Sec. 20-440-7. Training requirements

(a) **General.** Training programs serving to qualify asbestos abatement site supervisors or asbestos abatement workers for certification and employment and asbestos consultants for certification and licensure shall be subject to approval by the department.

(b) **Approved training**

(1) Training available in other states may be acceptable to the department if the training provider successfully demonstrates that it has met the minimum requirements for training providers established by section 20-440-8 of the regulations of Connecticut State Agencies or that the training provider is an approved provider of training for asbestos in the state in which it is located. If the state in which the training provider is located does not have a regulatory program which approves, certifies or accredits asbestos training programs, the training provider shall be an EPA accredited training facility under the Federal Asbestos Hazard Emergency Response Act of 1986 as amended from time to time.

(2) Training courses not approved by the Commissioner shall not substitute for approved courses and shall not satisfy the requirements for approved training.

(c) **Training curriculum.** Any training course required for certification or licensure as required in sections 20-440-1 through 20-440-5, of the regulations of Connecticut State Agencies shall be conducted by an approved training provider and, as a minimum, meet the following criteria of duration, subject matter and examination.

(1) General

(A) Courses of instruction required for each type of certificate and license identified in sections 20-440-1 through 20-440-5 of the regulations of Connecticut State Agencies shall focus specifically on the activities authorized by each type of license or certificate. The subjects of instruction which a person shall receive to meet the training requirements shall be presented through a combination of lectures, demonstrations, and field trips or hands-on practice, as appropriate.

(B) A training course shall provide instruction in the curriculum described in this subsection to be approved.

(C) Courses requiring hands-on training shall be presented in an environment suitable to permit participants to have actual experience performing tasks associated with asbestos abatement. Demonstrations that do not involve individual participation shall not be accepted as hands-on training. Hands-on training sessions shall maintain a student to instructor ratio not greater than fifteen to one (1).

(D) One training day shall consist of eight hours of actual instruction, hands-on training and field trips or combination thereof, including lunch and breaks.

(2) Asbestos abatement site supervisors. An individual seeking certification and employment as an asbestos abatement site supervisor shall successfully complete an approved five day training course that shall include lectures, demonstrations, at least fourteen hours of hands-on training, individual respirator fit testing, course review, and a written examination. Successful completion of the training shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of one hundred multiple choice questions. The course shall address the following topics:

(A) physical characteristics of asbestos and ACM: identification of asbestos,

aerodynamic characteristics, typical uses, physical appearance, a review of hazard assessment considerations, and a summary of abatement control options;

(B) potential health effects related to asbestos exposure: the nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; synergism between cigarette smoking and asbestos exposure; latency period for disease and a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs;

(C) employee personal protective equipment: classes and characteristics of respirator types; limitations of respirators ; selection, inspection, donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal including positive and negative pressure fit checks; qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors; factors that alter respirator fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing and regulations covering personal protective equipment;

(D) state-of-the-art work practices: proper work practices for asbestos abatement activities including descriptions of proper construction and maintenance of barriers and decontamination enclosure systems; positioning of warning signs; electrical and ventilation system lock-out; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of HEPA vacuums and proper clean-up and disposal procedures; work practices for removal, encapsulation, enclosures, and repair of ACM; emergency procedures for unplanned releases; potential exposure situations; transport and disposal procedures; recommended and prohibited work practices; discussion of new asbestos abatement-related techniques and methodologies shall be included;

(E) personal hygiene: entry and exit procedures for the work area; use of showers; avoidance of eating, drinking, smoking, and chewing gum or tobacco in the work area; potential exposures, such as family exposure, shall also be included;

(F) additional safety hazards: hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips and falls, and confined spaces;

(G) medical monitoring: OSHA and EPA worker protection rule requirements for physical examinations including a pulmonary function test, chest x-rays and a medical history for each employee;

(H) air monitoring: procedures to determine airborne concentrations of asbestos fibers, including a description of aggressive air sampling, sampling equipment and methods, reasons for air monitoring, types of samples, and interpretation of results, especially from analysis performed by polarized light, phase-contrast, and electron microscopy analyses;

(I) relevant federal, state and local regulatory requirements: procedures and standards including but not necessarily limited to:

(i) Requirements of TSCA, Title II;

(ii) 40 CFR Part 61, NESHAP, Subparts A, General Provisions, and M, National Emission Standards for Asbestos;

(iii) OSHA respirator standard, 29 CFR 1910.134.

