Asbestos Awareness Training

General Industry 29 CFR 1910.1001
Required Training

• 29 CFR 1910.1001 General Standard requires awareness training
  • All employees who do housekeeping or basic maintenance operations in facilities where ACM is known or presumed to be present
  • Provide initial and annual training

• Be familiar with the NCCU Asbestos Control Program
  • Document available on EHS website
Objectives

• Learn about asbestos types and uses
• Examples of materials which may contain asbestos
• How to recognize friable asbestos
• Recognizing damage and deterioration of ACM
• Heath effects of asbestos exposure
• Hazard communication - training and signs / label requirements
• Precautions to prevent or minimize exposure
Regulations

• Occupational exposure to asbestos for employees whose jobs require them to potentially disturb or otherwise be exposed to asbestos containing materials (ACM) is regulated under 29 CFR 1910.1001
  • Any work with ACM that would fall under 29 CFR 1926.1101 the Construction Standard is provided by contractors whom provide health and safety oversight and regulatory compliance for their construction sites
  • All abatement work is performed by licensed professionals and NOT NCCU staff


• Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763, Subpart E relates to the management of asbestos containing materials in schools

• The NC Asbestos Hazard Management Program (AHMP) §130A-444 through 452

• North Carolina State Construction Office Asbestos Abatement Guidelines and Policies for state-owned properties
What Does This Training Allow You To Do?

- HEPA vac and wet clean asbestos debris
- Carry waste containers to be transported for disposal
- Paint non-damaged, non-friable materials
- Refinish resilient floor coverings
  - Low abrasion pads
  - Slow speeds (<300 rpms)
  - Wet methods
Asbestos

• Group of naturally occurring minerals resistant to heat and corrosion

• Commonly includes fibers from six different minerals and any of these minerals that have been chemically treated or altered
Asbestos Fibers

- All types of asbestos tend to break into tiny fibers
- Microscopic
  - Can not be seen by the naked eye
- Fibers may stay suspended in the air for hours or even days
Asbestos Facts

- Asbestos fibers are virtually indestructible
- Very stable in the environment
- Does not evaporate into air or dissolve in water
- Does not break down over time
- Often mixed with other materials to form products
  - Depending on product asbestos content may vary from 1-100%
Where is Asbestos Found?

- Building insulation
- Pipe insulation (steam lines)
- Floor tiles
- Building materials
- Vehicle brakes and clutches
- Vermiculite (contamination from mine)
  - Mineral that rapidly expands when heated
  - Construction and consumer materials
  - Soil conditioner
Vermiculite Contamination

• A mine near Libby, MT produced 70% of all vermiculite in the U.S. from 1919 to 1990
• Sediment of asbestos found in the mine
• Vermiculite contaminated with asbestos
• Used in the majority of vermiculite insulation in the U.S. as the brand name “Zonolite”
• Always assume vermiculite contains asbestos
Asbestos Containing Materials (ACM)

- OSHA has regulated exposure since 1972 in general industry
- Largely banned in the U.S. in the 1970s and 1980s
- Asbestos may be found in buildings constructed before 1980
- You can NOT tell whether a material contains asbestos simply by looking at it
Common ACM in Buildings Pre-1980

- Roof Shingles & Siding
- Vermiculite Insulation, Ceiling Tiles & Coatings
- Popcorn Ceilings
- Drywall & Cement Sheets
- Plaster, Putties & Caulking
- Electrical Switchboard Panels
- Plumbing Fixtures
- Pipe & Duct Coverings
- Thermal Boiler & Fireplace Insulations
- Vinyl Floor Tiles
More Potential ACM

- Thermal system insulation (TSI)
- Cement pipes and boards
- Plastics
- Clay, paints, plasters
- Protective clothing or materials made prior to 1980
  - Heat resistant gloves
  - Aprons
  - Fire blankets
Friable Asbestos

• Friable ACM
  • Material that contains more than 1% asbestos by weight or area that can be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand
  • Fibers can become airborne and be inhaled to pass into the lungs and into the digestive tract.

• Non-friable ACM
  • Tightly bonded or bound with other materials
  • Resistant to damage – less likely to release fibers
  • Non-friable can become friable if disturbed by age, cutting, sawing, sanding, drilling or breaking
Asbestos Exposure

According to an international study in 2020, asbestos causes 37.5% of lung cancers linked to occupation.

Greatest risk during removal or disturbance during building renovation, repair, or demolition.

Exposure risks in general industry:
- Manufacture of asbestos products
- Automotive brake and clutch repair
- Housekeeping and custodial work
- General facility maintenance
Occupations with Asbestos Risk

Plumbers
Electricians
Demolition
Construction
Housekeeping

Laborers
Roofers
Mechanics
Painters
First Responders
Hazard Communication

• In buildings built before 1980, treat the following as ACM until analyzed and found to contain less than 1% asbestos
  • TSI
  • Sprayed-on, troweled-on surfacing materials
  • Asphalt and vinyl flooring materials
Permissible Exposure Limits (PEL)

• Time weighted average (TWA)
  • No exposure in excess of 0.1 fiber/cubic centimeter averaged over 8 hrs

• Excursion limit (EL)
  • No exposure in excess of 1.0 fiber/cubic centimeter averaged over 30 min
Exposure Monitoring

