WEATHERIZATION SUMMARY

Weatherization Training – An Innovative Pathway to Apprenticeship Programs
WEATHERIZATION SUMMARY

- Greater Cincinnati Occupational Health Center (GCOHC) had 245 workers complete the training.
  - Partnership with Cincinnati Energy Alliance
- Receiving college credits from Cincinnati State College.
- 15% entered pre-apprenticeship program
  - Community Construction Career Readiness Collaboration (3CRC)
- 6 submitted applications for Building Trades apprenticeship programs and were placed
- 2 students entered Cincinnati State working towards an associates degree.
WEATHERIZATION SUMMARY

Participant Information:

Ages - 18 - 54 mean age of participant was 35
Gender – Female 20%  Male 80%
Race – Asian 3%, Black 81%, & White 16%
Prior Health & Safety Training  45%

*GCOHS: summary report
4/27/2012  GCOHC
WEATHERIZATION SUMMARY

• Perceptions of the Program
## WEATHERIZATION SUMMARY

<table>
<thead>
<tr>
<th>How confident are you that you can...?</th>
<th>I CANNOT do this</th>
<th>Not at all confident</th>
<th>Somewhat confident</th>
<th>Pretty confident</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe one hazard that might occur at a worksite.</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>17 (10%)</td>
<td>44 (26%)</td>
<td>106 (63%)</td>
</tr>
<tr>
<td>Describe a resource to find health and safety information.</td>
<td>1 (1%)</td>
<td>1 (1%)</td>
<td>19 (11%)</td>
<td>52 (30%)</td>
<td>97 (57%)</td>
</tr>
<tr>
<td>List two ways to prevent hazardous material from getting into your body.</td>
<td>1 (1%)</td>
<td>2 (1%)</td>
<td>7 (4%)</td>
<td>40 (24%)</td>
<td>119 (70%)</td>
</tr>
</tbody>
</table>

*GCOHS: summary report*  

4/27/2012  

GCOHC
## WEATHERIZATION SUMMARY

<table>
<thead>
<tr>
<th>Activities Checklist</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at one or more fact sheets</td>
<td>170</td>
<td>1</td>
</tr>
<tr>
<td>(99%)</td>
<td>(1%)</td>
<td></td>
</tr>
<tr>
<td>Discuss a fact sheet checklist</td>
<td>166</td>
<td>6</td>
</tr>
<tr>
<td>(97%)</td>
<td>(3%)</td>
<td></td>
</tr>
<tr>
<td>Identify safe &amp; unsafe work practices</td>
<td>167</td>
<td>4</td>
</tr>
<tr>
<td>(98%)</td>
<td>(2%)</td>
<td></td>
</tr>
<tr>
<td>Inspect respirators &amp; CPC</td>
<td>109</td>
<td>62</td>
</tr>
<tr>
<td>(64%)</td>
<td>(36%)</td>
<td></td>
</tr>
<tr>
<td>Practice N-95 don/doff</td>
<td>56</td>
<td>115</td>
</tr>
<tr>
<td>(33%)</td>
<td>(67%)</td>
<td></td>
</tr>
<tr>
<td>Practice PPE don/doff</td>
<td>62</td>
<td>108</td>
</tr>
<tr>
<td>(37%)</td>
<td>(63%)</td>
<td></td>
</tr>
<tr>
<td>Discuss unexpected situations</td>
<td>150</td>
<td>18</td>
</tr>
<tr>
<td>(89%)</td>
<td>(11%)</td>
<td></td>
</tr>
</tbody>
</table>
## WEATHERIZATION SUMMARY

