ATLB-2340: ASBESTOS ABATEMENT SUPERVISOR

Cuyahoga Community College

Viewing: ATLB-2340 : Asbestos Abatement Supervisor

Board of Trustees:

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Academic Term:

Fall 2021

Subject Code

ATLB - AIT-Construct/Hazard Material

Course Number:

2340

Title:

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

Enrolled in the LIUNA apprenticeship program and/or a member in good standing with the Ohio 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.

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.

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.

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.

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:

1. Quizzes
2. Tests
3. Class participation

Course Content 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

e. Work classifications
i. Class I
1. Surfacing materials
a. Decorative plaster
b. Acoustic materials
c. Fireproofing
2. Thermal system insulation
a. Pipes
b. Boilers
c. Tanks
d. Ductwork
ii. Class II non surface
1. Non friable
2. Floor tile
3. Roofing
4. Trans ite
iii. Class III
1. Glove box inclusion
2. Intentional disturbance of ACM
iv. Class IV
1. Maintenance
2. Custodial

f. Construction uses
i. Temperature management
1. Heat
2. Cool
ii. Brake linings
iii. Building materials
1. Ceilings
2. Drywall
3. Fireproofing
4. Roofing
5. Trancite
6. Siding
7. Tile
8. Mastic
iv. Drugs
v. Fireproof clothing
vi. Baby powder

g. Worker rights/responsibilities
i. Worker rights
1. Employee representative
2. Standard/regulation review right

3. Access to medical and exposure records
4. Request safety and health hazard information
5. Review log summaries
6. Request OSHA inspection
7. Right to assist OSHA compliance official
8. Observe monitoring and review results
9. Contest abatement period
10. Report imminent danger
11. Report hazards
12. Exercise OSHA rights
13. File discrimination complaint

ii. Responsibilities
1. OSHA familiar
2. OSHA compliant
3. Follow employer rules/regulations
4. Wear PPE
5. Report hazards
6. Report job related injuries/illnesses
7. Cooperate
8. With OSHA compliance officer
9. Exercise rights under OSHA Act 1970

iii. EPA Standards
1. National Emissions Standard for Hazardous Air Pollutants NESHAP
   a. No visible emissions
   b. Prior notification guideline
   c. Wet removal
2. Asbestos Hazard Emergency Response Act AHERA
   a. Training and certification
      i. Inspectors
      ii. Planners
      iii. Designers
      iv. Supervisors
      v. Workers
   b. Re-inspection
   c. Surveillance
3. 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

2. 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
ii. Full face
    1. Greater protection
    2. APF 50
    3. Eye protection
    4. Forehead seal
    5. Air purifying
iii. Powered Air Purifying Respirator PAPR
    1. APF 1000
    2. Higher protection/contaminant level
    3. Air purifying
iv. Supplied air
    1. Air line
        a. Longer time duration
        b. Higher level of contaminate
        c. Oxygen deficient atmosphere
        d. Escape bottle
    2. Self- contained breathing apparatus SCBA
        a. Heavy
        b. Limited air time
        c. PF 10,000
        d. Short term entry

c. APR vs SAR
    i. APR
        1. Lower contaminate level
        2. Sufficient ambient oxygen
    ii. SAR
        1. High contaminate level
        2. Oxygen deprived

d. APR limitations
    i. Cannot be used in oxygen deficient area
    ii. Lack of eye protection
    iii. Limited contaminate area

e. Respirator maintenance
    i. Disassemble
    ii. Cleaning
        1. Alcohol free cleaner
        2. Inspect for defects/damage
    iii. Re-assembly
    iv. Storage
        1. Sealed bag
        2. Low humidity environment
        3. Avoid heat environment

f. Fit test
    i. Sensitivity check
    ii. Positive/negative seal check

iii. Smoke infiltrative irritant
iv. Irritant agents
1. Smoke
2. Stannic acid
3. Banana oil
4. Bittrex
5. Saccharin

