none"> if wearing N.P. respirator if > PEL / EL I,II,III > 30 days / year 	<ul style="list-style-type: none"> if wearing N.P. respirator if > PEL / EL I,II,III > 30 days / year 	<ul style="list-style-type: none"> if wearing N.P. respirator if > PEL / EL I,II,III > 30 days / year 	<ul style="list-style-type: none"> if wearing N.P. respirator if > PEL / EL I,II,III > 30 days / year

Communication of Hazard (Contractors)

- Regulated area work must inform other employers of project
- Must abate all hazards under their control.
- Notify owner/employer of remaining asbestos in building w/i 10 days

Communication of Hazard(employers duties) *

- Regulated area work must inform other employers of project
- Notification to employees of ACM presence in work area
- Notify building owner of presence of ACM
- Notify other employers of presence of ACM
- Notify owner/employer of remaining asbestos in building w/i 10 days
- Notify owner/employer of newly discovered ACM w/i 24 hrs
- Inspection to refute ACM by AHERA inspector

Communication of Hazard (Bldg owners, Lessees)

- Regulated area work must inform other employers of project
- Identify and label TSI/ SM and PACM (1980 & earlier TSI/SM)
- 1980 & earlier vinyl and asphalt floors presumed and identified as ACM
- Notify all contractors working near material
- Notify owner or lessees employees
- Notify all other employers in the area
- Notify Tenants in effected areas
- Inspection to refute ACM by AHERA inspector
- Post asbestos signs at mechanical room signs
- Maintain records
- Notify owner/employer of remaining asbestos in building w/i 10 days

* Note : Contractors and Building Owner / Lessees, who are also employers, are subject to these requirements.

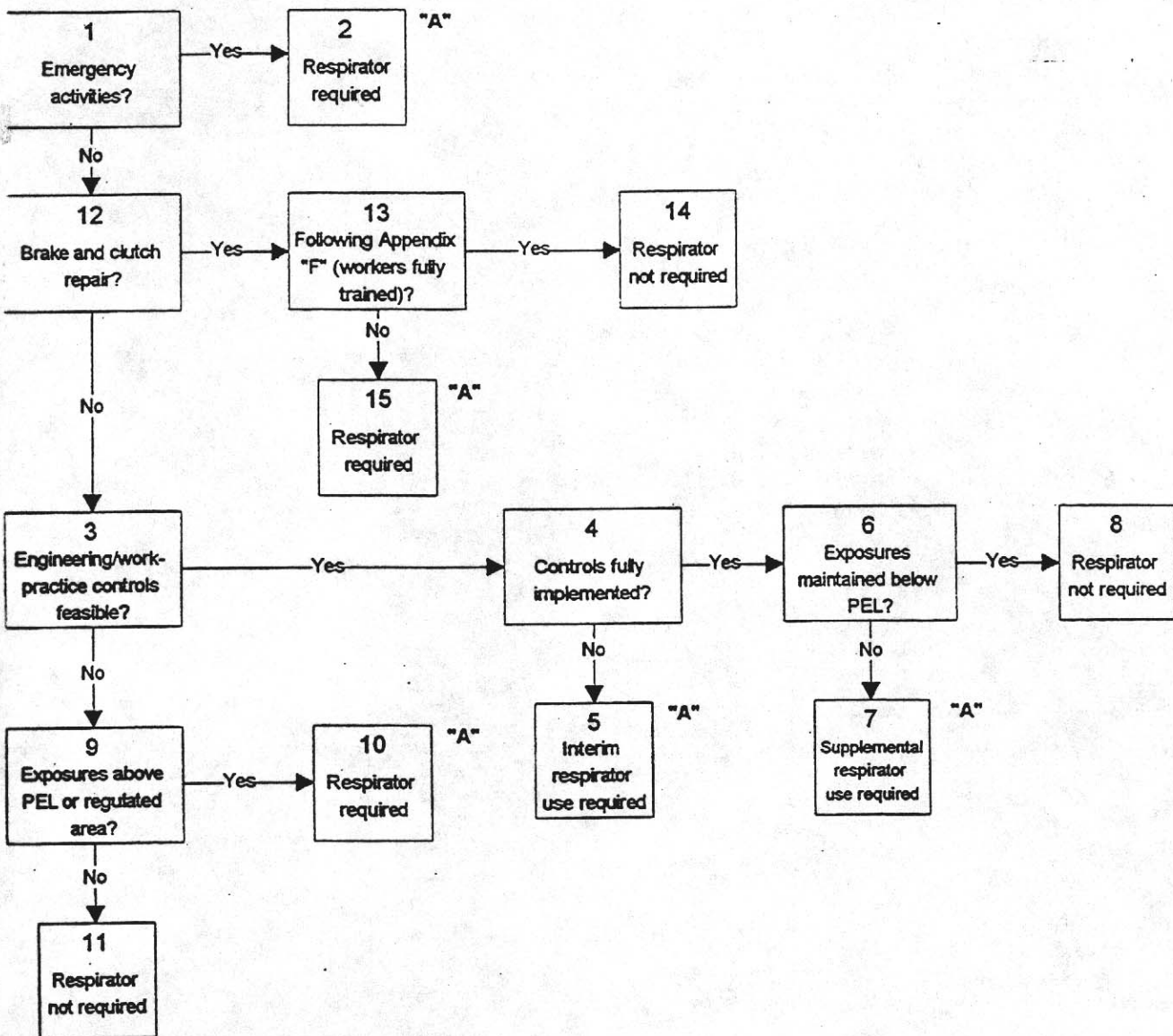
Negative Exposure Assessment Criteria - NEA

(Based on initial, historical or objective air monitoring).

Data must closely resemble the:

- Process
- Type of Material
- Control Methods
- Work Practices
- Environmental Conditions
- Training and Experience
- Degree and Quality of Supervision
- Location of Ventilation Equipment

CHART R1 Respirator Selection for Asbestos-Related General Industry Work



SELECTION CODE:

A. Follow Table 1 in WAC 296-62-07715. If a negative-pressure APR is appropriately selected and an employee requests to use a PAPR instead, then a loose- or tight-fitting PAPR with HEPA filters must be provided.

TABLE 1-Respiratory Protection for Asbestos Fibers

AIRBORNE CONCENTRATION OF ASBESTOS or CONDITIONS OF USE	REQUIRED RESPIRATOR (See Note "a")
Not in excess of 1 f/cc (10 X PEL)	Half-mask, non-disposable APR equipped HEPA filters (See Note "b")
Not in excess of 5 f/cc (50 X PEL)	FF, APR equipped with HEPA filters
Not in excess of 10 f/cc (100 X PEL)	Any PAPR equipped with HEPA filters or any SAR operated in continuous-flow mode.
Not in excess of 100 f/cc (1,000 X PEL)	FF, SAR, operated in pressure-demand mode.
Not in excess of 1,000 f/cc (10,000 X PEL) or unknown concentration	FF, SAR, operated in pressure-demand mode, equipped with an auxiliary positive-pressure self-contained breathing apparatus or HEPA filter cress cartridges. (See Note "c")

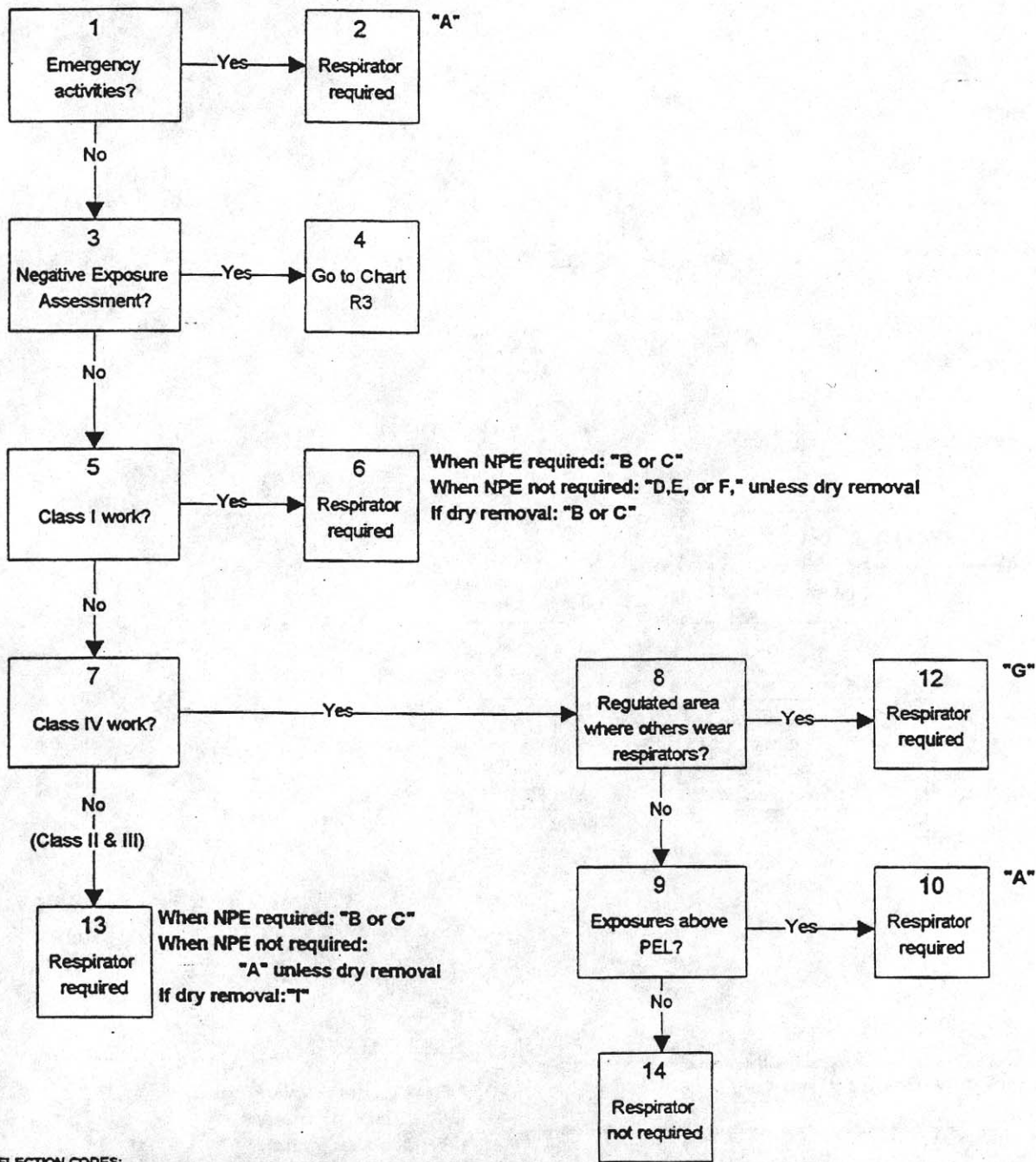
NOTES:

- a. Respirators designed for higher environmental concentrations may be used at lower concentrations.
- b. A HEPA filter means a filter that is capable of trapping and retaining at least 99.97% of all monodispersed particles of 0.3 micrometers mean aerodynamic diameter or larger.
- c. See subsection WAC 296-62-07715 (5)(c) for fit-testing requirements.