<table>
<thead>
<tr>
<th>Trainees’ Perceptions of Course Content</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The content of training today was very interesting.</td>
<td>0</td>
<td>2</td>
<td>56</td>
<td>111</td>
</tr>
<tr>
<td>Training will be very useful to me on my job.</td>
<td>0</td>
<td>2</td>
<td>55</td>
<td>111</td>
</tr>
<tr>
<td>It was very important for me to learn what was presented today.</td>
<td>0</td>
<td>0</td>
<td>55</td>
<td>114</td>
</tr>
<tr>
<td>Training made a lot of sense to me.</td>
<td>0</td>
<td>0</td>
<td>54</td>
<td>114</td>
</tr>
<tr>
<td>I will definitely apply what I learned today.</td>
<td>0</td>
<td>1</td>
<td>54</td>
<td>114</td>
</tr>
<tr>
<td>I learned a lot of good things today.</td>
<td>0</td>
<td>1</td>
<td>44</td>
<td>124</td>
</tr>
</tbody>
</table>
WEATHERIZATION SUMMARY

Trainee Open-Ended Comments (Verbatim)

I am more informed stakeholder with knowledge about work environment, will be safe/handle emergency situations.

Nothing needs to change, class was very informational and helpful

There was a lot we did not cover, but as to be expected in a 4 hour course. He was good about being clear that more training was required.

A lot of information to absorb in a few hours. Very informative and I am extremely interested in furthering this.
WEATHERIZATION SUMMARY

A Quote from a Letter from Ziah Paff:

“As a young person never working in manufacturing before the weatherization notebook is a great guide for me to have.”

Honda Plant

4/27/2012 GCOHC
WEATHERIZATION SUMMARY

A Quotes from a Letter from Shere Cunningham:

“I believe that if an individual would take up Weatherization class first, Pre-Apprenticeship school second, and Apprenticeship school third: they would be very successful in any career in the construction industry.”

“Weatherization and Life Skills for construction, I would call this part the job applicant you go through to get to the interview.”

An Heat & Frost Insulator Apprentice
WEATHERIZATION

• Awareness program
• Regulatory Agencies:
  – OSHA
  – EPA
  – State Laws
  – Local Laws
• Safety: Number ONE priority
ASBESTOS & VERMICULITE

• Found in numerous building materials (2,000)
• ID Asbestos (1980) thermal insulation (1977)
• Dangerous: airborne
  – Cancer
  – Mesothelioma
  – Asbestosis
• Latency period 20-30 years
ASBESTOS & VERMICULITE

• Found:
  – Insulation
  – Flooring
  – Fire proofing
  – Decorative plasters
  – Caulking
  – Roofing/siding products
  – Friction products (brakes, clutches,)
  – Fire resistant cloth
  – Mastics
  – And many more…
ASBESTOS & VERMICULITE

• Homes
ASBESTOS & VERMICULITE

• Asbestos is found throughout the house
  – Inside
  – Outside
ASBESTOS & VERMICULITE
ASBESTOS & VERMICULITE

• Vermiculite
  – Mines in Libby, Montana
  – 70% of all vermiculite sold in US

• Uses:
  – Insulation
  – Packaging
  – Fertilizer
  – Fire proofing
ASBESTOS & VERMICULITE

- Protection
  - DO NOT DISTURB
  - DO NOT DRY SWEEP
  - CONTACT A LICENSED CONTRACTOR
  - ASSUME IT IS ASBESTOS
  - DON’T SMOKE
  - NO PAPER MASK
Bloodborne Pathogens

• Maybe exposed to:
  – Hepatitis B
  – Hepatitis C
  – HIV

• By contacting:
  – Blood
  – Urine
  – Feces
  – Vomit

• Routes of entry:
  – Injection
  – Ingestion
Bloodborne Pathogens

• Care:
  – Sharp objects
  – Needles
  – Always inspect the work area for any sharp objects before you start working.
Bloodborne Pathogens

- Protection:
  - Take **UNIVERSAL PRECAUTIONS**
  - ALWAYS WEAR GLOVES
  - Use a broom or other cleaning device
  - Thoroughly wash your hands w/warm water and soap.
  - If you think you may have been exposed get medical attention.
CHEMICALS

• More than likely will use or come in contact while you are weatherizing.
• Attack specific organs
• Four ways chemicals enter the body are:
  – Inhalation
  – Ingestion
  – Skin absorption
  – Injection
• Some enter more than one way
CHEMICALS