• Asbestos operations must be monitored for potential to generate airborne fibers to ensure that measurements are below PEL
Medical Surveillance

• Only applies to employees with exposure to airborne asbestos at or above the PEL
• No NCCU employee should be involved in operations that requires medical surveillance or monitoring
Signs of Asbestos Exposure

• There are no signs of asbestos exposure before a disease develops
  • May take 15-35 years for symptoms to develop after exposure
• Signs of asbestos exposure usually involve the lungs but can also affect other parts of the body - throat, stomach and colon
Signs of Asbestos Exposure - Lungs

- Shortness of breath
- Dry cough or wheezing
- Crackling sound when breathing
- Chest pain or tightness
- Respiratory complications
- Accumulation of fluid in the space surrounding a lung
Signs of Asbestos Exposure - Other Organs

• Abdominal swelling and distention
• Abdominal or pelvic pain
• Bowel obstruction
• Hernia
• Weight loss
• Loss of appetite
• Hoarseness
• Difficulty swallowing
• Clubbed fingers
Risk of Developing Asbestos-Related Disease

• Many factors are involved in determining risk
  • How long a person was exposed
  • Concentration of asbestos fibers they inhaled

• Most people who get sick worked heavily with asbestos for most of their career
Asbestosis

• Non-cancerous progressive lung disease that leads to severe lung dysfunction
• Scar-like tissue builds up in the lungs
• Results in loss of lung function that often progresses to disability and death
Lung Cancer

- Symptoms include shortness of breath, chest pain and coughing up blood
- Non-small cell lung cancer (most common)
  - Adenocarcinoma forms in the air sacs (alveoli) of the lungs
  - Squamous cell carcinoma forms in cells that line the airways of the lungs
  - Large cell (undifferentiated) carcinoma can appear in any part of the lung
- Small cell lung cancer
  - More difficult to treat
  - Can spread to other parts of the body before causing symptoms
Mesothelioma

- Malignant tumor caused by inhaled asbestos fibers
- Fibers damage mesothelial cells and cause inflammation
- Cancer forms in the lining of the lungs, abdomen or heart
- Symptoms include shortness of breath and chest pain
Avoiding Asbestos Exposure at NCCU
ACM Present in Some Campus Buildings

- According to the U.S. Environmental Protection Agency, ACM “that is in good condition and left undisturbed is unlikely to present a health risk”
- Managing asbestos in place and maintaining it in good repair is often the best approach
- NC State Construction Office policy on ACM in state owned buildings
  - If asbestos-containing material is in good condition and will not be disturbed during renovation, the material may be left in place and the owner will continue the upkeep and maintenance of the material.
Avoidance

• NCCU employees do not perform asbestos removal or remediation
  • Contracted to trained, licensed professionals with proper equipment
Regulated Areas

- Areas where airborne concentration of asbestos or presumed asbestos-containing material excels the PEL
- Only authorized personnel may enter
- Requires respiratory protection
- All entrances must be posted with warning sign
Labeling of Products and Waste

• Must contain warning label in compliance with Hazard Communication Standard

• Not required if
  • Not friable and fixed by bonding agent, coating, binder or other material
  • Asbestos is less than 1% of product
Pay Attention to Signs and Labels

**WARNING!**
This ceiling surface material contains asbestos
Avoid contact or disturbance this ceiling
If disturbance of material is anticipated, contact EHS at 919-530-7125 or ehs@nccu.edu prior to beginning work

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**DANGER**
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

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**WARNING!**
Some of the pipe insulation and other thermal system insulation in this room contain asbestos
Avoid creating dust from any insulation
If disturbance of material is anticipated, contact EHS at 919-530-7125 or ehs@nccu.edu prior to beginning work

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**DANGER**
ASBESTOS
CANCER AND DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
PROTECTIVE EQUIPMENT & CLOTHING REQUIRED TO ENTER
Recognize Damage and Deterioration of ACM

Damage and/or deterioration can lead to airborne fibers

- Physical impact such as drilling, grinding, buffing, cutting, sawing, or striking
- Water damage
- Continual vibration
- Aging
Leave it be......

• Leave undamaged asbestos-containing materials alone
• Avoid damaging asbestos-containing materials
• Broken and fallen ceiling tiles should be left in place until material is identified
• Broken and damaged asbestos floor tiles must also be removed by abatement professionals
Good Housekeeping

• Never sand resilient floor coverings
  • Burnish and dry buff only if sufficient finish is present

• Never dust, sweep, or vacuum debris that may contain asbestos

• Floor buffers used for stripping floor wax from vinyl asbestos floor tiles must not operate above 300 RPM.
  • Wet methods and low abrasion floor pads are also to be used
Fiber Release Episode

• If you accidentally disturb friable ACM or make non-friable ACM friable
  • Stop work
  • Evacuate the immediate area without causing alarm
  • Contact your Supervisor and EHS
  • Do not re-enter the work area
Summary

• Reviewed regulations governing asbestos exposure and use
• Discussed what asbestos is and where is found
• Described health hazards
• Listed protection measures you can take at NCCU to minimize any risk of asbestos exposure
Questions

Department of Environmental Health and Safety
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EHS Website