ABBREVIATIONS:

- ACM=Asbestos-containing material
- APR=Air purifying respirator
- CFM=Cubic feet per minute
- FF=Full-facepiece
- HEPA filter=High-efficiency particulate air filter
- NEA=Negative exposure assessment
- NPE=Negative pressure enclosure
- PACM=Presumed asbestos-containing material
- PAPR=Powered air-purifying respirator
- PEL=Permissible exposure limit
- SAR=Supplied-air respirator
- SCBA=Self-contained breathing apparatus
- TSI=Thermal system insulation

**CHART R2 Respirator Selection for Asbestos-Related Construction and Shipyard Work:
No Negative Exposure Assessment**



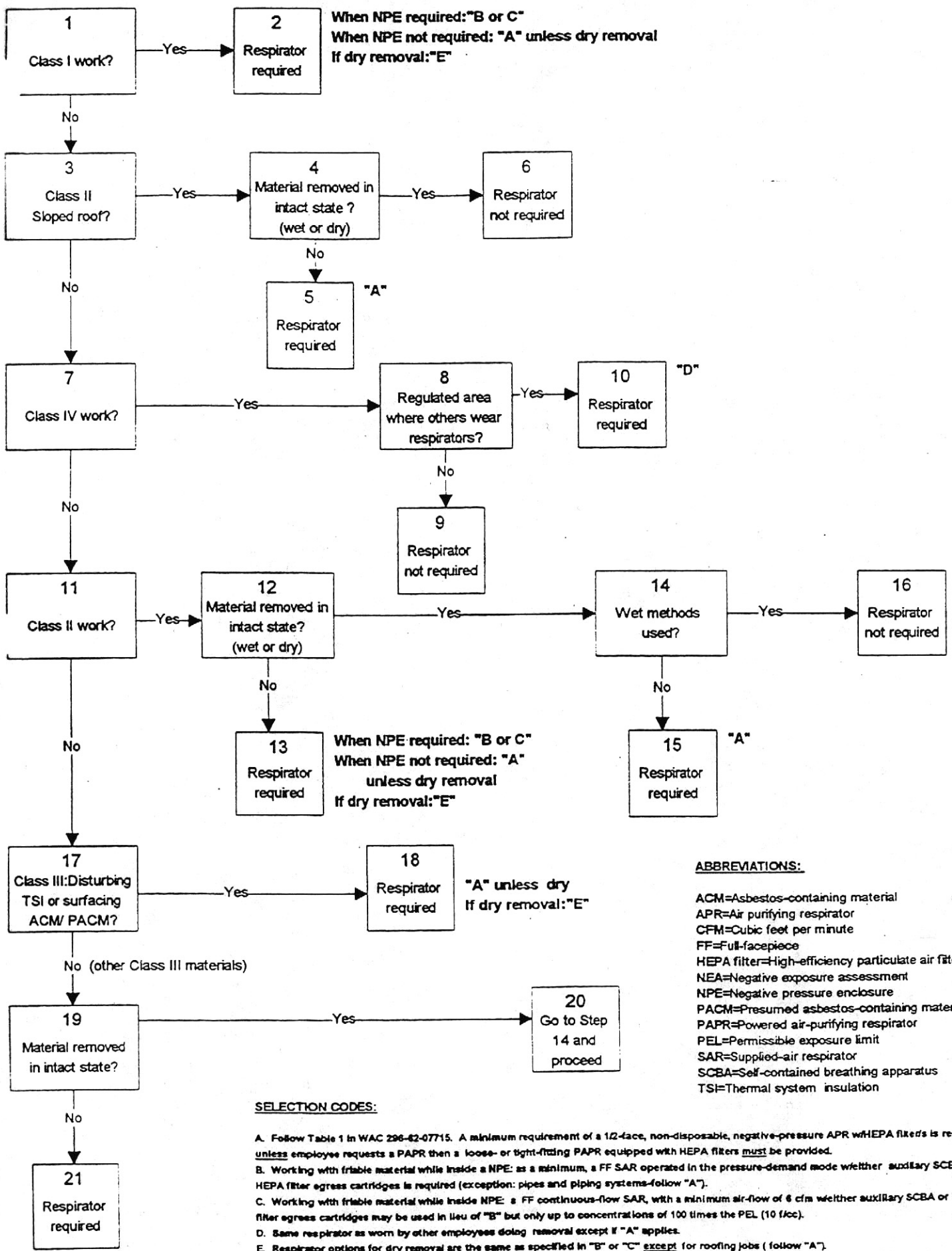
SELECTION CODES:

- A. Follow Table 1 in WAC 296-62-07715. A minimum of a 1/2 -face, non-disposable, negative-pressure APR w/HEPA filters is required unless employee requests a PAPR then a loose- or tight-fitting PAPR equipped with HEPA filters must be provided.
- B. Working with friable material while inside NPE: as a minimum, a FF SAR operated in the pressure-demand mode whether auxiliary SCBA or HEPA filter egress cartridges is required (exception: pipes and piping systems-follow "D,E or F").
- C. Working with friable material while inside NPE: a FF continuous-flow SAR, with a minimum air-flow of 6 cfm whether auxiliary SCBA or HEPA filter egress cartridges may be used in lieu of "B" but only up to 100 times the PEL (10 f/cc).
- D. As a minimum, a tight-fitting PAPR w/HEPA filters is required when airborne asbestos fiber levels do not exceed 10 times the PEL (1 f/cc).
- E. As a minimum, a FF SAR operated in the pressure-demand mode whether auxiliary SCBA or HEPA filter egress cartridges is required when airborne asbestos fiber levels exceed 10 times the PEL (1 f/cc).
- F. In lieu of "E" a FF continuous-flow SAR, with a minimum air flow of 6 cfm whether auxiliary SCBA or HEPA filter egress cartridges may be used but only up to 100 times the PEL (10 f/cc).
- G. Same respirator as worn by other employees doing removal except if "A" applies. See note in "H".
- H. Note: Workers performing Class IV work in regulated areas must be trained as certified asbestos workers as specified in WAC 296-62-07722.
- I. Respirator options for dry removal are the same as specified in "B" or "C" except for roofing work follow "D".

ABBREVIATIONS:

- ACM=Asbestos-containing material
- APR=Air purifying respirator
- CFM=Cubic feet per minute
- FF=Full-facepiece
- HEPA filter=high-efficiency particulate air filter
- NEA=Negative exposure assessment
- NPE=Negative pressure enclosure
- PACM=Presumed asbestos-containing material
- PAPR=Powered air-purifying respirator
- PEL=Permissible exposure limit
- SAR=Supplied-air respirator
- SCBA=Self-contained breathing apparatus
- TSI=Thermal system insulation

**Chart R3 Respirator Selection for Asbestos-Related Construction and Shipyard Work:
With Negative Exposure Assessment**



ABBREVIATIONS:

- ACM=Asbestos-containing material
- APR=Air purifying respirator
- CFM=Cubic feet per minute
- FF=Full-facepiece
- HEPA filter=High-efficiency particulate air filter
- NEA=Negative exposure assessment
- NPE=Negative pressure enclosure
- PACM=Presumed asbestos-containing material
- PAPR=Powered air-purifying respirator
- PEL=Permissible exposure limit
- SAR=Supplied-air respirator
- SCBA=Self-contained breathing apparatus
- TSI=Thermal system insulation

SELECTION CODES:

- A. Follow Table 1 in WAC 296-62-07715. A minimum requirement of a 1/2-face, non-disposable, negative-pressure APR with HEPA filters is required unless employee requests a PAPR then a loose- or tight-fitting PAPR equipped with HEPA filters must be provided.
- B. Working with friable material while inside a NPE: as a minimum, a FF SAR operated in the pressure-demand mode with either auxiliary SCBA or HEPA filter egress cartridges is required (exception: pipes and piping systems-follow "A").
- C. Working with friable material while inside NPE: a FF continuous-flow SAR, with a minimum air-flow of 6 cfm with either auxiliary SCBA or HEPA filter egress cartridges may be used in lieu of "B" but only up to concentrations of 100 times the PEL (10 f/cc).
- D. Same respirator as worn by other employees doing removal except if "A" applies.
- E. Respirator options for dry removal are the same as specified in "B" or "C" except for roofing jobs (follow "A").

"A" unless dry removal
If dry removal: "E"

ASBESTOS CONTAINING ROOFING REMOVAL

(This table provides a general summary of requirements for asbestos containing roofing removal.

Refer to the standard for comprehensive details)

Roofing Requirements (containment not required)							
Intact Removal (required if feasible)				Non-intact removal (mechanical)			
Dry		Wet (required if feasible)		Dry		Wet(required if feasible)	
Flat	Sloped	Flat	Sloped	Flat	Sloped	Flat	Sloped
C.A.S.	C.A.S.	C.A.S.	C.A.S.	C.A.S.	C.A.S.	C.A.S.	C.A.S.
Worker 8hr	Worker 8hr	Worker 8hr	Worker 8hr	CAW	CAW	CAW	CAW
1/2 mask APR if NEA PAPR if no NEA	no Respirator if NEA	no Respirator if NEA	no Respirator if NEA	1/2 mask APR if NEA PAPR if no NEA	1/2 mask APR if NEA PAPR if no NEA	½mask APR	½mask APR
Fit test	no fit test if NEA	no fit test if NEA	no fit test if NEA	Fit test	Fit test	Fit test	Fit test
Medical	no medical if NEA and <30 days/year	no medical if NEA and <30 days/year	no medical if NEA and <30 days/year	Medical	Medical	Medical	Medical
Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs	Regulated Area + Signs
Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA	Tyvek if no NEA
Exposure Assessment	Exposure Assessment	Exposure Assessment	Exposure Assessment	Exposure Assessment	Exposure Assessment	Exposure Assessment	Exposure Assessment
No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances	No pre-abates / clearances
---	---	saw misting	saw misting	---	---	saw misting	saw misting
---	---	---	---	BUR aggregate surface-HEPA Vac saw cuts	BUR aggregate surface-HEPA Vac saw cuts	BUR aggregate surface-HEPA Vac saw cuts	BUR aggregate surface-HEPA Vac saw cuts
---	---	---	---	BUR smooth surface-HEPA Vac, sweep or wipe saw cuts	BUR smooth surface-HEPA Vac, sweep or wipe saw cuts	BUR smooth surface-HEPA Vac, sweep or wipe saw cuts	BUR smooth surface-HEPA Vac, sweep or wipe saw cuts
---	---	---	---	contain saw debris immediately	contain saw debris immediately	contain saw debris immediately	contain saw debris immediately
debris off roof ASAP or by shift end	debris off roof ASAP or by shift end	debris off roof ASAP or by shift end	debris off roof ASAP or by shift end	debris on roof wet / wrapped - remove by shift end	debris on roof wet / wrapped - remove by shift end	debris on roof wet / wrapped - remove by shift end	debris on roof wet / wrapped - remove by shift end
dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down	dust tight chute/ hand carry down
Enclose debris on ground	Enclose debris on ground	Enclose debris on ground	Enclose debris on ground	Enclose debris on ground	Enclose debris on ground	Enclose debris on ground	Enclose debris on ground
Isolate air intakes	Isolate air intakes	Isolate air intakes	Isolate air intakes	Isolate air intakes	Isolate air intakes	Isolate air intakes	Isolate air intakes

C.A.S = Certified Asbestos Supervisor

NEA = Negative Exposure Assessment

BUR = Built up roof

APPENDIX B

Summary of WISHA/EPA Training Requirements

This provides a summary of the WISHA asbestos training requirements and a description of the EPA training courses referenced in WAC 296-65, WAC 296-62-07722, and WAC 296-62-07728.

1. General Training Requirements:

- A. All individuals working on asbestos projects or supervising asbestos abatement projects are to be certified according to WAC 296-65.
- B. When certification requirements do not apply, employees with occupational exposure to asbestos are to complete a training course that at minimum meets the elements of WAC 296-62-07722(5) regardless of their exposure levels.
- C. Training is provided at no cost to the employee and prior to or at the initial assignment and at least annually.
- D. All individual performing Class II, Class III, or Class IV not specifically excluded are to be certified according to WAC 296-65.

2. Class I Training Requirements:

- A. Certification as an asbestos worker as specified in WAC 296-65-010. The asbestos worker is to complete an approved asbestos worker training course and be issued a certificate by the department. This course is basically equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training. (40 CFR part 763, subpart E, appendix C).
- B. Eight hours of annual refresher training is required as per WAC 296-65-010(5) for certification renewal.