• Chemical Effects
  – Local effects (point of contact)
    • Irritation to lungs, eyes, skin, throat, & nose
    • Burning sensation in the lungs
    • Chemical skin burn

Systemic effects
chemical gets into the blood and is carried through out the body to all the organs. Most serious of the effects.
CHEMICALS

• Precautions:
  – Check laps
  – Read the MSDS
  – Don’t move or disturb chemicals
  – Always wear proper PPE
  – Never touch your face, mouth, eyes, nose, or any other part until you wash your hands.
  – Chemical spills, notify supervisor, DO NOT CLEAN IT UP without the proper PPE.
COMPRESSED AIR

- Used for pneumatic nail guns, drill, or even to help in the clean up.
- Improper use could result in temporary hearing lose, foreign objects in the eye, or even impalement.
• Protection:
  – Never point a pneumatic tool at yourself or any one else.
  – Proper psi for the tool being used
  – Always wear safety glasses and hearing protection if needed.
  – Make sure all parts are in good working order.
  – Never use compressor to clean debris from yourself.

– Training
CONFINED SPACES

- Found around the work site may be:
  - Sewers
  - Septic tanks
  - Storages areas
  - Cellars/basement
  - HVAC systems
  - Crawl Spaces
  - Attics
CONFINED SPACES

- Extremely Dangerous
  - Lack of oxygen
  - Vapor
    - Chemicals
    - Sewerage
  - Toxic fumes
  - Flammable materials
  - Hydrogen sulfide gas
  - Engulfment
  - Explosions or Fires
CONFINED SPACES

• Properties:
  – Limited ways to get into and out of the space
  – Not intended for continuous human occupancy
  – Bodily entry is possible and work can be performed.
CONFINED SPACES

• Protection:
  – Prevent unauthorized entry
  – ID/evaluate hazards
  – Training
  – Attendant
  – Proper PPE
  – Rescue Plan
ELECTRICAL SAFETY

• ELECTROCUTION, ELECTRICAL BURNS, OR DEATH MAY OCCUR FROM THE IMPROPER USE OF ELECTRICAL EQUIPMENT.
ELECTRICAL SAFETY

- **Protection**
  - Assume outlets and any electric devise is **HOT!**
  - Use GFCI
  - Inspect cords & equipment before use
  - Don’t use electrical tools in water or when wet.
- **Training**
ELECTRICAL SAFETY
ERGONOMICS

• An applies science concerned with designing and arranging things people use in order to improve efficiently and safety.

    » Webster’s Dictionary
ERGONOMICS

• Repetitive motion
• Bad Posture
• Awkward Position
• Injuries
  – Strains
  – Sprains
  – Bruises
  – Carpal Tunnel
  – Bad Backs
ERGONOMICS

• Protection:
  – Use proper tools for the task being done
  – Get help
  – Take breaks
  – Proper work station
  – Don’t overlift
FIRE PREVENTION

- Three Elements of a fire:
  - Fuel
    - Cleaners
    - Gas
    - Solvents
  - Oxygen
  - Heat
    - Flame
    - Spark
FIRE PREVENTION

• Protection
  – Always pay attention
  – Fire extinguishers

• Training
  – PASS
  – Conduct routine fire drills
  – Handle & store combustibles properly
  – Observe NO-Smoking rules
FIRE PREVENTION

- FIRE EXTINGUISHERS
  - PASS
    - PULL
    - AIM
    - SQUEEZE
    - SWEEP
- TYPES OF EXTINGUISHERS

Types:
- A: Common materials such as paper, wood or most other combustibles
- B: Flammable liquids such as gasoline, paint remover or grease
- C: Electrical fires
- D: Combustible metals usually found in industry
Formaldehyde

- Found in glues
  - Particle board
  - Plywood
  - Fiberboard
- Symptoms:
  - Tearing of eyes
  - Difficulty breathing
  - Burning of nose and throat
  - Coughing
- Protection
  - Use exterior grade products
  - Air conditioning and humidifiers
    - Lower temperatures

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H1N1 FLU

• Contagious disease that is spread from person to person by coughing or sneezing near people, or touching an object.