3. 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
iv. Layering
1. Floor
2. Walls
3. Lap
a. 12″
b. 36″
4. Wall layer down
5. Drop cloth
v. Establish negative air
vi. Walk through
vii. Commence abatement
c. Negative air
i. Calculation
1. Room dimensions, volume
2. Capacity of negative air machine
ii. Four air changes/hour
iii. Purpose
1. Fiber containment
2. Safe work place
d. Materials and equipment
i. Materials
1. Polyvinyl chloride sheathing
2. Duct tape
3. Spray glue
ii. Tools (hand)
1. Knifes
2. Scrapers
3. 5 in 1 scraper
4. Aviation snips

iii. Equipment
1. Scaffold
a. Rolling
b. Tube and clamp
c. Systems
2. Negative air machine
3. Lifts
a. Scissors
b. Aerial

e. Containment construction
i. Prepare area(s)
1. Remove unsecured items
2. Wipe clean
ii. Critical barriers
iii. Layers
1. Floors
2. Walls
iv. Penetrations
v. Inspection
1. Negative air
2. Seal tight
vi. Abatement process

4. 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

d. Bulk sampling, settled dust and wipe
i. Bulk sample
1. Random sampling
2. General overview
ii. Settled dust
1. Horizontal ledges
a. Tables
b. Soffits
c. Ledges
d. Miscellaneous
2. Obvious settlement
iii. Wipe sampling

1. General random
2. Follow up sampling
3. Special considerations

e. Limitations
   i. Time
   ii. Money

f. Outside sampling
   i. Data comparison
   ii. Baseline setting
   iii. Result driven

5. 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

d. Walk Through
i. Attendees
1. Supervisor
2. Contractor representative
3. Owner
4. Estimator

ii. Good faith survey assessment
iii. Abatement difficulty
iv. Area enclosure
v. Building occupancy

e. Project bonding
i. Types
1. Bid bond
2. Payment bond
3. Performance

ii. Required
1. Government
a. State
b. City
2. Limited private projects

f. Insurance
i. General
1. Types
2. Policies
3. Mandatory

ii. Automobile
iii. Workman compensation
iv. Professional
1. Architect
2. Estimator

g. Contract types
i. Lump sum
1. Common
2. Price vs service
3. Basic

ii. Cost plus
1. Time and material
2. Less common

iii. “not to exceed”
iv. Unit pricing
1. Payout vs service
2. Fairly common

v. Combination

h. Supervisor responsibilities

6. 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
    4. Designated areas
        a. Lunch room
        b. Field office
        c. Supply room
        d. Waste load out
        e. Employee parking
    5. Temporary power
ii. Area build outs/cleaning
iii. Administrative
    1. Hierarchy establishment
    2. Team designation
    3. Task assignment
    4. Recordkeeping
        a. Certifications
        b. Health clearances
        c. Physical clearances
        d. Respirator fit test
iv. Material handling
    1. Waste load out
    2. Waste pathway
    3. Safety compliance
    4. Regulatory compliance
        a. Labeling
        b. Containment
        c. License personnel

d. Production schedules: charts, graphs and critical path methods
i. Schedules
    1. Daily
    2. Equipment
    3. “look ahead”
ii. Charts
    1. Bar
    2. Gannt
    3. Flow

iii. Critical path methods
    1. History
    2. Effective application
iv. Equipment scheduling
    1. Maintenance
    2. Availability
    3. Critical path alignment
v. Material
    1. Waste “load out”
    2. Signage
    3. Disposal areas
    4. Security

e. Interpersonal conflicts
i. Warning signs
    1. Response flags
    2. Worker complaints
    3. Venting
    4. “don’t butt-in” personality
ii. Resolution plans
    1. Worker separation
    2. Re-assignment of personnel
    3. Communication
    4. Open discussions

Resources

LIUNA Training and Education Fund. *Asbestos Abatement Worker* . Current. Pomfret CT; LIUNA Training and Education Fund, 2014.

Department of Labor/OSHA. *29 CFR 1926 OSHA Construction Industry Regulations*. Current. Washington, DC: Department of Labor, 2010.

Center for Construction Research and Training. *Asbestos Abatement*. Current. Silver Spring, MD: National Resource Center/Center for Construction Research and Training, 2010.

Resources Other

www.CPWR.com

https://epa.ohio.gov/dapc/atu/asbestos (https://epa.ohio.gov/dapc/atu/asbestos/)

https://www.epa.gov/asbestos/asbestos-laws-and-regulations

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