3. Class II, Class III, and Class IV Requirements for Certification:

- A. If the asbestos-containing material (ACM) is not intact, or is damaged or deteriorated, asbestos worker certification is required for an asbestos project as specified in WAC 296-65.
- B. If the ACM is removed or disturbed by mechanical methods, asbestos worker certification is required as specified for an asbestos project in WAC 296-65.

- C. If the ACM becomes damaged, deteriorated, or not intact during work activities, asbestos worker certification is required as specified for asbestos projects in WAC 296-65.

4. Class II Training Requirements - Excluded from Certification:

- A. For work involving **one generic category** of intact building material including roofing, flooring, siding materials, ceiling tiles or transite panels, training shall include at a minimum the elements in WAC 296-62-07712 and specific work practices and engineering controls set forth in WAC 296-62-07712. It shall include hands-on training and will be at least eight hours in length as specified in WAC 296-62-07722(3b).
- B. For other Class II operations involving intact ACM, the training shall include, as a minimum, all the elements in WAC 296-62-07722(5), specific work practices and engineering controls in WAC 296-62-07712, and "hands-on" training. The length of this training is eight hours.
- C. Annual refresher is required. The length of time for the refresher training is not specified.

5. Class III Training Requirements - Excluded from Certification:

- A. Employees are to receive training which is consistent with EPA requirements for training local education agency maintenance and custodial staff as set forth in 40 CFR 763.92(a)(2). The course shall include hands-on training and shall be at least 16 hours in length.
- B. Exception: For Class III operations for which the competent person determines that the EPA curriculum does not cover activities that workers perform, training shall include all the elements of WAC 296-62-07722(5), specific work practices and engineering controls in WAC 296-62-07712, and "hands-on" training. There are no specifications in the standard for the length of the training.
- C. Annual refresher is required. The length of time for the refresher training is not specified.

6. Class IV Training Requirements - Excluded from Certification:

- A. Employees shall receive training which is consistent with EPA requirements for training local education agency maintenance and custodial staff as set forth in 40 CFR 763.92(a)(1). The course shall be at least two hours in length.
- B. The course shall include available information on locations of TSI and surfacing ACM/presumed asbestos-containing materials (PACM), asbestos-containing

flooring and instruction in recognition of damaged, deterioration, and delamination of asbestos-containing building materials.

- C. Annual refresher is required. The length of time for the refresher training is not specified.

7. Employees who Perform Housekeeping Operations:

- A. WAC 296-62-07722(6) requires that the employer shall provide an awareness training course to employees who perform housekeeping operations in an area which contains ACM and PACM. Elements to be included in the asbestos awareness course are listed in the section.
- B. Training is to be provided at least once per year. There are no specifications in the standard for the length of the training session.

8. Unclassified Asbestos Operations:

- A. Unclassified asbestos operations cover employees likely to be exposed in excess of the permissible exposure limits (PEL) and who are performing asbestos operations that are not covered by Class I through IV operations.
- B. Training shall meet the requirements of WAC 296-62-07722(5).

9. Competent Person Training:

- A. For **Class I and II work** training shall be obtained in an approved comprehensive course for asbestos supervisors as specified in WAC 296-65-012 and **issued a certificate** by the department.
- B. For **Class III and Class IV work** involving three square feet or three linear feet or more of ACM or PACM, training shall be obtained in an approved comprehensive course for asbestos supervisors as specified in WAC 296-65-012 and **issued a certificate** by the department.
- C. For Class III and IV asbestos work involving less than three square feet or three linear feet, training shall be equivalent in curriculum and training methods to the 16-hour operations and maintenance course developed by EPA for maintenance and custodial workers.

10. Summary of EPA Course Requirements:

- A. EPA MAP for asbestos abatement workers.
 - 1. The four-day training course includes:

- a. At least 14 hours of hands-on training that provides asbestos workers with actual experience performing tasks associated with asbestos abatement work.
 - b. Topics for the course are to include the physical characteristics of asbestos, potential health effects related to asbestos exposure, employee PPE, work practices, personal hygiene, medical monitoring, air monitoring, relevant state, local, and federal standards, respiratory protection programs and medical monitoring programs, additional safety hazards on asbestos abatement projects.
 - c. Course review, and an examination (50 multiple choice questions with 70% correct).
 - d. Individual respirator fit-testing.
 - e. The EPA training course requirements are found on page 5252 and 5253 of the February 3, 1994, Federal Register.
2. An annual refresher training session is required which is to be one full day. The refresher courses are to be conducted as separate and distinct courses, not to be combined with any other training during the period of the refresher course. The refresher course shall review and discuss changes in regulations, developments in state-of-the-art procedures, and a review of key aspects of the initial training course. A recertification examination is at the option of the state.
- B. Awareness training course developed by EPA for maintenance and custodial workers. This training is detailed in 40 CFR 763.92(a)(1). EPA specifies that this training is to be two hours in length. Training shall include, but not be limited to:
1. Information regarding asbestos and its various uses and forms.
 2. Information on the health effects associated with asbestos exposure.
 3. Locations of asbestos-containing building material identified throughout each school building in which the employee works.
 4. Recognition of damage, deterioration, and delamination of asbestos-containing building material.
 5. Name and telephone number of the person designated to carry out general local education agency responsibilities under 40 CFR 763.84 and the

availability and location of the management plan. EPA does not specify refresher training for this category.

C. Operations and maintenance course. The training required by EPA for this course is detailed in sections 40 CFR 763.92(a)(1) and 40 CFR 763.92(a)(2). This course is to be a total of 16 hours, which is two hours for the awareness level portion and 14 hours for the additional training required for operations and maintenance personnel. The training shall include the same requirements for awareness training as well as the following additional requirements:

1. Descriptions of the proper methods of handling asbestos-containing building material.
2. Information on the use of respiratory protection and other personal protective measures.
3. The provisions of 40 CFR 763.92 and 40 CFR 763.91, Appendices A, B, C, D, EPA regulations contained in 40 CFR Part 763, Subpart G, and in 40 CFR Part 61, subpart M, and OSHA regulations contained in 29 CFR 1926.58.
4. Hands-on training in the use of respiratory protection, other personal protective measures, and good work practices.

D. EPA model comprehensive course for supervisors.

1. The five-day training course includes:
 - a. Lectures and demonstrations on the physical characteristics of asbestos and ACM, potential health effects related to asbestos exposure, employee PPE, work practices, personal hygiene, medical monitoring, air monitoring, relevant state, local, and federal standards, respiratory protection programs and medical monitoring programs, insurance and liability issues, recordkeeping for asbestos abatement projects, supervisory techniques for asbestos abatement activities, and contract specifications.
 - b. Fourteen hours of hands-on training must, permit asbestos workers actual experience in performing tasks associated with asbestos abatement.
 - c. Individual respirator fit-testing.
 - d. Course review.

- e. Written examination (100 multiple choice questions with a passing score of 70%).
2. One full day of refresher training. The refresher courses are to be conducted as separate and distinct courses and not combined with any other training during the period of the refresher course. The refresher course shall review and discuss changes in regulations.

Asbestos Training Requirements Summary

Class I (TSI/SM) Thermal system insulation, surfacing material	Class II (non TSI/SM) Non-intact /mechanical removal critical barriers / NPE	Class II (non TSI/SM) Single generic intact material (ceiling tile, flooring, roofing, asphalt pipe coating) Other intact materials Asbestos Cement pipe/per exception	Class III Maintenance/ Repair all ACM	Class IV housekeeping	Work not classified I,II,III,IV
Worker CAW- 32 hr	Worker CAW- 32 hr	Worker worker -8hr	Worker CAW -32 hr > 1ft ² ACM / all pipe insul. > 1ft ² ACM non-intact or mechanical VAT and roofing maintenance and repair	Worker CAW -32 hr > 1ft ² ACM / all pipe insul., > 1ft ² ACM non-intact or mechanical VAT and roofing maintenance and repair	Worker Unspecified duration
			O&M -16hr < 1ft ² ACM (except pipe insulation).Any intact non- mechanical VAT and roofing,	Awareness- 2hr < 1ft ² ACM Any intact non- mechanically removed VAT and roofing,	
Competent Person CAS- 40 hr	Competent Person CAS- 40 hr	Competent Person CAS -40 hr	Competent Person CAS- 40 hr ≥ 3 linear or ft ² of ACM, ≥ 3 linear or ft ² non-intact or mechanical VAT and roofing removal	Competent Person CAS -40 hr ≥ 3 linear or ft ² of ACM, ≥ 3 linear or ft ² non-intact or mechanical VAT and roofing removal	Competent Person Unspecified duration
			O&M -16hr <3 linear / ft ² of ACM, or any quantity of intact-manual removal of VAT / roofing, Asbestos Cement pipe	O&M -16hr <3 linear / ft ² of ACM, or any quantity of intact-manual removal of VAT / roofing	
Refresher (annual) CAW -8hr	Refresher (annual) CAW- 8hr	Refresher (annual) Worker - unspecified duration	Refresher (annual) CAW- 8hr	Refresher (annual) CAW- 8hr	Refresher (annual) Unspecified duration
CAS -8hr	CAS -8hr	CAS -8hr	CAS- 8hr	CAS- 8hr	
			O&M - unspecified duration	Awareness - unspecified duration	
				O&M - unspecified duration	

General industry annual and refresher training requirements:
WAC 296-62-07722(1),(2),(5),(6),(7)
Unspecified duration

APPENDIX C

Questions and Answers on the Occupational Exposure To Asbestos Standard WAC 296-62-077 and Asbestos Certification WAC 296-65

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SCOPE:

- Q.** OSHA has separate asbestos standards each for general industry, construction, and shipyard work. How is the WISHA asbestos standard organized with respect to these activities?
- A.** The WISHA asbestos standard covers all occupational exposure to asbestos in all industries in WAC 296-62-077 and WAC 296-65. Requirements that are specific to general industry work activity or construction and shipyard activity are designated in the section or subsection. All other non-designated sections or subsections applies to all industries. Any reference or requirement specifying competent person, Class I, Class II, Class III, or Class IV is considered to apply to construction and shipyard work only.
- Q.** Are marine terminals and longshoring covered by the general industry specific requirements of the standard?
- A.** Marine terminals and longshoring are covered by the general industry requirements of the standard if asbestos is being loaded, unloaded, or stored.
- Q.** What work activity is most affected by the general industry specific requirements of the standard?
- A.** Brake and clutch repair is the activity engaged in by the largest group of asbestos exposed workers, although most of them are exposed sporadically and at low levels. The next largest group consists of custodial workers who do not perform their duties as part of construction activities, but clean surfaces, sweep, buff and vacuum floors, and wash walls and windows in manufacturing plants and a wide variety of public and commercial buildings.
- Q.** Is housekeeping work covered under the general industry requirements or under the construction and shipyard designated requirements of the standard?
- A.** Housekeeping work which is not related to a construction or shipyard activity, is regulated by general industry requirements. Housekeeping work which is related to construction activities is covered by the construction specific requirements. Housekeeping work which is related to shipyard work activities is covered shipyard work specific requirements.
- Q.** What other industries are covered by general industry designated requirements?
- A.** Primary and secondary manufacturing of asbestos-containing products.
- Q.** What activities do the construction specific requirements cover?
- A.** The construction requirements cover, but are not limited to, the following activities involving asbestos: demolition, removal, alteration, repair, maintenance, installation,

clean-up, transportation, disposal, and storage. It has been designated in the scope of the asbestos standard WAC 296-62-07701 that construction work activity is defined by WAC 296-155-012.