• Symptoms:
  – Fever
  – Cough
  – Sore Throat
  – Runny or Stuffy Nose
  – Body Aches
  – Headache
  – Chills
  – Fatigue
  – Diarrhea
  – Vomiting
Hand & Power Tools

• Tools of all kind may be used during weatherization to perform many tasks.
• Improper use of tools may lead to electrocution, miss-fire, sudden start/stops of tools, amputations, cuts, and bruises.
• NEVER USE A TOOL FOR A JOB IT WASN’T INTENDED TO BE USED FOR!!
Hand & Power Tools

• Protection:
  – Electric Tools
    • Grounded or double insulated
    • Check quick release to assure automatic turn off
    • Check cords for wear or breaks
  – Pneumatic Tools
    • Hoses in good repair and can be secured
    • Proper PSI
    • Inspect tools for damages
  – Hand Tools
    • Inspect tools for damages or lose ports
    • Don’t use an under size tool for a job
    • Handle should extend past the palm of your hand

• Con
Hand & Power Tools

• Machine Guards & Attachments
  – Always use proper PPE (shields, safety glasses, gloves, etc.)
  – Never remove a guard for any reason

• Training
Heat stress is common on job sites.

• Heat Exhaustion:
  - Weakness, fatigue, dizziness, pale, cool, moist skin, heavy sweating, headache, nausea, and fainting
  - Treatment: should rest in a cool place, give water if conscious (non-alcoholic). If unconscious call 911, no liquids.

• Prevention:
  - Wear loose and breathable clothes, cotton
  - Take frequent breaks, short breaks in shade w/plenty of water.
  - Get acclimated to the heat
  - Do the most physical tasks in the coolest part of the day.
HEAT & COLD STRESS

Heat Stroke

- A medical emergency
- Very dry skin, hot skin with red appearance, confusion, unconsciousness, rapidly rising temperature
- Can be fatal
- Treatment is call 911, move person to a cool area, remove PPE, use wet towels or water and fan to cool.
HEAT & COLD STRESS

COLD

• Frostbite
  – Symptoms: numbness of hands, feet, fingers, & face
  – Treatment: gently warm the numb part, run warm or cool water over. Don’t expose to the cold.
  – **DO NOT RUB**

• Hypothermia
  – Symptoms: Lower body temp., shivering, or downiness. If body temp is reduced to 80° unconsciousness is often followed by death
  – Treatment: Warm body. **Call 911**
HOUSEKEEPING

- By keeping the work area clear & clean of debris the chances for accidents are greatly reduced.
- Injuries such as slips, trips, and falls are usually caused by having materials in the way.
HOUSEKEEPING

• Protection
  – Always inspect your work area (*walk your space*)
  – Remove debris or anything that is a possible tripping hazard
  – Tape down any cords that are stretched across walkways
  – Clean up after yourself as you work
  – Clean up spills immediately (if not a chemical)
  – Store materials, equipment, tools, and chemicals in a proper and safe manner.
ILLUMINATION

- Important to have proper lighting
- Inspect the lighting before use
  – Could cause fires, electrocutions, and shocks
- Lack of lighting could cause slips, trips and falls
ISOCYANATES

• Spray-on foam used for insulation in weatherization
• Irritate eyes, nose, and throat along with the respiratory system
• Exposure can sensitize workers
• Protection:
  – Goggles
  – Head/face covering
  – Tyvek® suit (covers entire body)
  – Read MSDS
LADDERS & SCAFFOLDING

• Common of weatherization projects
  – Installing insulation, removing leaves from gutters, painting, or just general work up high.