(iv) OSHA Asbestos Construction Standard, 29 CFR; and

(v) EPA Worker Protection Rule, 40 CFR Part 763, Subpart G.

(J) Respiratory protection programs and medical monitoring programs;

(K) insurance and liability issues: contractor issues; worker's compensation coverage and exclusions; third-party liabilities and defenses; insurance coverage and exclusions;

(L) recordkeeping for asbestos abatement projects: records required by federal, state and local regulations; records recommended for legal and insurance purposes;

(M) supervisory techniques for asbestos abatement activities: supervisory practices to enforce and reinforce the required work practices and discourage unsafe work practices;

(N) contract specifications: discussion of key elements that are included in contract specifications;

(O) course reviews: a review of key aspects of the training course.

(3) Asbestos Abatement Workers. An individual seeking certification and employment as an asbestos abatement worker shall successfully complete at least a four day approved training course as outlined in this subdivision or the course required under subsection (c)(2) of this section. The worker training course shall include lectures, demonstrations, at least fourteen hours of hands-on training, individual respirator fit testing, course review, and a written examination. Successful completion of the course shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of fifty multiple choice questions. The course shall address the following topics:

(A) physical characteristics of asbestos: identification of asbestos and its aerodynamic characteristics, typical uses, and physical appearance, and a summary of abatement control options;

(B) potential health effects related to asbestos exposure: the nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; synergistic effect between cigarette smoking and asbestos exposure ; latency period for related diseases; and a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs;

(C) employee personal protective equipment: classes and characteristics of respirator types; limitations of respirators and their proper selection, inspection, donning, use, maintenance, and storage procedures; methods for field testing of the facepiece-to-face seal including positive and negative pressure fit checks; qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors; factors that alter respirator fit, e.g., facial hair; the components of a proper respiratory protection program; selection and use of personal protective clothing; use; storage; and handling of non-disposable clothing; and regulations covering personal protective equipment;

(D) state-of-the-art work practices: proper work practices for asbestos abatement activities, including descriptions of proper construction and maintenance of barriers and decontamination enclosure systems; positioning of warning signs; electrical and ventilation system lock-out; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of hepa vacuums; proper clean-up and disposal procedures; work practices for removal, encapsulation, enclosure, and repair of ACM; emergency procedures for sudden releases; potential

exposure situations; transport and disposal procedures; and recommended and prohibited work practices;

(E) personal hygiene: entry and exit procedures for the work area; use of showers; avoidance of eating, drinking, smoking, and chewing gum or tobacco in the work area; and potential exposures, such as family exposure;

(F) additional safety hazards: hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls and confined spaces;

(G) medical monitoring: OSHA and EPA worker protection rule requirements for physical examinations, including a pulmonary function test, chest x-rays and a medical history for each employee;

(H) air monitoring : procedures to determine airborne concentrations of asbestos fibers, focusing on how personal air sampling is performed and the reasons for it;

(I) relevant federal, state and local regulatory requirements, procedures, and standards: particular attention directed at relevant EPA, OSHA, and state regulations concerning asbestos abatement workers;

(J) establishment of respiratory protection programs; and

(K) course review: a review of key aspects of the training course.

(4) Inspector. An individual seeking certification in this discipline shall successfully complete an approved course of training consisting of at least three days training, as outlined in this subdivision. The inspector training course shall include lectures, demonstrations, at least four hours of hands-on training, individual respirator fit testing, course review and a written examination. Successful completion of the course shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of fifty multiple choice questions. Courses shall include instruction on:

(A) Background information on asbestos: identification of asbestos, and examples and discussion of the uses and location of asbestos in facilities and physical appearance of asbestos;

(B) potential health effects related to asbestos exposure: the nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency period for asbestos-related diseases and a discussion of the relationship of the asbestos exposure to asbestosis, lung cancer, mesothelioma and cancer of other organs;

(C) the functions, qualifications and role of inspectors: discussions of prior experience and qualifications for inspectors and management planners; discussions of the functions of an inspector as compared to those of a management planner and discussion of inspection process including inventory of acm and physical assessment;

(D) legal liabilities and defenses: responsibilities of the inspector and management planner; a discussion of comprehensive general liability policies, claims made and occurrence policies, environmental and pollution liability policy clauses; state liability insurance requirements and bonding and the relationship of insurance availability to bond availability;

