

# ATLB-2812 : SPECIAL TOPICS IN ASBESTOS ABATEMENT SUPERVISOR

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## Cuyahoga Community College

**Viewing: ATLB-2812 : Special Topics in Asbestos Abatement Supervisor**

**Academic Term:**

Summer 2021

**Subject Code**

ATLB - AIT-Construct/Hazard Material

**Course Number:**

2812

**Title:**

Special Topics in Asbestos Abatement Supervisor

**Catalog Description:**

A certification course for supervisors covering the properties, history, general use of the mineral asbestos. Included are work classifications, safe removal techniques, PPE, respirators, decontamination procedures and work area preparation. Air sampling, analytical methods, insurance, contracts and roles and responsibilities of supervision are an integral part of this course and are compliance with industry standards as prescribed by Federal, State and EPA guidelines.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

## Requisites

**Prerequisite and Corequisite**

Departmental Approval: Must be a member in good standing of the Laborers Union.

## Outcomes

**Course Outcome(s):**

I Discuss the properties and general uses of asbestos and its history and list and explain the work classifications in construction and building maintenance.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. List and define the terms related to asbestos in the construction industry.
2. Describe the properties of asbestos including fiber length in microns, aerodynamic qualities and chemical atomic structures.
3. Explain the relationship between smoking and asbestos exposure effects on the worker.
4. Differentiate between friable and non-friable asbestos.
5. Identify and describe the classifications of asbestos work.
6. List and explain the different uses of asbestos including those common in the construction industry.
7. Identify worker rights and responsibilities when working with asbestos.

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**Course Outcome(s):**

II Identify and describe the different respirators used for worker protection in an asbestos environment, including APR limitations and demonstrate practices followed for specific respirator disassembly, assembly, and cleaning.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. List and define terms related to respiratory protection.
2. Identify the different respirators used by the asbestos abatement worker and describe the use of each.
3. Differentiate between APR and SAR respirators.
4. List the limitations of air purifying respirators.
5. Demonstrate the ability to properly maintain different respirators used in asbestos abatement.
6. List and explain the procedures followed for respirator fit test in accordance with industry standards.

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**Course Outcome(s):**

III Discuss the purpose of decontamination on an asbestos abatement project and state steps that are followed in prepping the work area, the elements and function of the decontamination chamber and list the materials and equipment are used.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. List and define the terms related to asbestos abatement and containment units.
2. List and explain the twelve steps that are followed in prepping a work area.
3. Explain the purpose and function of negative air pressure in a decontamination unit.
4. Identify and list the materials and equipment used to construct an asbestos abatement containment.
5. Demonstrate the ability to safely erect containment using proper materials and equipment, including negative air machines, in accord with industry standards.

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**Course Outcome(s):**

IV Discuss the importance of air sampling, “aggressive and area”, analytical methods used and describe the respective limitations.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. Explain how and why air sampling is done on an asbestos project.
2. List the two analytical methods used in final clearance of asbestos abatement projects.
3. Differentiate between static and aggressive sampling.
4. Describe bulk sampling, settled dust sampling and wipe sampling methods.
5. List and explain the limitations of analytical methods used in asbestos abatement.
6. Explain the purpose of taking air sampling from outside the work area and from outside the building.

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**Course Outcome(s):**

V List and explain the different types of bonds, insurance coverages and contracts related to asbestos abatement and supervisory roles responsible for implementation.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. List and define the terms related to supervision roles with respect to asbestos abatement.
2. Convey the importance of working on abatement projects with respect to associated dangers, liabilities and job safety.
3. Describe the aspects of a good faith survey with respect to project abatement assessment and cost analysis.
4. Explain how the “walk through” is used to list and identify abatement project conditions including accessibility, weather conditions, asbestos quantities to be abated and required personnel, materials and equipment.
5. List and explain the different types of bonds and how they relate to abatement projects.

6. List and explain the different types of insurances and describe the importance of each.
7. List and explain the four abatement contract types and respective specifications.

**Course Outcome(s):**

VI Discuss the roles of the supervisor including responsibilities, job set-up, and proper communication techniques for effective job policies and interpersonal conflicts.