• Improper use can lead to falls
LADDERS & SCAFFOLDING

• Protection:
  – Inspect ladders/scaffolding
  – Use proper ladder for job
    • No boxes, barrels, or other unstable bases to add more height.
  – **DO NOT STAND ON TOP TWO STEPS**
  – No metal ladders near electric lines
  – Extend extension ladder 3 feet above the level to be reached
  – Tie off extension ladders to keep from slipping
  – Use a 3-point climb
  – Never lean outside the rails of a ladder
  – Never lean an A-frame ladder and make sure the spacer bar is locked
  – Make sure the rungs are clean
LADDERS & SCAFFOLDING
LEAD

• If you weatherize a home built before 1978, you may be exposed to lead-based paint.
  – Could be in the house dust or even outside soil
• Lead is toxic
  – Accumulates in the blood and body
  – Depend on the amount and duration of time
  – Believed to be (in part) the downfall of the Roman Empire
LEAD

• Symptoms:
  – Loss of appetite
  – Nausea
  – Vomiting
  – Stomach cramps
  – Constipation
  – Fatigue
  – Headache
  – Joint or muscle aches

• Long term
  – Nerve disorder
  – Memory & concentration problems
  – Hypertension
  – Reproductive problems
  – Damage to urinary system
LEAD

Protection:
• Inspect for lead based paint in a home before 1978 – window sills, walls, baseboards, and etc.
• Good housing keeping practices
• Minimize disturbing house dust
• Vacuum with HEPA filter only
• If scraping, wet before
• Always wash hands thoroughly with soap before eating, smoking or touching your face.
• Use proper PPE
• Training
LOCK-OUT TAG-OUT

• Safely de-energize power sources such as electrical, steam/water, mechanical equipment, and keep the systems from being energized before the work is done.

• NEVER ASSUME A MACHINE, PIPE, OR ELECTRICAL UNIT IS LOCKED OUT JUST BECAUSE IT SHOULD BE. WHEN IN DOUBT, LOCK IT OUT!
LOCK-OUT TAG-OUT

• Protection:
  – Training
  – Each person to work on a system is to place a lock/tag, after verification is done that it is shut off.
  – After finished work on system remove only your lock/tag
MOLD

• A surface growth of fungus on damp or decaying matter
• Mold can be found anywhere.
• Grows on paper, wood, insulation, drywall, under porches, behind furniture or carpet.
• Needs three things to survive:
  – Organic matter to grow on
  – Oxygen
  – Water
MOLD

- Health problems
  - Allergic reaction
    - Runny noses, itchy, watery eyes, an even asthma attacks
  - Headaches
  - Sinus congestion
  - Sore/irritated throat
  - A dry cough
MOLD

• Protection:
  – Don’t disturb
  – Use proper PPE
    • Respirator
    • Suit
    • Gloves
    • Eye protection
  – Hygiene
  – Training
MOTOR VEHICLES

- Cars, pick-ups, forklifts and even backhoes/small dozers may be used on a weatherization job.
- Only qualified and licensed operators may use the vehicles.
MOTOR VEHICLES

• Protection
  – Inspect vehicle before use
    • Use a check list
  – Use seat belts if supplied
  – Check work area before starting to operate vehicle
  – Use bright colored vest if working around equipment
  – Always lower forks/blade before shutting down motor
  – Step off equipment, don’t jump down
  – Training
MSDS

• Material Safety Data Sheet
• Always read before using chemicals, cleaning agents, or building supplies.
• There are different sections.
• Part of the Hazardous Communications – The Right to Know Law
MSDS-Section I
Product & Company ID

- PRODUCT NAME:
- SYNONYMS:
- PRODUCT CODES:
- MANUFACTURER:
- DIVISION:
- ADDRESS:
- EMERGENCY PHONE:
- CHEMTREC PHONE:
- OTHER CALLS:
- FAX PHONE:
- CHEMICAL NAME:
- CHEMICAL FAMILY:
- CHEMICAL FORMULA:
- PRODUCT USE:
- PREPARED BY:
- SECTION 1 NOTES:
### MSDS-Section II

#### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

#### INGREDIENT:

<table>
<thead>
<tr>
<th>CAS NO.</th>
<th>% WT</th>
<th>% VOL</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ppm</td>
</tr>
</tbody>
</table>