- Q.** If construction activities are performed in a facility normally covered by general industry requirements or by any employer conducting construction activities, which requirements apply?
- A.** Asbestos work which involves removal, repair, maintenance, or demolition is explicitly regulated by the construction specific requirements even if such work is performed within a facility otherwise regulated under general industry requirements. Construction work is defined in WAC 296-155-012.
- Q.** Does the standard apply during earth moving projects, drilling, blasting, or sawing where natural deposits of asbestos occur?
- A.** Certain construction sites in well-defined areas contain deposits of naturally occurring asbestos. In such cases, wetting of the excavation site, often required by local authorities, should be sufficient to suppress measurable airborne-asbestos concentrations. No other actions are required by the standard.
- Q.** In the above case is the employer required to take any action if there is no information readily available indicating asbestos contamination of the soil?
- A.** In the absence of actual knowledge or information showing asbestos contamination of soil in the immediate vicinity of a construction site, the employer is not required to take any action under this standard.

DEFINITIONS:

- Q.** How has the definition of "asbestos" changed in the asbestos standards?
- A.** The non-asbestiform varieties of the minerals actinolite, tremolite, and anthophyllite are no longer included in the definition of asbestos.
- Q.** Briefly, what are the four classes of activities covered in the asbestos standard?
- A.** "**Class I**" work is defined as activities involving the removal of **thermal system insulation (TSI)** and sprayed-on or troweled-on or otherwise applied surfacing **asbestos-containing material (ACM)** or **presumed asbestos-containing material (PACM)**.
- "**Class II**" asbestos work is defined as removal of ACM or PACM which is not TSI or surfacing ACM or PACM.
- "**Class III**" asbestos work is defined as repair and maintenance operations which are likely to disturb all types of ACM or PACM. "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. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics, and spaces above the ceiling where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.

"**Class IV**" asbestos work means maintenance and custodial activities during which employees contact, but do not actively disturb ACM or PACM and activities to clean-up dust, waste, and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust exists and cleaning up loose ACM or PACM debris from TSI or surfacing ACM or PACM, following construction activity.

Q. Does the new standard set a minimum level of asbestos content for ACM?

A. ACM means any material containing more than 1% asbestos.

Q. What is PACM?

A. The definition of PACM is limited to TSI and sprayed on and/or troweled or otherwise applied surfacing material in buildings constructed no later than 1980. The material is "presumed" to contain asbestos unless it is demonstrated in accordance with the standard that PACM does not contain asbestos, see WAC 296-62-07721(3).

Q. Does WISHA still use the term "small-scale, short-term"?

A. No. WISHA has dropped the term "small-scale, short term" work from the regulatory text. The term "small-scale, short term" was too limiting, was shown to be confusing, and could not be defined clearly to distinguish high-risk asbestos-disturbing activities from low risk activities of reduced risk.

Q. Are "wrap and cut" operations included in the definition of "removal"?

A. Yes, a wrap and cut operation involves asbestos removal. It consists of two distinct operations. The wrap portion requires the removal of small amounts of asbestos from either side of the pipe to be cut. This will be a Class I or III operation depending on the amount of asbestos removed. Once the asbestos is removed and wrapped, the pipe is then cut. The cutting portion of the job is unclassified, as it does not involve asbestos removal.

MULTI-EMPLOYER WORKSITES:

Q. Who is responsible for employee protection on multi-employer worksites?

A. The standard explicitly requires asbestos hazards to be abated "by the contractor who created or controls the source of asbestos contamination." Additionally, employers of employees exposed to the hazard must protect their employees.

- Q.** How are potentially exposed employees protected when their employer is not creating the hazard?
- A.** WAC 296-62-07706(3) and (4) set forth the duties of the employer of employees who are exposed to asbestos hazards, but who did not create the source of asbestos. The employer must ask the contractor who controls the hazard to take corrective action. For example, if there is a breach of an enclosure within which asbestos work is being performed, the employer of employees working outside that enclosure shall request the asbestos contractor who erected the enclosure to repair the breach immediately, as required by WAC 296-62-07706(2). If the repair is not made, and if employees working outside the enclosure could be exposed to asbestos in excess of the **permissible exposure limit (PEL)**, the employer of those employees shall either remove them from the worksite pending repairs, or consider his employees to be working within a regulated area according to WAC 296-62-07711 and comply with the provisions of WAC 296-62-07709 governing exposure assessments and monitoring of employees who work within such areas. If there is an enclosure, then the employer must inspect it to ensure the integrity of the enclosure. The general contractor who is deemed to have supervisory control over the entire worksite, including the regulated area, is also responsible for violations which could be abated or prevented by the exercise of such supervisory capacity.
- Q.** Does the standard provide "by-stander" protection, for employees working outside an enclosure?
- A.** Yes, the **negative pressure enclosure (NPE)** system provisions are in WAC 296-62-07712, "Requirements for asbestos activities in construction and shipyard work." These systems reduce exposures of the employees who are disturbing the asbestos who are inside the enclosure, as well as employees working outside the enclosure. In other cases, "critical barriers" are required where, for instance, Class II materials are removed using aggressive methods.

EXPOSURE ASSESSMENT:

- Q.** What is included in the new "exposure assessment" requirements in the WAC 296-62-07709(3) for construction and shipyard work?
- A.** The "exposure assessment" predicts exposure and evaluates potential controls. In most cases, the exposure assessment will include both past and current monitoring results. Monitoring results must be considered, but do not necessarily constitute an adequate "assessment" if they would not represent all representative employee exposures during the entire job. The assessment must review relevant controls, conditions and factors that influence the degree of exposure. These include, but are not limited to, quality of supervision and of employee training, techniques used for wetting the ACM, placing and repositioning the ventilation equipment and impacts due to weather conditions. The assessment must be based on a review of all aspects of the employer's performance doing similar jobs.

- Q.** Do all employers need to conduct an "initial exposure assessment" under the construction and shipyard work requirements in WAC 296-62-07709(3)?
- A.** In general, all employers who have a workplace covered by this standard are to conduct an "initial exposure assessment" at the beginning of each asbestos job. Exceptions to this requirement exist only for most Class IV work. Even employers who are planning to install full NPEs with air flushing technology must conduct initial exposure assessments. Employers may base assessments of similar jobs on prior assessments of repetitive, routine jobs.
- Q.** Are initial exposure assessments also required for general industries activities?
- A.** The exposure assessment and monitoring requirements specific to general industries activities are found in WAC 296-62-07709(2). Initial air monitoring is required at the initiation of asbestos work, see WAC 296-62-07709(2)(a).
- Q.** Is it more difficult than before to base an initial exposure assessment on "historic data"?
- A.** Yes, the standard establishes specific evaluation criteria for data. This criteria included the experience and training of the crews and the historic data must be updated annually. It is important to note that historic data is usually that data generated by an individual employer, whereas objective data is related to a product, material, or activity and may be derived from other employers' (such as the manufacturer of the product) data.
- Q.** Explain "objective data".
- A.** The use of objective data grants a monitoring exemption and may be used as a basis for an NEA. The employer using "objective data" must demonstrate that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations in excess of the PEL under those work conditions having the greatest potential for releasing asbestos. The employer may use data derived from other employers jobs. The data should reflect worst case conditions in a variety of occupational settings.
- Q.** When can "objective data" be relied on for an NEA?
- A.** For any specific asbestos job (combination of activity and product) performed by employees who have been trained in compliance with the standard the employer must demonstrate that, under worst case conditions, statistically there is a high degree of confidence that an exposure above the PEL will not occur.
- Q.** How would an employer who performs repetitive work complete an exposure assessment?
- A.** An employer may evaluate repetitive operations with highly similar characteristics as one job, such as cable pulling in the same building, so long as the data used also reflect repetitive operations of the same duration and frequency.

Q. Did WISHA adopt a clearance level?

A. WISHA has a provision in WAC 296-62-07712(5)(c) for air monitoring at the completion of an asbestos work. Monitoring shall demonstrate that the airborne asbestos fiber concentrations is below the PELs or at or below the airborne levels of asbestos fibers existing at the start of the asbestos work; whichever level is lower. This provision is also found in WAC 296-62-07712(5)(c) and WAC 296-62-07713(2)(c). Clearance air monitoring is not required for outdoor asbestos work activities. Clearance air monitoring is required for all asbestos work done in NPEs.

Representative personal air monitoring may be substituted for clearance air sampling for glove bag work, mini-enclosure projects, or asbestos work that require no critical barriers, provided that the project duration is one day or less. Under these circumstances, representative personal air monitoring results must indicate that exposure levels are at or below clearance requirements, and that the following requirements are met:

- Representative personal air samples are taken for each work activity and for the duration of the asbestos work;
- Personal air samples include all work activities and final cleaning of the work space;
- All debris is completely removed from the worksite prior to the removal of the regulated area;
- Air monitoring results are obtained before the mini-enclosure or regulated area is removed and the area reoccupied; and
- None of the personal air sample results exceed the PEL or the pre-abatement air sample result, whichever is lower.

Q. Is pre-abatement air monitoring required for all asbestos jobs?

A. Pre-abatement air monitoring, as specified in WAC 296-62-07709(3)(f) is required for all construction and shipyard activities. Outdoor asbestos activities will not require pre-abatement air monitoring.

METHODS OF COMPLIANCE:

Q. What are the three basic controls required initially in ALL operations covered in the construction and shipyard requirements in WAC 296-62-07712?

A. Regardless of the exposure levels the controls required are: **Use of high efficiency particulate air (HEPA) filtered vacuums** when the source of the dust/debris is damaged

ACM or disturbance of ACM or PACM; use of wet methods to control asbestos fiber dispersion; and prompt disposal of asbestos-contaminated waste materials. These provisions apply to, for example, employers who install ACM (no class designation), clean-up asbestos-containing debris at a construction site (Class IV), repair a boiler covered with asbestos-containing TSI (Class I or III), and remove asbestos-containing surfacing material (Class I).

- Q.** What is required for the disposal of asbestos-contaminated waste?
- A.** All asbestos-contaminated waste must be promptly disposed of in leak-tight containers, WAC 296-62-07712(2)(d) and WAC 296-62-07713(1)(a)(v).
- Q.** What is meant by the term "air sweeping"?
- A.** Where the exposure is expected to be above the PELs, WISHA requires ventilation that moves contaminated air away from employees toward a HEPA filtered exhaust device. It does NOT mean that a general building ventilation system to vent asbestos-contaminated air, would be acceptable under the standard.
- Q.** Is the NPE the only effective system for larger removal operations?
- A.** NPE systems are effective in many circumstances in protecting workers both within and outside the enclosure. Other systems such as glove bags and mini-enclosures can be equally effective when employees are properly trained and experienced.
- Q.** What is the major difference between the NPE system and negative air ventilation?
- A.** The NPE system is primarily designed to keep asbestos from contaminating the building. The air pressure inside the enclosure is less than outside the enclosure. Negative air ventilation draws clean air from outside the enclosure at sufficient quantities and at strategic locations, so as to provide clean air in the worker's breathing zone and is part of the negative enclosure system.
- Q.** If an employer has a variety of work activities, how does one decide which class to follow?
- A.** The classes are exclusive. For example, the stripping of 50 linear feet of TSI, whether or not it has been positively identified as ACM, is Class I, for it is the removal of PACM. Repair of a valve covered with ACM is Class III, since "removal" is not taking place, if less than one glove bag of ACM has been disturbed. Removal of flooring material containing ACM is Class II. If more than one "class" of work occurs simultaneously, the work must be performed according to the highest hazard classification.
- Q.** Is all asbestos activity designated by "class"?

