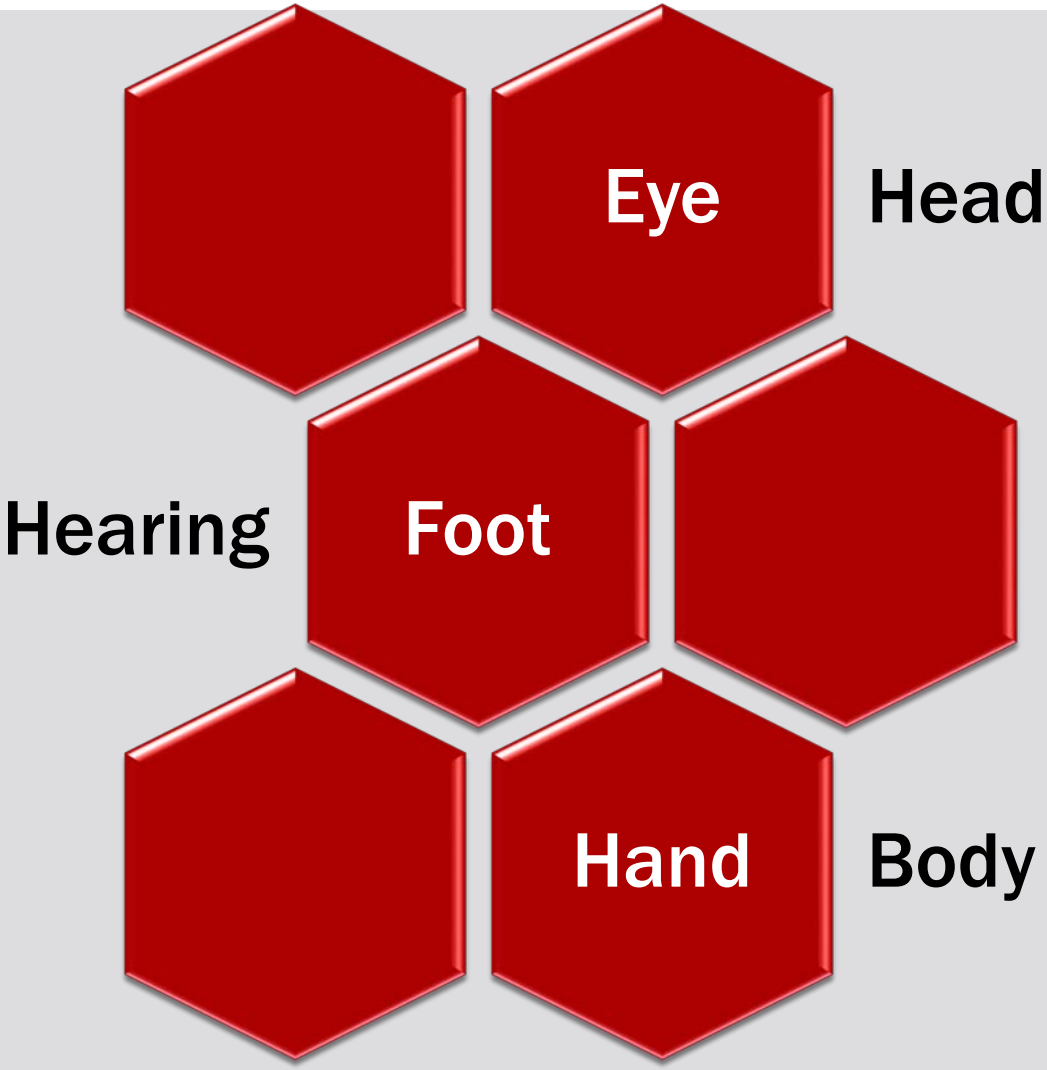
PERSONAL PROTECTIVE EQUIPMENT

Minnesota
DEPARTMENT OF NATURAL RESOURCES

TYPES OF PERSONAL PROTECTIVE EQUIPMENT



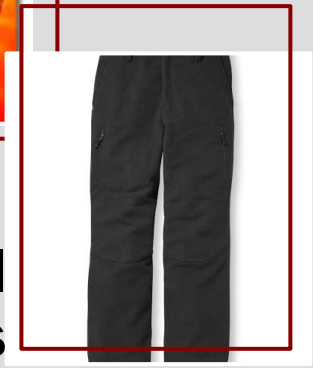
OTHER CONSIDERATIONS FOR PROTECTION: DRESS FOR THE WEATHER

Windbreakers and rain gear

Warm socks

Hats

Warmth aids

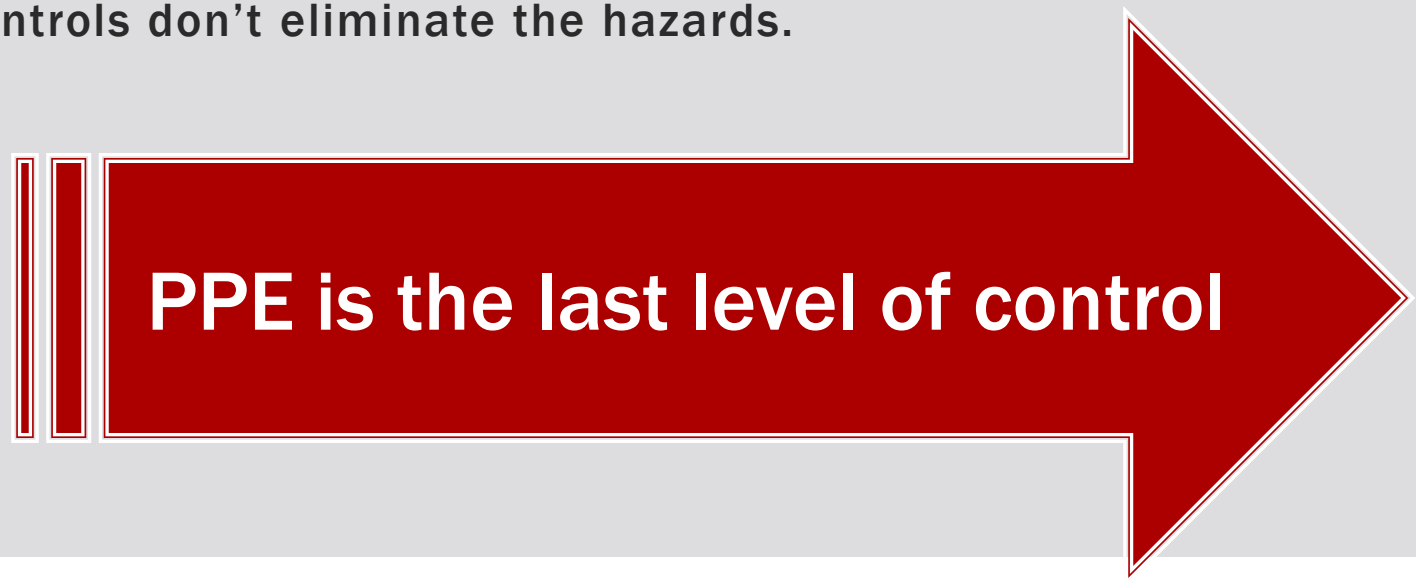


Wool pants

Long underwear and layers

OSHA REQUIREMENTS

- The DNR must protect employees from workplace hazards such as machines, hazardous substances and dangerous work procedures that can cause injury.
- OSHA requires the DNR to:
  - Use all feasible engineering and work practice controls to eliminate and reduce hazards
  - Use appropriate personal protective equipment (PPE) if these controls don't eliminate the hazards.