(E) understanding facility systems: the interrelationship between facility systems,

including an overview of common facility physical plan layouts; HVAC system types, physical organization and where asbestos is found on hvac components; facility mechanical systems, their types and organization and where to look for asbestos on such systems; inspecting electrical systems, including appropriate safety precautions; and reading blueprints and as-built drawings;

(F) occupant relations: notifying employee organizations about the inspection; signs to warn facility occupants; tact in dealing with occupants and the press; scheduling of inspections to minimize disruption; and education of facility occupants about actions being taken;

(G) pre-inspection planning and review of previous inspection records: scheduling the inspection and obtaining access; facility record review; identification of probable homogeneous areas from blueprints or as-built drawings; consultation with maintenance or facility personnel; review of previous inspection, sampling and abatement records of a facility and the role of the inspector in exclusions for previously performed inspections;

(H) inspecting for friable and non-friable ACM and assessing the condition of friable ACM: procedures to follow in conducting visual inspections for friable and non-friable ACM; types of building materials that may contain asbestos; touching materials to determine friability; open return air plenums and their importance in hvac systems; assessing damage, significant damage, potential damage, and potential significant damage; amount of suspected ACM, both in total quantity and as a percentage of the total area; type of damage; accessibility; material's potential for disturbance; known or suspected causes of damage or significant damage and deterioration as assessment factors;

(I) bulk sampling and documentation of asbestos in schools and public and commercial buildings: detailed discussion of "A Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5-85-030a October 1985)"; techniques to ensure sampling in a randomly distributed manner for non-friable surfacing materials; sampling of non-friable materials; techniques for bulk sampling; inspector's sampling and repair equipment; patching or repair of damage done in sampling; an inspector's repair kit; discussion of polarized light microscopy; choosing an accredited laboratory to analyze bulk samples; quality control and quality assurance procedures;

(J) inspector respiratory protection and personal protective equipment: classes and characteristics of respirator types; limitations of respirators; proper selection, inspection, donning, use, maintenance, and storage procedures for respirators; methods for field testing of facepiece-to-face seal including positive and negative pressure fit checks; qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit, e.g., facial hair; the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing;

(K) recordkeeping and writing the inspection report: labeling of samples and keying sample identification to sampling location; recommendations on sample labeling; detailing of ACM inventory; photographs of selected sampling areas and examples of ACM condition; and information required for inclusion in the management plan by TSCA title ii section 203 (i)(1);

(L) regulatory review : the following topics shall be covered: national emission standard

for hazardous air pollutants, neshap; 40 CFR Part 61, Subparts A and M; EPA worker protection rule found at 40 CFR part 763, subpart G; OSHA asbestos construction standard found at 29 CFR 1926.1101; OSHA respirator requirements found at 29 CFR 1910.134; the friable asbestos in schools rule found at 40 CFR part 763, subpart F; applicable state and local regulations, and differences between federal and state requirements where they apply, and the effects, if any, on public and non-public schools or commercial or public facilities;

(M) field trip: a field exercise including a walk-through inspection; on-site discussion on information gathering and determination of sampling locations; on-site practice in physical assessment and classroom discussion of field exercise;

(N) course review: a review of key aspects of the training course.

(5) Management planners: an individual seeking certification in this discipline shall successfully complete the training program as described in subdivision (c)(4) of this section, and successfully complete a two day management planner training course consisting of lectures, demonstrations, course review and a written examination. Successful completion of the course shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of fifty multiple choice questions. The course shall address but not be limited to the following topics:

(A) Course overview: the role and responsibilities of the management planner; operations and maintenance programs; setting work priorities; and protection of facility occupants;

(B) evaluation and interpretation of survey results: review of TSCA Title II requirements for inspection and management plans for school buildings as given in section 203 (i)(l) TSCA Title II interpretation of field data and laboratory results and comparison of field inspector's data sheet with laboratory results and site survey;

(C) hazard assessment: amplification of the difference between physical assessment and hazard assessment; the role of the management planner in hazard assessment; explanation of significant damage, damage, potential damage, and potential significant damage; use of a description decision treecode for assessment of ACM; assessment of friable ACM and relationship of accessibility, vibration sources, use of adjoining space, and air plenums and other factors to hazard assessment;