- A.** No, all asbestos work related to construction and shipyard work activities is in the "class system." The installation of new asbestos-containing products does not carry a class designation, and thus the class-specific requirements do not apply to that activity. For work that does not readily fall into one of the four classes, the employer must comply with the PEL. Work covered by the general industry specific requirements is not included in the "class system."
- Q.** What must employers do if they are not sure what class the asbestos activity belongs in?
- A.** If it is not clear in which category the work belongs, the employer is to assume that the higher, more restrictive, category applies, and must comply with the listed work practices and controls for that category.
- Q.** Does the new standard allow greater use of glove bags?
- A.** Yes, the standard expands the conditions in which glove bag use is allowed. Glove bag use for removal of TSI and surfacing ACM is now allowed without quantity limitation for intact TSI. For Class I work the standard requires that at least two persons work on any one glove bag operation. Class II and Class III glove bag work does not require two persons.
- Q.** Can an employer use glove bags which are larger than the standard 60 X 60 bag?
- A.** Yes, some employers may have a supply of glove bags that are approximate in size, such as 60 X 70. They may use their inventory until they are used up, however the employer is not permitted to fill the larger bags beyond a 60 X 60 capacity.
- Q.** Does WISHA allow the use of glove bags to remove asbestos from elbows, corners, and valves in Class I work?
- A.** Yes, if the glove bag is designed for that type of work and the other provisions for glove bags are followed.
- Q.** Does the standard prohibit the practice of "continuous glove bagging" for large removal projects?
- A.** No. This is permitted when performed following the Methods of Compliance by trained workers.
- Q.** If an employer is using an "extender" glove bag on extended runs of pipe sections, what method of compliance must be followed?
- A.** This type of glove bag is a series of single glove bags that are linked together. Each bag is separate from the next. The use of these bags is allowed so long as the requirements for glove bag removal are met. An oversized or "monster" glove bag is not a "glove bag" method and the employer would need to comply with the requirements of Class I alternative control methods in WAC 296-62-07712(8).

Q. Must ambient pressure glove bags be used inside an NPE? If one is using a negative pressure glove bag to remove ACM and PACM from long runs of piping, must a NPE be used also?

A. No to both questions. The construction and shipyard requirements in WAC 296-62-07712 require the competent person evaluate the need for engineering controls and to ensure that they are being used.

Q. Is misting considered a "wet method?"

A. Wet methods encompass a range of work practices. For example, when removing material which is bound in a matrix, misting may be appropriate. Removing ACM or PACM which is not so bound, or where deterioration of the ACM has occurred, would require more aggressive wetting so that the material is handled or worked in a wet saturated state.

Q. Are "asbestos spills/emergency cleanups" considered construction activity and how are they classified?

A. Clean-up of sizable amounts of asbestos waste and debris is covered as construction work activity. However, an asbestos spill has occurred when, for example, water damage occurs in a building or facility, and sizable amounts of ACM and/or PACM are dislodged. A competent person shall evaluate the site and ACM/PACM to be handled, and based on the type, condition and extent of the dislodged material, classify the clean-up as Class I, II or III. Only if the material was intact and the clean-up involved mere contact of ACM, rather than disturbance, could there be a Class IV classification. An example might be the collection and disposal of dislodged intact ceiling tiles. Since collecting the tiles and disposing of them can be accomplished by careful handling, and would not result in disturbance of the material, this activity would be a Class IV job. As such, it would still have to be assessed by a competent person. Wet methods, HEPA vacuuming, and prompt disposal are also required.

CLASS I WORK:

Q. When must repair activity which involves "disturbing" ACM be treated as Class I work?

A. If the amount of asbestos so "disturbed" cannot be contained in one standard glove bag (60x60) or waste bag, Class I precautions are required.

Q. Does outdoor Class I work require an enclosure?

A. WISHA believes that most outdoor Class I work may be safely done without enclosures. An exposure assessment must take place prior to outdoor work to determine other required controls. In some instances (e.g., boilers, vessels and tanks) the use of

enclosures may be appropriate for Class I work. Each project must be evaluated on a case-by-case basis to determine if an NEA can be made.

- Q.** What type of training is required by the standard for employees conducting Class I asbestos work?
- A.** All employees conducting Class I asbestos work must be certified asbestos worker, see WAC 296-62-07722(3)(a). The competent person is required to be a certified asbestos supervisor, see WAC 296-62-07728(4)(a).
- Q.** Does Class I work that is performed outdoors require decontamination facilities?
- A.** Yes, decontamination procedures for all Class I work, outdoors as well as indoors, including decontamination facilities and showers, must be made available for all Class I work, unless showers are not feasible. In WISHA's view, a shower will most often be feasible. The standard requires that a shower be "available", meaning it does not have to be adjacent to the equipment room or clean room. An employer can use an existing shower located in a near-by building if the location next to the clean room is not feasible.
- Q.** Are glove bag systems allowed as a control in the removal of Class I materials?
- A.** Yes, for Category I asbestos work, a glove bag system which meets the requirements of the standard may be used. The glove bag must meet the specifications outlined in WAC 296-62-07712(7). The standard allows glove bags to be used in Class I operations on elbows and other connectors as long as the bag was manufactured and designed for that purpose.
- Q.** When must a NPE be smoke tested?
- A.** The standard requires the NPE to be smoke tested at the beginning of work within the enclosure and at the beginning of each shift. Smoke testing shall be conducted while the negative air machines or HEPA vacuums are operating to make it a valid test for leaks.
- Q.** If an employer chooses to use an alternative control method in accordance with WAC 296-62-07712(8), is there a specific time when the employer must submit the required evaluation and certification to WISHA?
- A.** The standard requires that a copy be sent "before work" is begun, with no further time frame specified. It is important to note that this submission to WISHA does not constitute any kind of "approval" nor will WISHA acknowledge to the employer receipt of the submission. The purpose of sending the evaluation to WISHA is to collect data on innovative removal techniques.
- Q.** Can other professionals besides certified Industrial Hygienists or licensed professional engineers evaluate and certify alternative control methods as required in WAC 296-62-07712(8)(b)?

- A. Yes, however this must be determined by the **Compliance Safety and Health Officer (CSHO)** on a case-by-case basis. It is recognized that other professionals such as **Certified Safety Professionals (CSP)**, may be experienced in the asbestos field and possess the combination of skills, professional judgment and background to perform the evaluation. A review of the CSP's past work history and training should provide adequate documentation for compliance purposes. An employer would not be cited if it is determined that the CSP is qualified. Alternative control methods as defined by WISHA are modifications and innovations beyond the limits of existing technology in asbestos control technology that prove to be effective in controlling asbestos. It is included in the standard to ensure that this industry can continue to invent new ways to effectively and safely remove asbestos.

CLASS II WORK:

- Q. What are some examples of Class II construction work?
- A. Class II asbestos work is defined as activities involving the removal of ACM which is not TSI or surfacing ACM. According to the definition, this includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, flooring materials, gaskets, joint compounds, roofing materials, roofing and siding shingles. Removal of small amounts of these materials (which would fit into a glove bag) may be classified as a Class III job.
- Q. Can an employer use Class I methods to perform Class II work?
- A. Yes, an employer can always use a more restrictive method to perform asbestos work. It is WISHA's intent to allow Class I methods to be used for removing Class II materials when no modification in the procedures or methodology is required. This is not an "alternative method" and no special notice to WISHA is required. Scale up to a Class I would require that all the provisions for Class I work be met.
- Q. What type of training is required by the standard for the competent person in Class II asbestos work?
- A. The competent person is required to be a "certified" asbestos supervisor, see WAC 296-62-07728(4)(a).
- Q. Is asbestos paper or felt, which is applied to floors, walls, ducts and other surfaces, considered a surfacing material or TSI?
- A. Yes. These materials, though not sprayed on or troweled on, are otherwise applied to surfaces, walls, subfloors, and ducts for the prevention of heat loss or as a fire barrier. Such materials are usually friable and can release significant amounts of asbestos fibers when torn or shredded.

CLASS III WORK:

- Q.** Under the construction and shipyard work requirements in WAC 296-62-07712, what is the difference between Class III maintenance work and Class IV maintenance work?
- A.** Class III maintenance work involves "disturbances" of ACM. The clarified meaning of the term "disturbance" is an activity that disrupts the matrix of ACM or PACM, crumbles or pulverizes ACM or PACM, or creates visible debris from ACM or PACM. 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, or III activities.
- Q.** Is installing a smoke detector in a ceiling where asbestos products are present considered asbestos work as construction activity?
- A.** Depending on the potential source of asbestos exposure, the installation of a smoke detector could be Class IV, Class III or neither. If the ceiling material to which the detector is to be attached is asbestos, the competent person must assess whether the attachment will involve "contact" (Class IV) or actually "disturb" (Class III) the ceiling ACM. Where the source of asbestos exposure dust and debris is above the ceiling, for example from friable sprayed on/troweled on surfacing materials, the competent person should direct a Class III clean-up before installing the detector. Otherwise the installation may be a Class III job if it involves disturbing debris and dust-containing asbestos.

CLASS IV WORK:

- Q.** What provisions cover housekeeping work involving ACM?
- A.** Housekeeping provisions in the general industry work activities are contained in WAC 296-62-07713. These provisions cover routine cleaning in public and commercial buildings, in manufacturing and other industrial facilities, where construction activity is not taking place. Housekeeping provisions for construction and shipyard work activities are contained in WAC 296-62-07712.
- Q.** What is included in Class IV work under WAC 296-62-07712, requirements for construction and shipyard work activities?
- A.** Class IV work includes activities to clean up ACM waste, debris and dust incidental to a construction and shipyard work activity. Examples of such work are cleaning up debris from cable running above a suspended ceiling, sweeping, mopping, dusting, cleaning, and vacuuming of ACM and dust and debris from construction work involving ACM and PACM. Certain activities such as stripping and buffing of resilient flooring are Class IV maintenance work if they are done incidental to construction work. Class IV work also includes activities wherein the worker contacts, but does not "disturb" ACM/PACM or create asbestos-containing dust or debris.

- Q.** When must dust, which is unaccompanied by debris and waste, be treated as ACM?
- A.** Under all asbestos work activities covered by the asbestos standard ACM must be handled wet, and vacuumed using HEPA filters. Dust which accompanies debris and waste in areas with accessible PACM or visibly deteriorated ACM must be handled as ACM. Employers who know, or reasonably should know that "unaccompanied" dust is ACM must also comply with these procedures too. The fact that the standard does not state explicitly when dust must be considered as asbestos containing does not mean that such situations do not exist. For example, where visibly deteriorated ACM, which is not intact, is in close proximity to a dust accumulation, and there is no similar dust accumulation where the ACM is not so proximate or damaged, a reasonable employer must either treat the dust as ACM or have the situation evaluated by a competent person.

BRAKE AND CLUTCH:

- Q.** Is the appendix on Brake and Clutch Repair, WAC 296-62-07745 (Appendix F) mandatory?
- A.** Yes.
- Q.** What are the two "preferred" methods for brake and clutch repair?
- A.** The two "preferred" methods are the Low Pressure/Wet-Cleaning method and the NPE/HEPA Vacuum System.
- Q.** Is the solvent spray method prohibited?
- A.** No. The solvent spray method is an "equivalent" method that may be used when proper work practices are followed.
- Q.** What are the work practices that must be used when an employer chooses the spray/solvent can method?
- A.** An employer who uses an "equivalent" method must follow detailed written procedures. At a minimum, the solvent spray method should include the following procedures: (1) the solvent shall be used to first wet the brake and clutch parts; (2) the brake and clutch parts shall be wiped clean with a cloth; (3) the contaminated cloth shall be placed in an impermeable container, and then either disposed of properly or laundered in a way that prevents the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air; (4) any spilled solvent or dispersed asbestos shall be cleaned up immediately and not allowed to dry, either with a cloth or a HEPA vacuum. Dry brushing during solvent spray operations is prohibited.
- Q.** What other precautions are required when solvents are used?