- OSHA PEL-TWA:
- OSHA PEL STEL:
- OSHA PEL CEILING:

- ACGIH TLV-TWA:
- ACGIH TLV STEL:
- ACGIH TLV CEILING:

#### SECTION 2 NOTES:
MSDS-Section III
Physical & Chemical Properties

- APPEARANCE:
- ODOR:
- PHYSICAL STATE:
- pH AS SUPPLIED:
  pH (Other):
- BOILING POINT:
  (165°) °F
- MELTING POINT:
- FREEZING POINT:
- VAPOR PRESSURE (mmHg):
  @
- VAPOR DENSITY (AIR = 1):
  @
- SPECIFIC GRAVITY (H2O = 1):
  @
- EVAPORATION RATE:
- BASIS (=1):
- SOLUBILITY IN WATER:
- PERCENT SOLIDS BY WEIGHT:
- PERCENT VOLATILE:
  BY WT/
  BY VOL @
  VOLATILE ORGANIC
  COMPOUNDS (VOC):
  WITH
  WATER:    LBS/GAL
  WITHOUT
  WATER:    LBS/GAL
- MOLECULAR WEIGHT:
- VISCOSITY:
  @

SECTION 9 NOTES:
MSDS-Section IV
Fire-Fighting Measures

- FLAMMABLE LIMITS IN AIR, UPPER: (% BY VOLUME)
  LOWER:
- FLASH POINT:
  °F:
  °C:
  METHOD USED:
- AUTOIGNITION TEMPERATURE:
  °F:
  °C:
- NFPA HAZARD CLASSIFICATION
  HEALTH:  FLAMMABILITY:  REACTIVITY:
  OTHER:
- HMIS HAZARD CLASSIFICATION
  HEALTH:  FLAMMABILITY:  REACTIVITY:
  PROTECTION:
- EXTINGUISHING MEDIA:
- SPECIAL FIRE FIGHTING PROCEDURES:
- UNUSUAL FIRE AND EXPLOSION HAZARDS:
- HAZARDOUS DECOMPOSITION PRODUCTS:
- SECTION 5 NOTES:
MSDS-Section V
Hazard Identification

• EMERGENCY OVERVIEW:
• ROUTES OF ENTRY:
• POTENTIAL HEALTH EFFECTS
  • EYES:
  • SKIN:
  • INGESTION:
  • INHALATION:
• ACUTE HEALTH HAZARDS:
• CHRONIC HEALTH HAZARDS:
• MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
• CARCINOGENICITY
• OSHA:  ACGIH:  NTP:  IARC:
• OTHER:
• SECTION 3 NOTES:
• CON
MSDS-Section V
Hazard ID (con)

• FIRST AID MEASURES
• EYES:
• SKIN:
• INGESTION:
• INHALATION:
• NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:
MSDS-Section VI
Reactivity Data

• STABLE       UNSTABLE

• STABILITY:

• CONDITIONS TO AVOID (STABILITY):

• INCOMPATIBILITY (MATERIAL TO AVOID):

• HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

• HAZARDOUS POLYMERIZATION:

• CONDITIONS TO AVOID (POLYMERIZATION):

• SECTION 10 NOTES:
MSDS-Section VII
Safe Handling & Use

• HANDLING AND STORAGE:
• STEPS TAKEN IN CASE OF SPILL OR MATERIAL RELEASE:
• WASTE DISPOSAL METHODS:
• OTHER PRECAUTIONS:
• SECTION 7 NOTES:
MSDS-Section VIII
Control Measures

• ENGINEERING CONTROLS:
• VENTILATION:
• RESPIRATORY PROTECTION:
• EYE PROTECTION:
• SKIN PROTECTION:
• OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
• WORK HYGIENIC PRACTICES:
• EXPOSURE GUIDELINES:
• SECTION 8 NOTES:
MSDS-Section IX
Special Precautions