(D) legal implications: liability; insurance issues specific to planners; liabilities associated with interim control measures, in-house maintenance, repair, and removal and use of results from previously performed inspections;

(E) evaluation and selection of control options: overview of encapsulation, enclosure, interim operations and maintenance, and removal; advantages and disadvantages of each method; response actions described via a decision tree or other appropriate method; work practices for each response action; staging and prioritizing of work in both vacant and occupied facilities; and the need for containment barriers and decontamination in response actions;

(F) role of other professionals: use of industrial hygienists, engineers and architects in developing technical specifications for response actions; any requirements that may exist for architect sign-off of plans; and team approach to design of high-quality job specifications;

(G) developing an operations and maintenance plan: purpose of the plan; discussion of applicable EPA guidance documents; what actions should be taken by custodial staff; proper

cleaning procedures, steam cleaning and HEPA-vacuuming; reducing disturbance of ACM; scheduling operation and maintenance for off-hours; rescheduling or canceling renovations in areas with ACM; boiler room maintenance; disposal of ACM; in-house procedures for ACM-bridging and penetrating encapsulants; pipe fittings; metal sleeves; polyvinylchloride, canvas and wet wraps; muslin with straps; fiber mesh cloth; mineral wool, and insulating cement; discussion of employee protection programs and staff training; case study in developing an operation and maintenance plan to include the development, implementation process and problems that have been experienced;

(H) regulatory review: focusing on the OSHA Asbestos Construction Standard found at 29 CFR 1926.1001; NESHAP requirements, found at 40 CFR Part 61 Subparts A, General Provisions, and M, National Emission Standards for Asbestos, EPA Worker Protection Rule found at 40 CFR Part 763, Subpart G; TSCA Title II; applicable state and local regulations, and differences in federal and state requirements - where they apply and the effects, if any, on public and non-public schools;

(I) recordkeeping for the management planner: use of field inspector's data sheet along with laboratory results; on-going recordkeeping as a means to track asbestos disturbance; and procedures for recordkeeping;

(J) assembling and submitting the management plan: plan requirements for schools in TSCA Title II Section 203 (i) (1); the management plan as a planning tool;

(K) financing abatement actions: economic analysis and cost estimates; development of cost estimates; present costs of abatement versus future operation and maintenance costs; Asbestos School Hazard Abatement Act grants and loans;

(L) course review: a review of key aspects of the training course.

(6) Project designers: An individual seeking certification in this discipline shall successfully complete a course of instruction of three days duration consisting of lectures, demonstrations, individual respirator fit testing, a field trip, course review and written examination. Successful completion of the course shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of one hundred multiple choice questions. The course shall address the following topics:

(A) Background information on asbestos: identification of asbestos; examples and discussion of the uses and locations of asbestos in facilities and physical appearance of asbestos;

(B) potential health effects related to asbestos exposure: nature of asbestos related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency period of asbestos related diseases; and a discussion of the relationship between asbestos exposure and asbestosis, lung cancer, mesothelioma and cancer of other organs;

(C) overview of abatement construction projects : abatement as a portion of a renovation project and OSHA requirements, 29 CFR 1926.1101, for notification of other contractors on a multi-employer site.

(D) Safety system design specification: design, construction and maintenance of containment barriers and decontamination enclosure systems; positioning of warning signs; electrical and ventilation system lock-out; proper working techniques for minimizing fiber release; entry and exit procedures for the work area; use of wet methods; proper techniques

for initial cleaning; use of negative pressure exhaust ventilation equipment; use of HEPA vacuums; proper clean-up and disposal of asbestos; work practices as they apply to encapsulation, enclosure, and repair; and use of glove bags and a demonstration of glove bag use;

(E) field trip: a visit to an abatement site or other suitable facility site, including on-site discussion of abatement design, and facility walk-through inspection including a discussion of rationale for the concept of functional spaces during the walk-through and a discussion following the walk-through;

(F) employee personal protective equipment: classes and characteristics of respirator types; limitations of respirators; proper selection, inspection, donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal including positive and negative pressure fit checks; qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors; factors that alter respirator fit, e.g., facial hair; components of proper respiratory protection program; selection and use of personal protective clothing; use, storage and handling of non-disposable clothing; and regulations covering personal protective equipment;

(G) additional safety hazards: hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards;