- A. The solvents typically used in brake and clutch work are hazardous chemicals, and the employer must therefore comply with the Hazard Communication standard (WAC-296-62-054). If the solvents used are flammable, appropriate precautions against fire and explosion must be taken.
- Q. If the employer chooses to use one of the two "preferred" methods or an "equivalent" method, does the employer have to conduct exposure monitoring?
- A. No.
- Q. Does Appendix F that covers brake and clutch work practices also cover brake and clutch work done on large stationary equipment like printing presses?
- A. No, the appendix is only intended for automotive work. For other asbestos jobs as described above, the employer must use work methods that reduce the exposures to below the PELs.
- Q. What type of "aqueous" solution is allowed when the Low Pressure/Wet Cleaning method is used?
- A. The intent of the standard was to ensure that the asbestos is sufficiently wet so that exposures are kept well below the PELs. The solution can consist only of water, or water mixed with an organic solvent, or a detergent. It is important to note the potential danger of solvent use in these operations. The use of solvents, which are often flammable and may also present a health hazard, must be undertaken with great care. The employer must also be in compliance with the Hazard Communication standard (WAC-296-62-054).
- Q. Are other methods allowed for employers who do brake and clutch work infrequently?
- A. Yes, for those shops in which brake work is infrequent, WISHA has determined to allow the use of a wet control method as a "preferred" method. Therefore, in facilities in which 5 or fewer brake "jobs" (5 brake "jobs" is equivalent to 5 vehicles) or 5 clutches, or some combination totaling 5, are repaired each week, the mechanic/technician may control potential asbestos exposure through the use of a pump sprayer (bottle) containing water or amended water to wet down the drum or clutch housing before it is removed and to control fiber release during subsequent activities. The mechanic may use other implements to deliver the water such as a garden hose; however, the resulting waste water generated must be captured and properly disposed of without allowing it to dry on any surfaces. The spray should be controlled through the use of low pressure to the extent feasible. WISHA anticipates that the use of a spray bottle will be adequate to control the dust without generating a large volume of waste water. However, any waste water generated must be disposed of properly.
- Q. What provisions are required to perform a brake inspection?

- A. The extent to which an "inspection" is different from the other brake servicing depends on whether and how the drum is removed. Most inspections of brake shoes involve removing the drum which may contain a substantial number of asbestos fibers. Precautions must be taken against the release of those fibers into the workplace. If the drum is carefully pulled back just far enough to observe the brake shoe and brake components, it is sufficient to thoroughly wet the exterior and around the seam between the brake drum and backing plate. Any dislodged material must be immediately cleaned up in accordance with WAC 296-62-07713 of the standard. Blows to the drum with a hammer or similar implement to dislodge a rusted-in-place or frozen drum may cause asbestos fibers to be released. For such cases, in shops performing 6 or more brake jobs per week, an enclosure must be installed around the drum to capture the dust or the drum interior and contents must be thoroughly wetted prior to striking or forcibly removing the brake drum. As with other brake servicing, this must be done using a preferred or equivalent method. When using the equivalent spray can method, first wet the interior and contents of the drum before striking it. Then, carefully pull the drum back just enough to allow another application of solvent and thoroughly wet the interior before removal of the drum. There should be no visible dust created during drum loosening and removal.

ROOFING OPERATIONS:

- Q. What roofing operations are Class II operations?
- A. Removal of built-up roofing in which the roofing felts contain asbestos, and removal of asbestos-containing shingles and asbestos-containing felt underlayments, are the major Class II operations. Class II operations also include removals of other asbestos-containing roofing materials, such as cements, coatings, mastics, and flashings.
- Q. What level of training is required for employees performing roofing removal operations?
- A. When roofing removal jobs are conducted using compliant work practices and the material is removed intact, employees must have completed at least 8 hours of training as specified in WAC 296-62-07722(3)(b) and are excluded from the worker certification requirements of WAC 296-65. If the material is not removed intact or if mechanical methods are used, the employees are required to be certified asbestos workers as specified in WAC 296-65. If the material is not removed intact or if mechanical methods are used, the roofing removal job would be considered an asbestos project as defined in WAC 296-65-003. In all cases, the competent person shall be a certified supervisor as per WAC 296-62-07728(4)(a).
- Q. What level of training is required for the competent person for roofing removal operations?
- A. Roofing removal is a Class II operation. In WAC 296-62-07728(4), the competent person is required to be trained and certified as an asbestos supervisor as specified in WAC 296-65 for all Class I and Class II asbestos work.

- Q.** Under what circumstances is removed roofing material considered non-intact?
- A.** As defined in the standard, ACM is considered non-intact if it has crumbled, been pulverized, or has otherwise deteriorated so that the asbestos fibers are no longer likely to be bound within their matrix. Under this definition, ACM is not rendered non-intact simply by being separated into smaller pieces by manual methods. The manual separation into smaller sections does not render the material non-intact material if it is otherwise intact. Other roofing materials are also manually separated into smaller sections during removal. Roof mastics and cements are usually pried, chipped or scraped off; asphalt felt underlayments are sliced and rolled-up or sometimes scraped-off or chipped-off; flashings are sliced into manageable units and then pried-up; asbestos-containing shingles occasionally break even when removed carefully. The fact that otherwise intact roofing materials become separated in such a fashion does not by itself render them non-intact under the standard. The condition of the smaller pieces must be examined to determine whether the material is non-intact. In WAC 296-65-003, manual removal of intact roofing materials are not considered an asbestos project. However, the use of mechanical methods will make removal of roofing materials an asbestos project. For example, in removing built-up roofing, the roof is typically cut into sections using a power roof cutter. Asbestos-containing debris generated from mechanical methods are not intact and are considered damaged and deteriorated. Such a project would require meeting the certification requirements of WAC 296-65 for an asbestos project.
- Q.** What does the standard require during removals of intact cements, coatings, mastics, and flashings?
- A.** On many roof removal jobs, the only asbestos is found in cements, mastics, coatings, and flashings. Because significant numbers of asbestos fibers are not released from such products when the material is intact, only minimal precautions are required. The material must be removed using manual methods and must not be sanded, abraded or ground. Material that has been removed from a roof must not be dropped or thrown to the ground and must be removed from the roof by the end of the work shift. Prior to the start of the job, the material must be examined by a certified supervisor to determine whether it is intact and is likely to remain intact throughout the job. The employees must be trained in the hazards of asbestos exposure and the proper work practices and prohibitions applicable to such work according to the provisions of WAC 296-62-07722(3)(b).
- Q.** What does the standard require when ACM is newly installed on a roof?
- A.** Currently, the only materials being installed on roofs that contain asbestos are certain coatings, cements, and mastics. When such materials are installed, the requirements discussed in the previous answer apply. In addition, when materials labeled as containing asbestos are installed on non-residential roofs, the contractor must notify the building owner of the presence and location of the ACM.

- Q.** What types of manual methods may be used to remove intact cements, coatings, mastics, and flashings?
- A.** Permissible methods include the use of spud, spade, flat-blade or slicing tools, such as axes, mattocks, pry bars, spud bars, crow bars, shovels, flat-blade knives, and utility knives, to slice, cut, strip-off, or pry-up the material.
- Q.** When must a roofing contractor monitor for asbestos on Class II jobs?
- A.** Evidence in the rule making record shows that exposures on most Class II roof removal jobs will be well below the PEL when employers comply with the work practices required by the standard and the workers are properly trained. Therefore, exposure monitoring is not required when a certified supervisor determines that the material is intact, the work practices specified in the standard are followed, the employees have been trained in accordance with the standard, an initial exposure assessment has been completed as specified in WAC 296-62-07709(3)(a), and an NEA has been made for the entire operation.
- Q.** Must ACM that has been removed from a roof be kept wet and bagged on the roof?
- A.** These precautions are not required when the material is intact. If the material is not intact, it or must be kept wet and bagged. Dust and debris shall be immediately bagged or placed covered containers. Whether or not the material is intact, it must be lowered from the roof no later than the end of the work shift.
- Q.** Must a roof be HEPA vacuumed before removal work begins?
- A.** The ordinary accumulation of environmental dust and debris on a roof will not require HEPA vacuuming. Only if there is an indication that non-intact ACM is the source of dust or debris must that dust or debris be HEPA vacuumed.
- Q.** May dry sweeping be used to remove accumulated dust and debris from a roof before removal work begins?
- A.** It is often appropriate to remove accumulated dust and debris from a roof to reduce the total atmospheric contamination produced by the removal job. Power brooms (machines similar to street sweepers) are sometimes used for this purpose. Dry clean-up of dust and debris is permitted unless the dust and debris is associated with non-intact ACM.
- Q.** May a power cutter be used to remove a built-up roof?
- A.** Yes. The blade of the cutter must be continuously misted during use unless a certified supervisor determines that misting substantially decreases worker safety. If the roofing material is non-intact, before removal work begins, additional wetting and/or other precautions, such as use of hand methods and respirators, may be needed. Use of mechanical methods will make removal an asbestos project under WAC 296-65.

- Q.** When a power roof cutter is used to remove a built-up roof, how must the dust from the cutting operation be collected?
- A.** When the roof has an aggregate surface, the dust must be collected by a HEPA vacuum or HEPA dust collector. These methods may also be used if the roof has a smooth surface. However, in the case of roofs with smooth surfaces, the dust may also be collected by gently sweeping and carefully and completely wiping up the dust and debris left along the cut line while it is still wet and immediately placing the dust and debris in a covered container, see WAC 296-62-07712(10)(b)(iv).
- Q.** Must asbestos-containing shingles be wetted before being removed from a roof?
- A.** Wetting shingles will often make them slippery and lead to slipping and falling hazards that can be particularly dangerous on sloped roofs. Wetting of intact shingles is therefore not required. Wetting of non-intact shingles is required where feasible but the shingles need not be wetted when the competent person determines that wetting would create slipping and falling hazards.
- Q.** When shingles are not wetted, must respirators be worn?
- A.** For answer, see section titled "Respirators".
- Q.** In what circumstances must respirators be worn?
- A.** For answer, see section titled "Respirators".
- Q.** Is there an exception to the requirements for HEPA vacuuming and wet methods for small roofing jobs?
- A.** Yes. When an employer repairs or removes less than 25 square feet, of a roof in a single day, HEPA vacuuming and wet methods need not be used. This exception only applies, however, when manual methods are used to remove the material and no visible dust is created by the removal method, see WAC 296-62-07712(10)(b)(viii).
- Q.** When Class II roof removal work is done, must all roof level air intake sources on the roof be isolated or shut down?
- A.** No. In general, only those air intakes within the regulated area must be isolated or shut down. However, intakes outside the regulated area may need to be isolated or shut down to prevent asbestos from entering the building's ventilation system if, for example, the wind is blowing towards such intakes from the regulated area. WISHA expects the certified supervisor to use good judgment to achieve the intent of the standard.
- Q.** What isolation techniques for air intakes are permitted?

- A. Acceptable isolation techniques include use of a buffer zone, use of HEPA filters over the air intakes, use of horizontal or vertical extensions that relocate the opening of the air intake outside or above the regulated area or away from or above a nearby upwind source of asbestos fiber emissions, or covering the intake with plastic sheeting or other barrier. The certified supervisor must use good judgment to choose an appropriate isolation method based on the circumstances of the particular job.
- Q. How are nails removed from cementitious asbestos-containing siding and shingles?
- A. WAC 296-62-07712(10)(c) requires in that if the nails are to be cut they must be cut with a flat, sharp instrument. If the nails are not to be cut, the nails can be pulled out.