• SHELF LIFE WARNINGS
• OTHER SAFE HANDLING PRECAUTIONS
• TRANSPORTING MATERIALS
• OTHER PRECAUTIONS
• SECTION 9 NOTES
PCB’s

- Are a mixture of chlorinated compounds.
- A carcinogen
- Found in homes before 1978, in electrical transformers and capacitors, also could be found in caulking & sealing materials.
- May be exposed when inhaling or ingesting dust contaminated with PCB’s

Protection:
- Determine if the building was built before 1978
- Don’t generate any dust while removing caulking or sealants.
- Before removing caulking wet it
- Wear safety glasses and gloves
- Wash hands before eating, smoking, drinking, or touching your face.
WORK SITE PEST

• Any weatherization job you may encounter biting/sting insects, snakes, rodents, and other nuisance animals.

• Some individuals are allergic. May need immediate medical attention.
WORK SITE PESTS

• Protection:
  – Always be aware of your work area, don’t just reach in, LOOK!
  – All pets are secured
  – Wear long pants, socks, heavy boot, leather gloves, and long sleeve work shirt
  – Some are allergic to stings, check to see if they have an EpiPen
  – Snake bites keep person calm and the bite below heart.
PORTABLE GENERATORS

- Workers can be shocked or electrocuted
- Emits carbon monoxide
- Could start a fire
- Cause noise and vibration.
PORTABLE GENERATORS

• Protection:
  – Never set up generator in a wet area
  – Inspect all cords and plugs
  – Do not overload
  – Always use GFCI’s
  – Make sure it is properly grounded
  – Never use inside
  – Do not place it near windows, doors or opening into the building
  – Let the generator cool before refueling
  – Only store fuel in proper containers
  – Do not smoke while refueling
  – Wear hearing protection when noise is over 85 decimals
  – Training
• Radon occurs from natural decay of uranium in the soil and water.
• Exposure to radon could cause lung cancer.
• EPA states radon is the #1 cause of lung cancer in non smokers, with smoking raising your risk.
• Enters through openings in foundations or walls.

**Protection:**
- Testing can be done with a radon kit.
- Make sure all areas of the work site is well ventilated.
- Caulking all opening, cracks in the foundation of the building.
SANITATION

• Clean drinking water and toilet facilities will reduce the incidence of illnesses from bacteria such as E. coli, salmonella, and listeria.

• Protection:
  – Adequate supply of drinking (potable) water. Especially in warm weather.
  – Container keep clean and the lid sealed.
  – Toilets 1 facility for every 20 workers.
  – Hand washing facilities should also be available. (hand sanitizer at the least)
CRYSTALLINE SILICA

- Found in gypsum board and in larger amounts of spackle.
- Natural part of soil & quartz
- Exposed while sanding, cutting, buffing or breaking gypsum board.
- ID as a human lung carcinogen smoking adds to the damages
CRYSTALLINE SILICA

• Symptoms: after 15-20 years
  – Shortness of breath
  – Fatigue
  – Chest pain
  – Respiratory failure
  – Severe shortness of breath
  – Weakness
  – Weight loss

• High concentrations:
  – Sever disabling shortness of breath
  – Weakness
  – Weight loss
  – Death
CRYSTALLINE SILICA

- Protection:
  - Reading the MSDS on the material
  - Provide engineer controls (using exhaust ventilation)
  - Wet down the gypsum/spackle before working on it
  - Wear proper respirator
  - Wear disposable clothing
  - Training & health screening (only x-rays can tell if lung damage)
  - Wash hands before eating, drinking, smoking, touching face.
STRUCK BY HAZARDS

- Could be encounter on site by vehicles, materials being carried by others, window sashes with broken cords.
- Injuries may include:
  - Bruises, broken bones, cuts, concussions, amputations, and death
- Protection:
  - In view of operators
  - Vehicles have horns/back up alarms
  - Lower blades/forks
  - Wear hard hat
  - Follow good housekeeping
  - Wear safety glasses
  - Walk your space
  - Stay alert
WALKING & WORKING SURFACES