**Essential Learning Outcome Mapping:**

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

**Objective(s):**

1. Identify the roles of the asbestos abatement supervisor.
2. Explain the importance of effective communication with respect to listening techniques, abuse of power and two direction chain of commands.
3. Describe the components of proper job set up for abatement including worker related requirements, and material handling and disposal.
4. Develop production schedules including charts, graphs, and critical path methods needed for effective supervision and material and equipment requirements
5. Develop early warning systems for addressing interpersonal conflicts and discuss techniques used for resolution plans.

**Methods of Evaluation:**

class participation, quizzes, and tests

**Course Content Outline:**

**Course Outline**

1. Asbestos: properties, health hazards, and regulations
  - a. Terminology
    - i. ACM
    - ii. EPA
    - iii. Asbestos fiber
    - iv. Friable asbestos containing material
    - v. Micron
    - vi. Non-friable
    - vii. OSHA
    - viii. PACM
    - ix. PEL
    - x. SM
    - xi. TSI
    - xii. Aerodynamic
    - xiii. Carcinogen
    - xiv. Latency period
    - xv. Synergism
    - xvi. Chrysotile
    - xvii. Amosite
    - xviii. Macrophages
    - xix. Wet removal
  - b. Asbestos properties
    - i. Heat resistant
    - ii. Water repellent
    - iii. Friable
    - iv. Non-friable
    - v. Mineral
    - vi. Non-disease
  - c. Smoking and asbestos effects

- i. Synergism
            - 1. Exposure
            - 2. Smoking
          - ii. Oxygen exchange
          - iii. Cilia relaxation
        - d. Friable vs. non-friable
          - i. Friable
            - 1. Easily crushed
            - 2. Powder
            - 3. Dangers
              - a. Fibers easily released
              - b. Inherent health danger
          - ii. Non-friable
            - 1. Difficult to pulverize
            - 2. Firm matrix
            - 3. Less hazardous
1. Work classifications
  - a. Class I
    - i. Surfacing materials
      - 1. Decorative plaster
      - 2. Acoustic materials
      - 3. Fireproofing
    - ii. Thermal system insulation
      - 1. Pipes
      - 2. Boilers
      - 3. Tanks
      - 4. Ductwork
  - b. Class II non surface
    - i. Non friable
    - ii. Floor tile
    - iii. Roofing
    - iv. Transite
  - c. Class III
    - i. Glove box inclusion
    - ii. Intentional disturbance of ACM
  - d. Class IV
    - i. Maintenance
    - ii. Custodial
2. Construction uses
  - a. Temperature management
    - i. Heat
    - ii. Cool
  - b. Brake linings
  - c. Building materials
    - i. Ceilings
    - ii. Drywall
    - iii. Fireproofing
    - iv. Roofing
    - v. Trancite
    - vi. Siding
    - vii. Tile
    - viii. mastic
  - d. drugs
  - e. fireproof clothing
  - f. baby powder
1. Worker rights /responsibilities
  - a. Worker rights
    - i. Employee representative
    - ii. Standard/regulation review right

- iii. Access to medical and exposure records
- iv. Request safety and health hazard information
- v. Review log summaries
- vi. Request OSHA inspection
- vii. Right to assist OSHA compliance official
- viii. Observe monitoring and review results
- ix. Contest abatement period
- x. Report imminent danger
- xi. Report hazards
- xii. Exercise OSHA rights
- xiii. File discrimination complaint
- b. Responsibilities
  - i. OSHA familiar
  - ii. OSHA compliant
  - iii. Follow employer rules/regulations
  - iv. Wear PPE
  - v. Report hazards
  - vi. Report job related injuries/illnesses
  - vii. Cooperate
  - viii. With OSHA compliance officer
  - ix. Exercise rights under OSHA Act 1970
- c. EPA Standards
  - i. National Emissions Standard for Hazardous Air pollutants NESHAP
    - 1. No visible emissions
    - 2. Prior notification guideline
    - 3. Wet removal
  - ii. Asbestos Hazard Emergency Response Act AHERA
    - 1. Training and certification
      - a. Inspectors
      - b. Planners
      - c. Designers
      - d. Supervisors
      - e. Workers
    - 2. Re-inspection
    - 3. Surveillance
- 1. Asbestos School Hazard Abatement Reauthorization Act ASHARA
  - a. Amendments public/commercial buildings
  - b. Model accreditation plan revision
  - c. Increase training hours
  - d. Increase hands on training
- 1. Respirators and applications
  - a. Terminology
    - i. Half face
    - ii. Full face
    - iii. PAPR
    - iv. SAR
    - v. SCBA
    - vi. Respirator
    - vii. Filter
    - viii. Cartridge
    - ix. Short term entry
    - x. Oxygen deficient
    - xi. Air purifying
    - xii. NPR
    - xiii. Filter efficiency
    - xiv. Contaminate
  - b. Respirators