FLOORING OPERATIONS:

- Q. When must an employer presume that flooring material contains asbestos?
- A. A 1988 EPA survey reported that 42% of public and commercial buildings within the U.S. contain asbestos-containing flooring material. The standard requires that employers presume that floor tile and resilient flooring found in buildings constructed no later than 1980 contains asbestos and take the specific precautions required unless the employer demonstrates that the flooring materials do not contain asbestos, by using recognized analytical techniques, see WAC 296-62-07712(10)(a)(ix) for criteria to rebut the assumption.
- Q. Is asbestos paper or felt, which is applied to floors, walls, ducts and other surfaces, considered a surfacing material or TSI?
- A. Yes. These materials, though not sprayed on or troweled on, are otherwise applied to surfaces, walls, subfloors, and ducts for the prevention of heat loss or as a fire barrier. Such materials are usually friable and can release significant amounts of asbestos fibers when torn or shredded.
- Q. What level of training is required for employees performing flooring removal operations?
- A. When flooring removal jobs are conducted using compliant work practices and the material is removed intact, employees must have completed at least 8 hours of training as specified in WAC 296-62-07722(3)(b) and are excluded from the worker certification requirements of WAC 296-65. If the material is not removed intact or if mechanical methods are used, the employees are required to be certified asbestos workers as specified in WAC 296-65. If the material is not removed intact or if mechanical methods are used, the flooring removal job would be considered an asbestos project as defined in WAC 296-65-003. In all cases, the competent person shall be a certified supervisor as per WAC 296-62-07728(4)(a).
- Q. What level of training is required for the competent person for flooring removal operations?

- A. Flooring removal is a Class II operation. In WAC 296-62-07728(4), the competent person is required to be trained and certified as asbestos supervisor as specified in WAC 296-65 for all Class I and Class II asbestos work.
- Q. What work practices are prohibited or restricted in floor maintenance?
- A. (1) Sanding of asbestos-containing flooring material is prohibited; (2) stripping of finishes must be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods; and (3) burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the ACM.
- Q. What work practices must be used when removing floor tile?
- A. The floor must first be HEPA vacuumed. The floor tiles then must be carefully pried up individually after being wetted. Misting is sufficient if the tiles are removed intact. After removal, each tile must be placed in an impermeable trash bag or other impermeable waste container.
- Q. If the wetting agent contains a hazardous substance what other precautions must the employer take?
- A. The employer may be responsible for compliance with other standards such as the Hazard Communication standard (WAC 296-62-054). The employer shall obtain a **Material Safety Data Sheet (MSDS)** for the substance and follow the recommendations for the use of personal protective equipment (PPE) and provide training.
- Q. If floor tiles are broken during removal, are they no longer "intact?"
- A. Not necessarily. Some incidental breakage of floor tiles is to be expected under manual removal methods. Under the standard, material is not intact only if it has crumbled, been pulverized, or has otherwise deteriorated so that the asbestos fibers are not longer likely to be bound within their matrix. Therefore, the incidental breakage of tiles does not by itself mean that the material is not intact. If floor tiles are subject to mechanical methods, the dust and debris are no longer "intact". WAC 296-62-07712(10)(c)(vi) prohibits mechanical chipping unless performed in an NPE meeting the requirements of WAC 296-62-07712(7)(a).
- Q. How are tiles to be removed when they cannot be removed by careful prying?
- A. The tiles may be heated to soften the adhesive holding them to the substrate. When tiles are removed intact using heat, wetting may be omitted.
- Q. How are tiles to be removed when they cannot be removed by either careful prying or heating?

A. Aggressive techniques such as mechanical chipping can be used if a certified supervisor evaluates the worksite and determines that additional precautions required by the standard are properly installed and operated. WAC 296-62-07712(10)(c)(vi) requires that NPEs meeting the requirements of WAC 296-62-07712(7)(a) be used for mechanical chipping of flooring materials.

Q. How must residual adhesive be removed?

A. The standard does not require removal of residual adhesive, but it is often necessary to remove or smooth residual adhesive to prepare the surface for installation of a new floor. Wet methods must be used when removing residual adhesive. The adhesive must either be wet-scraped manually or removed using low speed floor machine and wetted sand or a removal solution. The adhesive residues must be placed in an impermeable trash bag or other impermeable container while still wet. Remaining water or dirt in the area must then be HEPA vacuumed.

Q. What work practices must be used when removing resilient sheet flooring?

A. The material must not be ripped up. The floor shall first be HEPA vacuumed. The sheet flooring shall then be removed in strips 4 to 8 inches wide. As a strip is removed, the point of separation must be constantly misted to minimize fiber release. A strip must be rolled up as it is removed and the roll placed in an impermeable trash bag or other impermeable container. Residual felt and adhesive is then removed by wet scraping, and the floor is HEPA vacuumed.

Q. When must flooring removal jobs be monitored for asbestos levels?

A. Most jobs will not require monitoring. Monitoring is only required if compliant work practices are not followed, if the material is not removed intact, if an NEA for the entire operation, or if the employees are not properly trained in accordance with the standard. The certified supervisor is required to make an "initial exposure assessment" according to the provisions of WAC 296-62-07709(3)(a).

Q. Must respirators be worn when floor tiles are removed using heat?

A. For answer, see section titled, "Respirators".

BUILDING OWNERS RESPONSIBILITIES:

Q. Does a building owner have any responsibility under the standard even though the employees at risk may not be the owner's direct employees?

A. Yes. The building and/or facility owner must notify contractors and tenants of the presence of ACM/PACM, even though the employees at risk are not the owner's direct employees. OSHA has the authority to require building owners who are "statutory employers" to take necessary action such as notifying other employers, and to protect

employees other than their own. They also have the responsibility to identify and label ACM/PACM when required. Homeowners are not considered "building owners" when they have work done in their private homes. Homeowners do have responsibilities under RCW 49.26 and WAC 296-65 for requirements related to "persons" or "individuals". Examples of such requirements are the notification requirements in WAC 296-65-020(1) and the certification requirements in WAC 296-65-030(1), WAC 296-65-030(3), and WAC 296-65-030(4).

- Q.** When shipyard vessels undergoing repair are foreign-owned, who is considered the "building owner"?
- A.** When a foreign-owned vessel is repaired in an american shipyard, the employer is either the shipyard or an outside primary contractor. They must either treat materials defined as PACM as asbestos containing or sample the suspect material and analyze it to determine whether or not it contains asbestos.
- Q.** Does a long-term lessee of a building have the same responsibilities as a "building owner"?
- A.** "Building owner" has been defined to include lessees who control the management and recordkeeping functions of a building/facility/vessel. It is not WISHA's intention to exempt the owner from notification requirements by allowing a lessee to comply. Rather, when the owner has transferred the management of the building to a long-term lessee, that lessee is the more appropriate party to receive, transmit, and retain information about in-place asbestos. When the lease is terminated, the records are to be transferred to the building owner.
- Q.** Can building owners use building records to rebut PACM?
- A.** Generally, building records must be relied upon to rebut PACM. If an employer had an **Asbestos Hazard Emergency Response Act (AHERA)** asbestos survey, such a survey would be accepted. However, for non-PACM materials, building owners and employers may use all sources of information including building records to show that the materials do not contain asbestos.
- Q.** What materials must be presumed to contain asbestos?
- A.** TSI and sprayed on and troweled on surfacing materials installed no later than 1980. (Note: In addition, resilient flooring material installed no later than 1980 shall be identified as asbestos containing). Other building/facility areas and material would not be exempt from the standard's control requirements, however they would not be presumptively considered to contain asbestos.
- Q.** Does the standard require any particular qualifications of the person who designates materials as PACM?

- A. The person who designates materials as PACM is not required to have any technical training. The evaluation is not to determine if the material is or is not asbestos, rather it is to identify TSI and surfacing materials. The process does not require technical training. TSI and sprayed on or troweled on surfacing material are easily recognized and identified. However, the standard requires that a good faith inspection be conducted by the EPA accredited inspection, see WAC 296-62-07721(1)(c)(ii) and WAC 296-62-07721(2)(b)(ii).
- Q. Are the sign and label requirements the same in the general industry activities as they are for construction and shipyard work activities?
- A. Yes, the standard contains the same provisions as specified in WAC 296-62-07721(4), (5), (6), (7), (8), and (9).
- Q. If construction of a building began before 1981 but was not completed until several years later, is the owner responsible for presuming asbestos exists in the entire building?
- A. The CSHO will need to evaluate this on a case-by-case basis. Generally speaking, the focus would be on areas that contain suspect materials in those areas built before 1981.

REPAIR AND MAINTENANCE:

- Q. How has the definition of repair and maintenance changed?
- A. Repair and maintenance is now considered Class III work if it involves less than one glove bag of material, regardless of the time it takes to do the job. If the job involves more than one glove bag of TSI or surfacing material then it is a Class I job. If the job involves more than one bag of other ACM then it is a Class II job.
- Q. What are some examples of activities that may be classified as Class III?
- A. These activities may include: Maintenance/repair of boilers, air handling units, heat exchangers, and tanks; repair/replacement of pipe insulation, including cutting away of small amounts of ACM (that which fits into a standard glove bag or disposal bag); valve or gasket replacement, or activities above suspended ceilings such as connections and/or extensions for telecommunication/computer networks; adjustment/repair of **heating, ventilation, and/or air conditioning (HVAC)** systems and; testing/cleaning/replacing smoke or heat detectors when connected to ceilings containing ACM. Class III work involves a "disturbance".

COMPETENT PERSON:

- Q. What training must a competent person have?
- A. For all Class I and II work, the "competent person" is required to be trained and certified as a certified asbestos supervisor according to the specifications of WAC 296-65-012.

For Class III and Class IV asbestos work involving three square feet or three linear feet or more of ACM, the competent person is required to be a certified asbestos supervisor, see WAC 296-62-07722(4)(b). For Class III and IV work involving less than three square feet of three linear feet of ACM, the competent person must receive the equivalent of EPA's Operations and Maintenance training. All competent persons must be capable of identifying existing asbestos hazards in the workplace and taking prompt corrective action.

- Q.** Has the definition of "competent person" changed?
- A.** The definition of a "competent person" has been amended for construction and the shipyard work activities. The scope of the competent person's duties has expanded so that a competent person must supervise all asbestos activities.
- Q.** Under WAC 296-62-07728 for construction and shipyard asbestos work, is a specified number of on-site supervisors required?
- A.** WISHA has not specified a ratio of on-site supervisors to abatement workers.
- Q.** What is the definition of a "competent person" for construction and shipyard asbestos work ?
- A.** As in the regulations applying to all construction and shipyard work, the "competent person" must be capable of identifying existing and predictable hazards and have authorization to take prompt corrective measures to eliminate them. Also, the "competent person" must be designated by the employer, see WAC 296-62-07728(1) and the definition of "competent person" in WAC 296-62-07703. WISHA notes that this "competency" is independent of the training required to be an asbestos-competent person. "Competency" as well as training is required. Thus, a "competent person" is not merely someone with a specified level of training but connotes a high level of knowledge of worksite safety and health issues as well.

RESPIRATORS:

- Q.** What are the respiratory protection requirements for Class I work when the exposure is in excess of 0.1 f/cc and when an NEA has not been produced?
- A.** Respirators must be worn for all Class I work. In the above circumstances an employer must provide a **supplied-air respirator (SAR)** operated in positive-pressure mode when work is being done dry or while inside NPEs. In addition, the employer must provide appropriate escape devices that could be either an auxiliary positive-pressure, **self-contained breathing apparatus (SCBA)** or egress HEPA filters.
- Q.** When can a **powered-air purifying respirator (PAPR)** be used in Class I operations?