(H) fiber aerodynamics and control: aerodynamic characteristics of asbestos fibers; importance of proper containment barriers; settling time for asbestos fibers; wet methods in abatement; aggressive air monitoring following abatement; aggressive air movement and negative-pressure exhaust ventilation as a clean-up method;

(I) designing abatement solutions: discussions of removal, enclosure, and encapsulation methods; asbestos waste disposal;

(J) final clearance process: discussion of the need for a written sampling rationale for aggressive final air clearance; requirements of a complete visual inspection and the relationship of the visual inspection to final air clearance;

(K) budgeting and cost estimating: development of cost estimates; present costs of abatement versus future operation, and maintenance costs; and setting priorities for abatement jobs to reduce cost;

(L) writing abatement specifications: preparation of and need for a written project design; means and methods specifications versus performance specifications; design of abatement in occupied facilities; modification of guide specifications for a particular facility; worker and facility occupant health and medical considerations; replacement of ACM with non-asbestos substitutes; clearance of work area after abatement; and air monitoring for clearance;

(M) preparing abatement drawings: significance and need for drawings; use of as-built drawings as base drawings; use of inspection photographs and on-site reports; methods of preparing abatement drawings; diagramming containment barriers; relationship of drawings to design specifications and particular problems related to abatement drawings;

(N) contract preparation and administration;

(O) legal liabilities and defenses: insurance considerations; bonding; hold-harmless clauses; use of abatement contractor's liability insurance; and claims-made versus

occurrence policies;

(P) replacement: replacement of asbestos with asbestos-free substitutes;

(Q) role of other consultants: development of technical specification sections by industrial hygienists or engineers; the multidisciplinary team approach to abatement design;

(R) occupied facilities: special design procedures required in occupied facilities; education of occupants; extra monitoring recommendations; staging of work to minimize occupant exposure; and scheduling of renovation to minimize exposure;

(S) relevant federal, state and local regulatory requirements, procedures and standards including but not limited to:

(i) TSCA, Title II.

(ii) 40 CFR Part 61, NESHAP, Subparts A, General Provisions, and M, National Emission Standard for Asbestos.

(iii) OSHA Respirator Standard, 29 CFR 1910.134.

(iv) EPA Worker Protection Rule, 40 CFR Part 763, Subpart G.

(v) OSHA Asbestos Construction Standard, 29 CFR 1926.1101.

(vi) OSHA Hazard Communication Standard, 29 CFR 1910.1200.

(T) course review: a review of key aspects of the training course.

(7) Project monitor. An individual seeking certification in this discipline shall successfully complete an approved course of training consisting of at least five days training, as outlined in subdivision (c)(2) of this section. On and after one year following the effective date of these regulations, an individual seeking certification in this discipline shall have successfully completed an approved course of training consisting of at least five days training, as outlined in this subdivision. The project monitor training course shall include lectures, demonstrations, at least six hours of hands-on training, individual respirator fit-testing, course review and a written examination. Successful completion of the training shall be demonstrated by achieving a score of at least seventy percent on the examination. The examination shall be comprised of one hundred multiple choice questions. The course shall address the following topics:

(A) roles and responsibilities of the project monitor: definition and responsibilities of the project monitor, including regulatory/specification compliance monitoring, air monitoring, conducting visual inspections and final clearance monitoring;

(B) characteristics of asbestos and asbestos-containing materials: typical uses of asbestos; physical appearance of asbestos; review of asbestos abatement and control techniques; presentation of the health effects of asbestos exposure, including routes of exposure, dose-response relationships and latency periods for asbestos-related diseases;

(C) federal asbestos regulations: overview of pertinent EPA regulations, including: NESHAP, 40 CFR Part 61, subparts A and M; AHERA, 40 CFR part 763, Subpart E and the EPA worker protection rule, 40 CFR part 763, subpart G; overview of pertinent OSHA regulations, including: construction industry standard for asbestos, 29 CFR 1926.1101; respirator standard, 29 CFR 1910.134 and hazard communication standard, 29 CFR 1910.1200 applicable state and local asbestos regulations and regulatory interrelationships;

(D) understanding facility construction and facility systems: facility construction basics and facility physical plan layout; understanding facility systems, HVAC, electrical, etc.; layout and organization, where asbestos is likely to be found on facility systems; renovations

and the effect of asbestos abatement on facility systems;