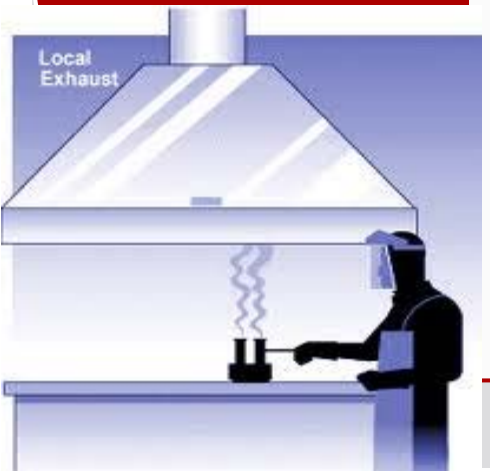
OSHA REQUIREMENTS

- When PPE is required to protect employees, it is provided by the DNR at no cost to the employee, except for specific items, such as:
  - Fire boots
  - Everyday clothing and weather-related gear
  - Logging boots

OSHA REQUIREMENTS

Examples of Engineering Controls

- Initial design specifications
- Substitute a less harmful material
- Change the process
- Enclose the process
- Isolate the process
- Provide ventilation



OSHA REQUIREMENTS

IF

- The machine or work environment can be **physically changed** to prevent employee exposure to the hazard

THEN

- The hazard can be eliminated with an **engineering control**

OSHA REQUIREMENTS

IF

- Employees can be removed from exposure to the hazard by **changing the way they do their jobs…**