- A. The standard allows a tight-fitting PAPR to be used for Class I operations when the exposure levels are below 1.0 f/cc as an **8-hour time-weighted average (TWA)**. However, WAC 296-62-07715(3)(a) (i) and (ii) does not permit PAPRs to be used if work is done dry or while working inside NPEs.
- Q. If an NEA has been produced in a Class I job, what type of respirator is required?
- A. In situations where the competent person makes an NEA and work is not performed dry or inside an NPE, a half-mask, non-disposable, respirator could be selected from among available NIOSH-approved negative-pressure air-purifying respirators equipped with high efficiency filters, unless the employee requests a PAPR.
- Q. If an employee requests a PAPR in lieu of wearing a negative-pressure air-purifying respirator, can a loose-fitting PAPR be provided?
- A. Yes. In situations where half-mask, negative-pressure air-purifying respirators are appropriately selected, upgrades to a PAPR equipped with HEPA filters, including the hood-type PAPR, are acceptable. This is because any NIOSH-approved PAPR equipped with HEPA filters offers more protection than a half-mask air-purifying respirator.
- Q. Is an Industrial Hygiene Consultant who is doing an asbestos survey by taking bulk samples required to use a respirator?
- A. This would be a Class III operation and in the absence of an NEA a respirator would be required. When an NEA is made, respirators may still be required if users disturb TSI or surfacing ACM/PACM or if the material is not removed intact or by using wet methods.
- Q. When shingles are not wetted, must respirators be worn in roofing operations?
- A. Although the standard generally requires respirators for Class II work when wet methods are not used, there is an exception to this when shingles are removed intact from sloped roofs due to safety considerations. This exception applies only when an NEA is made.
- Q. When are respirators required to be worn during roofing work?
- A. In flat roofing work, respirators are required: (1) when wet methods are not used; or (2) when the material does not remain substantially intact during removal; or (3) when the employers unable to make an NEA; or (4) when asbestos exposures exceed the PEL. For work done on sloped roofs, respirators are not required to be worn during dry removal if the material is removed in a substantially intact state and an NEA has been made.
- Q. Is fit testing required for PAPRs?
- A. Employers must perform fit-testing to ensure that all facepieces exhibit the least possible facepiece leakage. Tight-fitting PAPRs present the same leakage problems as any negative-pressure respirator once the blower or the battery fails, prompting the wearer to

egress from the contaminated workplace. For this reason, fit-testing tight-fitting PAPRs may be required prior to use in asbestos-contaminated work areas.

- Q.** Must respirators be worn when floor tiles are removed using heat?
- A.** The standard requires that respirators be worn when Class II work, including floor tile removal, is not performed using wet methods, (see WAC 296-62-07715(1)(i)). However, the standard allows wetting to be omitted when floor tiles are removed intact using heat. The omission of wetting does not require respirators to be worn when heat is used if the tiles are removed intact, if an NEA according to the provisions of WAC 296-62-07709(3)(b) has been made for the entire operation, and if an initial exposure assessment has been completed by the certified supervisor according to WAC 296-62-07709(3)(a).

LABELS:

- Q.** In WAC 296-62-07721(4) signs are required to be posted at the entrance of mechanical rooms. Can the signs be placed inside the room?
- A.** Yes, the intent of the standard is to ensure that persons entering the rooms see the signs and are therefore forewarned of the presence of asbestos. The sign can be inside the room, as long as the sign is visible to those entering.
- Q.** Is color coding an acceptable alternative to labels where asbestos-containing products are installed?
- A.** Yes. There may be instances where asbestos-covered materials (pipes, tanks, etc.) would make labeling infeasible. The employer must ensure that all employees and contractors have been trained to understand the coding system.
- Q.** Are there guidelines concerning the feasibility of posting signs and labels on installed asbestos products in a building?
- A.** Signs and labels for installed asbestos products in WAC 296-62-07721 is a performance oriented requirement. The degree to which signs and labels are required depends on the exposure potential, access to the asbestos product, and the hazard of the material. Signs and labels are required to be posted on or near the product. It is generally not feasible to put labels on walls or floors. If it is not feasible, alternatives may be used. For example, if asbestos-containing floors are being serviced by employees using a common equipment room day after day, then a sign or label for the asbestos flooring can be posted in the equipment room. The object is to forewarn employees who may be potentially exposed during the floor cleaning operation and have access to the material. The label could be posted on the buffing machine which the employer chooses. In another example, signs and labels can be used in a more limited way when the mechanical staff performing asbestos-related operations are internal. It is the employers responsibility to train employees performing Class III operations, which means signs and labels do not play as

important a role as they would if the employer uses outside contractors. When outside contractors come in, the employer must post signs and labels.

CERTIFICATION AND TRAINING:

- Q.** What type of training is required for employees working on an asbestos project?
- A.** WAC 296-65-030(3) and (4) requires that employees working on all asbestos projects be trained and certified as an asbestos worker.
- Q.** Have the training requirements been expanded?
- A.** WAC 296-07722 has expanded the training requirements for construction and shipyard asbestos work that is excluded from the worker certification provisions of WAC 296-65. In the definition of asbestos project in WAC 296-65-003 and in WAC 296-62-07722(3) and (4), asbestos work not considered an asbestos project is excluded from worker certification. Training must be given to virtually all employees who are actively exposed to asbestos, i.e., whose exposure is the result of performing Class I through IV work, or who install new asbestos products. Training specification for all asbestos work not requiring certification is found in WAC 296-62-07722.
- Q.** WAC 296-62-07722(4)(b) and WAC 296-62-07722(4)(c) provides training requirements for Class III and Class IV asbestos work that is excluded from certification. What types of Class III and Class IV asbestos work are excluded from asbestos worker certification?
- A.** Any Class III or Class IV that is not an asbestos project as defined in WAC 296-65-003. No specific type of Class III or Class IV work is identified in WAC 296-62-07722. In WAC 296-65-003, the definition of asbestos project excluded any asbestos work in which there is a disturbance of less than one square foot of ACM (except pipe insulation) or there is intact removal of ACM. Intact removal of asbestos material, proper work practices and controls, required training, and a completed NEA would exclude asbestos work as being likely to release asbestos fibers into the air. If the material is damaged or deteriorated, certification is required. If the ACM is in the form of dust or debris, or has been subjected to mechanical methods such as chipping, grinding, sanding, or sawing, certification of workers is required.
- Q.** What training is required for housekeepers performing general industry work activities in the standard?
- A.** The standard in WAC 296-62-07722(6) requires awareness training annually. The standard has a list of specific topics which must be covered. There is no length of time specified for this training.
- Q.** What training is needed when a custodian does maintenance work?

- A. The training requirements are not tied to the job title of the worker performing the work. Rather, if a worker is disturbing asbestos and the disturbance will result in the generation of less than one standard 60" X 60" waste or glove bag, then Class III work is being performed and Class III training is required. For example, if a building custodian is told to scrape off a few inches of sprayed-on material on a decking to access an electrical box, he/she will be performing Class III work and must have the requisite training.
- Q. What type of training is required for asbestos work involving pipe insulation ?
- A. In WAC 296-65-003, no exclusion exists in the definition of asbestos project for asbestos work involving pipe insulation of less than one square foot total area. Disturbance of any pipe insulation is considered an asbestos project and would require asbestos worker certification as per WAC 296-65-030(3).

MEDICAL SURVEILLANCE:

- Q. What are the fundamental elements of the medical surveillance requirements?
- A. WISHA has clarified the medical surveillance provisions to explain the following:
- Where workers are required to wear negative-pressure respirators while performing construction or shipyard work for fewer than 30 days per year, the employer is still required to institute a medical surveillance program for the occasional respirator wearers;
 - Where workers perform Class II and III work for more than 30 days per year, the employer is not required to count jobs that take less than a total of one hour per day against the 30 day tally for medical surveillance.
- Otherwise, all who perform Class I, II or III work for 30+ days per year or may be exposed above the PELs for more than 30 days per year must receive full medical surveillance.
- Q. When workers who have been exposed to asbestos and covered by the medical surveillance program are no longer exposed, can medical surveillance be discontinued?
- A. When employees become not subject to medical surveillance program coverage, medical surveillance would stop once the provisions of WAC 296-62-07725(1)(a) are no longer true. If the employment is terminated, the employer must provide a termination medical examination.
- Q. Once medical surveillance is discontinued, what further obligations does the employer have?
- A. In WAC 296-62-07727(3)(c), the employer has to maintain the medical records for the employee's duration of employment plus thirty years.

APPENDIX D

Removal of Intact Roofing Materials

Training Course Outline:

Employees performing intact removal of roofing materials only and no other asbestos work that is covered by the asbestos standard may be excluded from asbestos certification requirements as specified in WAC 296-65-003, definition of asbestos project. The following course outline meets the training outline for the 8-hour training course specified in WAC 296-62-77722(3)(b) with respect to the removal of intact roofing materials. Completion of the following course outline does not qualify employees to remove non-intact roofing materials or to work on asbestos projects.

- A. Identification and Recognition of Asbestos-Containing Roofing Materials:
 - Characteristics of asbestos.
 - Determination/identification of asbestos-containing materials (ACM) (including presumptions regarding
 - Categories of asbestos-containing building materials.
 - Friable and non-friable condition of materials.
 - Uses in roofing, past and present.

- B. Potential Health Effects of Asbestos:
 - Nature of asbestos related disease, including latency and medical tests for identifying asbestos diseases.
 - Routes of exposure.
 - Dose response relationships.
 - Relationship between cigarette smoking and asbestos exposure and availability of smoking cessation programs.

- C. WISHA Asbestos Standard:
 - Overview of standard WAC 296-62-077.
 - Asbestos project and certification requirements in WAC 296-65.
 - WAC 296-62-07712 overview and prohibited practices.
 - Class II requirements for roofing materials.
 - Discussion of alternative methods for handling intact asbestos roof coatings, mastics, cements, and flashings.
 - Discussion of permissible exposure limit (PEL) and significant risk.
 - Notification and good faith inspection requirements.

- D. Intact versus Non-Intact Materials:
 - Definitions including intact and asbestos project.
 - How to recognize non-intact material.
 - Procedures to be followed when material is found or becomes non-intact.

- E. Appropriate Work Practices:
 - Applying mastics, cements, and coatings.
 - Manual methods for removing materials.
 - Clean-up and waste disposal.

- F. Hands-on Training:
 - Demonstration of proper removal methods.
 - Review of proper removal methods and procedures.
 - Hands-on student practice on removal methods.

- G. Review of Previous Instruction and Clarify any Questions.

- H. Examination Covering all Topics in Previous Outline.

APPENDIX E

Removal of Resilient Floor Coverings

Training Course Outline:

Employees performing intact removal of flooring materials only and no other asbestos work that are covered by the asbestos standard may be excluded from asbestos certification requirements as specified in WAC 296-65-003, definition of asbestos project. These courses are designed to train workers to remove "intact" flooring materials using work practices specified in WAC 296-62-07712, and meet the training requirements specified in WAC 296-62-07722(3). Completion of these training courses does not qualify workers to remove non-intact flooring material.

8-Hour Employee Training Course:

A. Section 1 - Background Information on Asbestos (Slides, Lecture, Workbook, and Quiz):

- Characteristics of asbestos.
- Categories of asbestos-containing building materials.
- Friable and non-friable condition of materials.
- List of suspect asbestos-containing materials (ACM)
- Determination/identification of ACM (including presumptions regarding flooring materials), good faith inspection requirements in RCW 49.26.
- 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.

B. Section 2 - Laws and Regulations (Video, Slides, Lecture, Workbook, and Quiz):

- Current regulations concerning the removal and disposal of ACM.
- Overview of WAC 296-62-07712.
- Regulated areas / respirators / negative air pressure / protective clothing / decontamination procedures.
- How regulations are enforced.
- Government agencies that regulate asbestos removal.
- WISHA asbestos standard.
- Environmental Protection Agency (EPA) and the National Emissions Standard for Hazardous Air Pollutants(NESHAP).
- EPA, Asbestos Hazard Emergency Response Act (AHERA), and Asbestos School Hazard Abatement Reauthorization Act (ASHARA).
- DOT Regulations.
- Asbestos project and certification requirements in WAC 296-65.
- State and local asbestos regulations.
- Hazard Communication standard and safety issues.

- C. Section C - Asbestos-Containing Resilient Flooring Materials (Slides, Lecture, Workbook, and 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.

- D. 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.

- E. 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.

- F. 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.

- G. 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.

- H. Section 8 - Review of Previous Instruction and Clarify any Questions.

- I. Section 9 - Examination Covering Sections 1-7.