- i. **Half face**
  - 1. **Low level contaminate**
  - 2. **Limited respirator requirement**
  - 3. **Durability**
  - 4. **Eye protection**
  - 5. **Filters**
    - a. **Non- oil resistance NRP**
    - b. **Resistant to oil R**
    - c. **APF 10**
    - d. **Filter efficiency**
      - i. **95% protection**
      - ii. **99% protection**
      - iii. **100% protection (99.97%)**
      - iv. **Air purifying**
- 1. **Full face**
  - a. **Greater protection**
  - b. **APF 50**
  - c. **Eye protection**
  - d. **Forehead seal**
  - e. **Air purifying**
- 2. **Powered Air Purifying Respirator PAPR**
  - a. **APF 1000**
  - b. **Higher protection/contaminant level**
  - c. **Air purifying**
- 3. **Supplied air**
  - a. **Air line**
    - i. **Longer time duration**
    - ii. **Higher level of contaminate**
    - iii. **Oxygen deficient atmosphere**
    - iv. **Escape bottle**
  - b. **Self- contained breathing apparatus SCBA**
    - i. **Heavy**
    - ii. **Limited air time**
    - iii. **PF 10,000**
    - iv. **Short term entry**
- 4. **APR vs SAR**
  - a. **APR**
    - i. **Lower contaminate level**
    - ii. **Sufficient ambient oxygen**
- 1. **SAR**
  - a. **High contaminate level**
  - b. **Oxygen deprived**
- 2. **APR limitations**
  - a. **Cannot be used in oxygen deficient area**
  - b. **Lack of eye protection**
  - c. **Limited contaminate area**
- 3. **Respirator maintenance**
  - a. **Disassemble**
  - b. **Cleaning**
    - i. **Alcohol free cleaner**
    - ii. **Inspect for defects/damage**
  - c. **Re-assembly**
- 1. **Storage**
  - a. **Sealed bag**
  - b. **Low humidity environment**
  - c. **Avoid heat environment**
- 2. **Fit test**
  - a. **Sensitivity check**
  - b. **Positive/negative seal check**

- c. **Smoke infiltrative irritant**
  - d. **Irritant agents**
    - i. **Smoke**
    - ii. **Stannic acid**
    - iii. **Banana oil**
    - iv. **Bittrex**
    - v. **Saccharin**
1. **Containment: Area prep**
    - a. **Terminology**
      - i. **Abatement**
      - ii. **Critical barrier**
      - iii. **Containment**
      - iv. **Common tools**
      - v. **Overlap requirements**
      - vi. **General considerations**
      - vii. **Travel flow**
      - viii. **Strategies**
      - ix. **Negative air**
      - x. **Millage**
      - xi. **Chamber**
      - xii. **Wet wipe**
    - b. **Prepping steps**
      - i. **Vacate area**
      - ii. **Wet wipe**
      - iii. **Critical barriers**
        1. **Heating ventilating and air conditioning (HVAC)**
        2. **Electrical**
        3. **Doors**
        4. **Windows**
        5. **Penetrations**
  1. **Layering**
    - a. **Floor**
    - b. **Walls**
    - c. **Lap**
      - i. **12"**
      - ii. **36"**
    - d. **Wall layer down**
    - e. **Drop cloth**
  2. **Establish negative air**
  3. **Walk through**
  4. **Commence abatement**
  5. **Negative air**
    - a. **Calculation**
      - i. **Room dimensions, volume**
      - ii. **Capacity of negative air machine**
    - b. **Four air changes/hour**
    - c. **Purpose**
      - i. **Fiber containment**
      - ii. **Safe work place**
  6. **Materials and equipment**
    - a. **Materials**
      - i. **Polyvinyl chloride sheathing**
      - ii. **Duct tape**
      - iii. **Spray glue**
    - b. **Tools (hand)**
      - i. **Knives**
      - ii. **Scrapers**
      - iii. **5 in 1 scraper**
      - iv. **Aviation snips**

