Personal Protective Equipment (PPE)

Disaster Preparation For Organizations
Example Of PPE

Examples of PPE

- Safety glasses
- Safety Goggles
- Face Shield
- Level C PPE with tyvek splash suit and APR respirators
- N-95 respirator
- ½ face APR
- Full face APR
- PAPR
- Example of Leather gloves Courtesy Kirkwood
- Example of Nitrile gloves Courtesy Kirkwood
Personal Protective Equipment (PPE)

Disaster Debris Clean-up (Mucking and Gutting)
1. Safety toe/sole boots.
2. Water and chemical resistant overboots.
3. Tyvec suit.
4. Latex under-gloves.
5. Heavy duty outer gloves. (right hand taped for overhead work)
6. N-95 APR.
7. Safety goggles.

Cold Weather Clothing
1. Insulated, safety toe, slip resistant boots.
2. Class II high-visibility garment.
3. Insulated, chemical resistant gloves.
4. Thermal hat.

Typical Sanitation Clothing
1. Safety toe, slip resistant boots.
2. Class II high-visibility garment.
3. Leather work gloves.
Personal Protective Equipment (PPE)

- Goggles or eye protection
- Hearing protection
- N-95 respirator or one that provides even more protection (check packaging for "N-95")
- Long-sleeved shirt
- Hard hat
- Heavy work gloves
- Long pants
- Boots with steel toe and insole

CAUTION!

- Protect wounds and cuts with waterproof bandage.
- Avoid heat stress by taking frequent breaks and drinking safe water.
- Cleaning up sewage? Wear rubber boots, rubber gloves, and goggles.
- Be aware of your surroundings—avoid electrical lines, insects, wild or stray animals, and long periods under the sun.
- Wash your hands with soap and water before eating. If water is not available, use hand sanitizer (containing at least 60% alcohol).
Protective Clothing

Body Protection

Protective clothing must be worn when there is a risk of splashing chemicals, temperature extremes or contamination.

Protective Clothing

Clothing must protect workers from the hazards they are exposed to. Clean-up work exposes workers to the weather, traffic, liquid and solid waste. In addition to appropriate protective clothing, workers should wear highly visible colors to help drivers locate them. If workers are required to work during non-daylight hours, they should be issued and be required to wear appropriate high-visibility clothing.

Protective clothing must be appropriate for the work and the current environmental conditions. When selecting body protection it is important to ensure that the garment will protect workers from hazards such as:

1. the weather, both temperature extremes and precipitation.
2. splashing chemicals or liquids.
3. dust, fibers, particulates and other solids.
4. abrasions, cuts and punctures.
5. struck by other vehicles, visibility.

There is no “perfect” garment. Protective equipment can:

- fail and is the least desirable way to protect workers.
- restrict movement making work difficult.
- increase the risk of heat stress and fatigue (pg. 29).
- can get caught, snagged or tangled on objects and equipment.
- be damaged during use.
- require washing and changing facilities.
- wear-out and need to be replaced.

Do not wash contaminated protective clothing with family laundry.

Tree and Branch Work
Head Protection

Head protection must be worn when there is a potential for being struck by falling objects or contact with live electrical lines.

Appropriate head protection and training (how to properly wear, adjust, maintain and store) must be provided by the employer. Hard hats will not protect workers from large falling objects like tree limbs and overhead loads.

- Must meet ANSI Z89.1 (look for the label on the inside).
- Special types (A, B, E or G) for electrical hazards.
- High visibility hard hats will be stamped “HV”.
- Hard hats should only be worn backwards if they have reverse arrow marks on the label.
- Equipment must be replaced when the shell or the suspension system becomes worn or damaged.
- Workers should never go under a raised load or loaded bucket.
Hard Hats

- **Class E** (electrical, non-conductive)—intended to reduce the danger of contact with higher voltage conductors, with hard hat test samples proof-tested at 20,000 volts (phase to ground).

- **Class G** (general, non-conductive)—intended to reduce the danger of contact with low voltage conductors. Test samples are proof-tested at 2,200 volts (phase to ground).

- **Class C** (conductive, no electrical rating)—not intended to protect against electrical hazards and, therefore, are not tested for it.

- A Type I hard hat is certified to reduce the impact of blows to the crown or top of the head.

- A Type II hard hat cushions the impact from top-of-the-head blows but also protects the worker from lateral impact.
Hearing Protection

Noise Exposure; some of the tasks you may conduct will create un-healthy levels of noise

- Wear appropriate hearing protection in noisy work environments
- Examples: working around chainsaws, heavy equipment, and blowers
- A worksite is considered noisy if you have to shout to be heard within three feet
- The OSHA PEL for noise is 90dB
Eye Protection

Eye and Face Protection

Employers are required to perform a risk assessment to determine appropriate protection. Where flying debris is possible, eye protection must provide side protection (wrap around lenses or side shields). If corrective lenses are worn, the employer must provide prescription safety glasses or those that fit over eye glasses. Special eye and face protection must be provided for welding, blasting, spraying, and handling certain chemicals.