(E) asbestos abatement contracts, specifications and drawings: basic provisions of the contract; relationships between principle parties and establishing chain of command; types of specifications, including means and methods; performance and proprietary and nonproprietary; reading and interpreting records and abatement drawings; discussion of change orders; common enforcement responsibilities and authority of project monitor;

(F) response actions and abatement practices: pre-work inspections; pre-work considerations, precleaning of the work area, removal of furniture, fixtures and equipment; shutdown/modification of facility systems; construction and maintenance of containment barriers and proper demarcation of work areas; work area entry and exit and hygiene practices; determining the effectiveness of air filtration equipment; techniques for minimizing fiber release, wet methods and continuous cleaning; abatement methods other than removal; abatement area clean-up procedures; waste transport and disposal procedures and contingency planning for emergency response;

(G) asbestos abatement equipment: typical equipment found on an abatement project; air filtration devices, vacuum systems and negative pressure differential monitoring; HEPA filtration units, theory of filtration, design and construction of filtration units, qualitative and quantitative performance of HEPA filtration units, sizing the ventilation requirements, location of HEPA filtration units, qualitative and quantitative tests of containment barrier integrity and best available technology;

(H) personal protective equipment: proper selection of respiratory protection; classes and characteristics of respirator types, limitations of respirators; proper use of other safety equipment, protective clothing selection, use and proper handling, hard or bump hats, safety shoes, breathing air systems, high pressure versus low pressure, testing for Grade D air and determining proper backup air volumes;

(I) air monitoring strategies: sampling equipment, sampling pumps low versus high volume pumps; flow regulating devices including critical and limiting orifices, use of fibrous aerosol monitors on abatement projects; sampling media, types of filters, types of cassettes, filter orientation, storage and shipment of filters; calibration techniques, primary calibration standards, secondary calibration standards, temperature and pressure effects, frequency of calibration, recordkeeping and field work documentation and calculations; air sample analysis, techniques available and limitations of ahera on their use, transmission electron microscopy, e.g. background to sample preparation and analysis, air sample conditions which prohibit analysis, EPA's recommended technique for analysis of final air clearance samples; phase contrast microscopy, background to sample preparation and AHERA's limits on the use of phase contrast microscopy; and what each air sampling technique measures; analytical methodologies, AHERA TEM protocol, NIOSH 7400, OSHA reference method, non clearance, and EPA recommendation TEM for clearance; sampling strategies for clearance monitoring, types of air samples including personal breathing zone versus fixed-station area, sampling location and objectives to include pre-abatement, during abatement and clearance monitoring; number of samples to be collected, minimum and maximum air volumes; clearance monitoring to include post-visual-inspection, e.g. number of samples required, selection of sampling locations, period of sampling, aggressive sampling, interpretations of sampling results and calculations, and quality assurance; special sampling

problems, crawl spaces, acceptable samples for laboratory analysis and sampling in occupied facilities such as barrier monitoring;

(J) safety and health issues other than asbestos: confined-space entry, electrical hazards, fire and explosion concerns, ladders and scaffolding, heat stress, air contaminants other than asbestos, fall hazards and hazardous materials on abatement projects;

(K) conducting visual inspections: inspections during abatement, visual inspections using the ASTM E1368 document; conducting inspections for completeness of removal and discussion of "how clean is clean?"

(L) legal responsibilities and liabilities of project monitors: specification enforcement capabilities; regulatory enforcement; licensing and powers delegated to project monitors through contract documents;

(M) recordkeeping and report writing: developing project logs and daily logs; what should be included and who sees them; final report preparation and recordkeeping under federal regulations;

(N) workshops - six hours spread over three days:

(i) Workshop A - contracts, specifications and drawings. Participant shall be issued a set of contracts, specifications, and drawings and then asked to answer questions and make recommendations to a project architect, engineer or to the building owner based on given conditions and these documents.

(ii) Workshop B - air monitoring strategies and asbestos abatement equipment: simulated abatement sites for which sampling strategies would have to be developed e.g. occupied facilities, industrial situations.

(iii) Workshop C - conducting visual inspections: an interactive video in which a participant is "taken through" a work area and asked to make notes of what is seen. A series of questions shall be asked which are designed to stimulate a person's recall of the area. A series of two or three videos with different site conditions and different degrees of cleanliness. A reasonable substitute may be used subject to the approval of the department; and

(O) course review: a review of key aspects of the training course.

(Effective February 9, 1989; Transferred and Amended June 4, 1999)