- c. **Equipment**
  - i. **Scaffold**
    - 1. **Rolling**
    - 2. **Tube and clamp**
    - 3. **Systems**
  - ii. **Negative air machine**
  - iii. **Lifts**
    - 1. **Scissors**
    - 2. **Aerial**
- 1. **Containment construction**
  - a. **Prepare area(s)**
    - i. **Remove unsecured items**
    - ii. **Wipe clean**
  - b. **Critical barriers**
  - c. **Layers**
    - i. **Floors**
    - ii. **Walls**
  - d. **Penetrations**
  - e. **Inspection**
    - i. **Negative air**
    - ii. **Seal tight**
  - f. **Abatement process**
- 1. **Air sampling, Analytical methods and Limitations**
  - a. **Purpose: how and why**
    - i. **How**
      - 1. **air movement**
      - 2. **blower**
      - 3. **fan**
      - 4. **“eddy” current**
    - ii. **Why**
      - 1. **Fiber level determination**
      - 2. **Determination of safe levels**
  - b. **Analytical methods**
    - i. **Phase contrast microscopy**
    - ii. **Light microscopy**
  - c. **Static versus aggressive sampling**
    - i. **Static**
      - 1. **Stationary**
      - 2. **Final sampling**
      - 3. **Greater accuracy**
      - 4. **Longer sampling time**
    - ii. **Aggressive**
      - 1. **Artificial agitation of air**
      - 2. **Lower**
        - a. **Air sample**
        - b. **Less time**
      - 3. **Less time**
      - 4. **Quick analysis**
- 1. **Bulk sampling, settled dust and wipe**
  - a. **Bulk sample**
    - i. **Random sampling**
    - ii. **General overview**
  - b. **Settled dust**
    - i. **Horizontal ledges**
      - 1. **Tables**
      - 2. **Soffits**
      - 3. **Ledges**
      - 4. **Miscellaneous**
    - ii. **Obvious settlement**
  - c. **Wipe sampling**



- i. General random
  - ii. Follow up sampling
  - iii. Special considerations
- 2. Limitations
  - a. Time
  - b. Money
- 3. Outside sampling
  - a. Data comparison
  - b. Baseline setting
  - c. Result driven
- 1. Bonds, insurance, and contracts
  - a. Terminology
    - i. Good faith survey
    - ii. AHERA inspection
    - iii. Bonding
    - iv. Insurance
    - v. Claims made
    - vi. Occurrence based
    - vii. Liability
    - viii. Tort
    - ix. Project supervision
    - x. Production schedule
    - xi. Bar chart
    - xii. Critical path
    - xiii. Look ahead schedule
    - xiv. Delegating
    - xv. Sexual harassment
    - xvi. "not to exceed"
  - b. Abatement projects: dangers and liabilities and safety
    - i. Dangers
      - 1. Personal injury
      - 2. Liabilities
        - a. Personal damage
        - b. Contract
      - 3. Lawsuit
    - ii. Liabilities
      - 1. Legal
        - a. EPA
        - b. Contract specifications
        - c. Pollution
      - 2. Automobile
      - 3. Criminal
      - 4. Regulatory
      - 5. Civil
      - 6. Tort
    - iii. Safety
      - 1. General
      - 2. Site specific
      - 3. Delegation
  - c. Good Faith Survey
    - i. Qualified person
      - 1. Building owner
      - 2. Industrial hygienist
      - 3. Architect
      - 4. Project manager
    - ii. Inventory items
      - 1. Bulk samples
      - 2. Presumed ACM
      - 3. Laboratory testing