- Eye protection must meet ANSI Z87.1 (look for the Z87 stamp on the temple bar).
- Goggles must be used when handling bulk chemicals.
- Face shields protect from splashes, sprays and small particles from grinding or cutting.
- Safety glasses must be worn under face shields.
- Special helmets must be worn for welding and blasting.
- Replace damaged eye protection immediately.
- Debris removal can expose workers to excessive dust and mold which require eye protection.

Safety Glasses

Safety Goggles

Face Shield
Respirators & OSHA Standards

Special rules for respirators

- Make sure you are medically cleared to wear your chosen respirator
- Make sure you received the required training
- Make sure you are fit tested for your respirator
- Inspect your respirator each time you put it on and take it off
- Perform a user seal check each time you put it on
- Clean your elastomeric respirator at least once a day in accordance with the manufacturer’s recommendations
- Store elastomeric respirators in a clean bag
- If your respirator becomes damaged or fails to function, stop work and retrieve a new one

OSHA respiratory protection standard, 29 CFR 1910.134
Respiratory Protection

Guidance
- There are 2 main classes of respirators: 1) air purifying respirators (APR) which filter out contaminants and 2) air supplied respirators that provide breathing air to workers.
- If respiratory protection must be worn, it must be NIOSH approved (look for the NIOSH mark on the respirator).
- APR may be disposable, half or full face devices and must be equipped with the correct cartridge that matches the specific hazard.
- Cartridges must be regularly replaced based on a change-out schedule.
- Not all workers are medically qualified to wear respiratory protection.
- Disposable N-95 APR respirators are generally used for clean-up work.
- Always perform a fit-check on APR before entering the hazardous area.

Employers are responsible for maintaining a respiratory protection program and are responsible for:
- conducting a hazard assessment to ensure proper protection.
- providing a medical assessment and fit-test.
- training workers on the limitations, use, maintenance and proper storage of respirators.
Hand Protection

Gloves must be provided when workers are exposed to hazards that can injure the hands such as chemicals, infectious waste and sharps.

Appropriate hand protection must be provided by the employer with training on how to properly wear, store and maintain gloves. No single pair of gloves provides protection for all potential hazards, however multi-use gloves are available for many applications. Multiple gloves may be worn at the same time to enhance protection, for example a latex glove under a leather work glove.

**Hand protection must be appropriate for the job.** For instance, leather gloves are good for preventing cuts, scrapes and small slivers but not appropriate for use with liquid chemicals and heat.

- Consult the SDS (pg. 4) or product label (pg. 6) for required gloves.
- Consider how much of the forearm can be exposed; longer gloves and arm protection should be made available if needed.
- Damaged gloves should be replaced immediately.
- For detailed glove selection see University of Berkley’s Glove Selection Guide at: http://www.ehs.berkeley.edu/workplace-safety/glove-selection-guide.

If riding on an approved vehicle, make sure the glove does not prevent the worker from hanging on to the handle.
Foot Protection

Employers may provide safety footwear and if so, they must train employees on how to wear, adjust, maintain and store safety shoes. Slip resistant foot protection can help prevent slips and falls. Proper footwear can also provide adequate support and help prevent sprained ankles on uneven surfaces.

- Foot protection must meet ANSI Z41.1 or ASTM F-2412 (look for this on the tag inside).
- Leather steel or composite safety toe boots are appropriate for most clean-up operations.
- Liquid or chemical overboots may be needed if exposed to certain materials. Consult the SDS (pg. 4).
- Use composite over steel toes in extreme cold.
- Use ANSI approved toe-caps as a last resort.
- Mucking and gutting of structures may require a safety sole boot if there is a puncture risk of stepping on protruding nails or other objects.

Feet must be protected when they may be struck by falling or rolling objects, punctures, chemicals or electrical lines.
Prevent Contamination

When working around grey or black water, avoid direct contact with skin, eyes, etc. Use PPE to reduce likelihood of contact.
Prevent Contamination

Decontamination (Decon)

Depending on your job task, you may come in contact with hazardous materials that will require you to be decontaminated

- Decon is the process of removing, destroying, or reducing the activity of materials, such as ash, asbestos, or toxic chemicals that could endanger an individual or the environment
- Prevents spreading contamination to other locations (like your vehicle or home)

Prevent the spread of contamination to your family and home

- Bringing home contaminated work clothes or equipment may contaminate your home and place your family at risk
- Bring a clean change of clothes to the worksite
- Wash work clothes separately
  Preferably in an employer provided location
Decontamination

After being in contact with hazardous materials, you should:

• Wash your hands thoroughly with soap and warm water
• Bathe
• Change outer clothing (or clothing that has been in contact with the materials)
• Keep and wash contaminated clothes separately