- Different types of surfaces in buildings
  - Wet floors
  - Grease/paint spills
  - Loss flooring/carpet
  - Electric cords across walkways
  - Sleet or ice

- Protection:
  - Wear slip resistant treads
  - Clean up spills immediately
  - Keep walkways clear of debris & equipment
  - Tape down cords
  - Salt or sand walkways in winter
HEALTH & SAFETY PLAN

• Safety plan includes five parts:
  – Grantee health and safety
    • Group that gets DOE funds
  – Crew & Contractor health and safety
    • Must comply with OSHA
  – Client health and safety
    • The work will not harm the residents
  – Potential Hazards Considerations
    • Attention is required for numerous possible hazards
  – Deferral Standards
    • Decisions to delay work will be decided by the Agency
RESPIRATORY PROTECTION

• Before using any tight fitting respirator
  – Training
  – Pulmonary test
  – Medical exam (heart & lung)
  – Medical history

• Two basic types:
  – Air-purifying respirator (APR)
  – Atmosphere-supplying respirator (ASR)
RESPIRATORY PROTECTION

- APR
- ASR
RESPIRATORY PROTECTION

• APR:
  – Single use
  – Half-mask
  – Full-face
• Used against dusts, mold spores, and toxic chemicals (vapors & gases require chemical specific cartridges.
• All respirators should be marked “NIOSH Approved” and cartridges
• Not for use in IDLH situations like lack of oxygen or more than 2 hazards i.e. chemicals, dusts, and mercury
RESPIRATORY PROTECTION

• Before wearing a respirator you need to be trained in:
  – Inspecting
  – Donning
  – Performing a positive seal check
  – Negative seal check
  – How to repair
  – How to wash and store the respirators.
RESPIRATORY PROTECTION

• Respirator Fit:
  – Qualitative fit test
    • Checks effectiveness of respirator
    • Method—subject to variety of different test such as smelly (banana oil), taste (saccharin), or an irritant (special smoke test w/tube)
  – Quantitative fit test
    • While wearing respirator modified with a probe it measures the concentration or air outside the mask compared to those inside mask. Uses a computer.
RESPIRATORY PROTECTION

• Medical fitness to wear a respirator
  – Exams once a year
  – Check lungs for disease or capacity
  – Claustrophobia
  – Severe high blood pressure
  – Heart disease

• Other circumstances
  – Contact lenses
  – Eyeglasses
  – Facial hair
CHEMICAL PROTECTIVE CLOTHING

• Workers must be trained in use, limitations, and care.
• Different types of CPC are:
  – Gloves
  – Eye protection
  – Disposable clothing
CHEMICAL PROTECTIVE CLOTHING

• Gloves
  – Not one glove can protect you from all hazards
  – Glove type needs to be selected based on the type of work to be performed
  – Leather for possible jobs that may cause cuts and scarps
  – Latex (rubber) if working with mild detergents or mold
  – Neoprene/nitrile when working with strong cleaning solutions
CHEMICAL PROTECTIVE CLOTHING

- Eye protection
- Safety glasses have to be Z-87 ANSI
- Like gloves not all glass are created equal
  - May need goggles when using liquid chemicals and fine dust particles
  - Face shield if using high speed grinders, circular saws, or with goggles for more protection
- Which sense would you least like to lose??
CHEMICAL PROTECTIVE CLOTHING

• Disposable clothing
  – Used to prevent skin and clothing contact with contaminated surfaces
  – As for gloves and eye protection there are different types of protective clothing
  – Most importantly it will keep from taking contaminates home to your family
CHEMICAL PROTECTIVE CLOTHING

- Training
- Proper donning and doffing procedures should be covered, this will help in the prevention of spreading contaminates to clean areas and yourself.
- Remember that equipment and clothing may be contaminated even if they do no appear discolored
- Dispose of clothing properly
- Wash hands with soap & water when finished
WEATHERIZATION

• The job can be done efficiently and on time, along with being done safely!!

ALWAYS WALK YOUR SPACE!