- 4. Quantities
- 5. Sample conditions
- 6. Location
- iii. Recommendations
  - 1. Control
  - 2. Abatement
- 1. Walk Through
  - a. Attendees
    - i. Supervisor
    - ii. Contractor representative
    - iii. Owner
    - iv. Estimator
  - b. Good faith survey assessment
  - c. Abatement difficulty
  - d. Area enclosure
  - e. Building occupancy
- 2. Project bonding
  - a. Types
    - i. Bid bond
    - ii. Payment bond
    - iii. Performance
  - b. Required
    - i. Government
      - 1. State
      - 2. City
    - ii. Limited private projects
- 3. Insurance
  - a. General
    - i. Types
    - ii. Policies
    - iii. Mandatory
  - b. Automobile
  - c. Workman compensation
  - d. Professional
    - i. Architect
    - ii. Estimator
- 4. Contract types
  - a. Lump sum
    - i. Common
    - ii. Price vs service
    - iii. Basic
  - b. Cost plus
    - i. Time and material
    - ii. Less common
  - c. "not to exceed"
- 1. Unit pricing
  - a. Payout vs service
  - b. Fairly common
- 2. Combination
- 3. Supervisor responsibilities
- 1. Supervision roles and responsibilities
  - a. Roles
    - i. Motivator
    - ii. Coordinator
    - iii. Material procurer
    - iv. Mediator
    - v. Scheduler
    - vi. Meeting facilitator
  - b. Communication

- i. **Listening**
    - 1. **Eye contact**
    - 2. **Attentiveness**
    - 3. **Open minded**
    - 4. **Clarifying questions**
    - 5. **Offer feed-back**
    - 6. **Summarize**
  - ii. **Abuse of power**
    - 1. **Maladministration**
    - 2. **Misappropriation**
    - 3. **Mismanagement**
    - 4. **Tyranny**
  - iii. **Chain of command**
    - 1. **Evaluate decisions**
    - 2. **Delegation of responsibilities**
    - 3. **Skill based**
  - c. **Job set-up**
    - i. **Jobsite walk-through**
      - 1. **Safety concerns**
        - a. **Electrical hazards**
        - b. **Openings**
        - c. **Supply lines**
        - d. **Equipment pathways**
      - 2. **Restricted areas**
      - 3. **Non –restricted area**
- 1. **Designated areas**
    - a. **Lunch room**
    - b. **Field office**
    - c. **Supply room**
    - d. **Waste load out**
    - e. **Employee parking**
  - 2. **Temporary power**
  - 3. **Area build outs/cleaning**
  - 4. **Administrative**
    - a. **Hierarchy establishment**
    - b. **Team designation**
    - c. **Task assignment**
    - d. **Recordkeeping**
      - i. **Certifications**
      - ii. **Health clearances**
      - iii. **Physical clearances**
      - iv. **Respirator fit test**
  - 5. **Material handling**
    - a. **Waste load out**
    - b. **Waste pathway**
    - c. **Safety compliance**
    - d. **Regulatory compliance**
      - i. **Labeling**
      - ii. **Containment**
      - iii. **License personnel**
  - 6. **Production schedules: charts, graphs and critical path methods**
    - a. **Schedules**
      - i. **Daily**
      - ii. **Equipment**
      - iii. **“look ahead”**
    - b. **Charts**
      - i. **Bar**
      - ii. **Gannt**
      - iii. **Flow**

- c. **Critical path methods**
  - i. **History**
  - ii. **Effective application**
- d. **Equipment scheduling**
  - i. **Maintenance**
  - ii. **Availability**
  - iii. **Critical path alignment**
- e. **Material**
  - i. **Waste “load out”**
  - ii. **Signage**
  - iii. **Disposal areas**
  - iv. **Security**
- 7. **Interpersonal conflicts**
  - a. **Warning signs**
    - i. **Response flags**
    - ii. **Worker complaints**
    - iii. **Venting**
    - iv. **“don’t butt-in” personality**
  - b. **Resolution plans**
    - i. **Worker separation**
    - ii. **Re-assignment of personnel**
    - iii. **Communication**
    - iv. **Open discussions**

## Resources

LIUNA Training and Education Fund. *Asbestos Abatement Worker* . current. Pomfret CT; LIUNA Training and Education Fund, 2018. 2018.

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Center for Construction Research and Training. *National Resource Center/Center for Construction Research and Training*. current. Silver Spring, MD; National Resource Center/Center for Construction Research and Training, 2019.

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.Department of Labor National Office, Frances Perkins Bldg., . *OSHA CRF 1926*. current. Washington, D.C. Department of Labor, 2018.

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## Resources Other

<https://epa.ohio.gov/dapc/atu/asbestos>  
[www.OSHA.gov](http://www.OSHA.gov)

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