THEN

- The hazard can be eliminated with a **work practice control.**

OSHA REQUIREMENTS

Examples of Work Practice Controls

Use wet methods to suppress dust	Personal hygiene	Housekeeping and maintenance	Rotate workers

EXAMPLES OF PPE

EYE

- Safety glasses
- Goggles

FACE

- Face shield

HEAD

- Hard hat

EXAMPLES OF PPE

FEET

- Safety shoes

HANDS/ARMS

- Gloves

BODIES

- Reflective vest
- Tyvek suit

EXAMPLES OF PPE

HEARING

- Earplugs
- Earmuffs

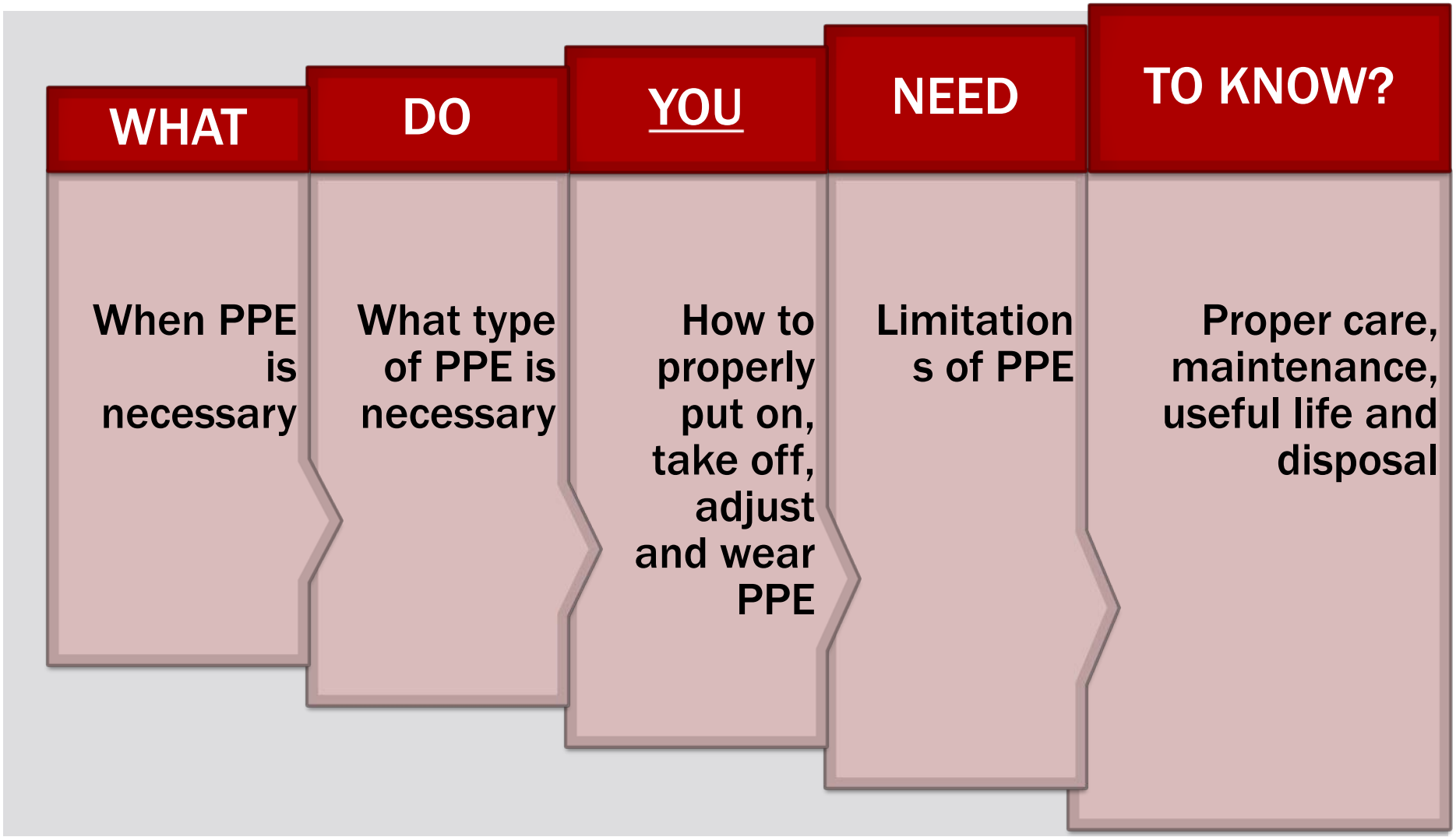
BREATHING

- Respirators

ELECTRICAL PROTECTIVE EQUIPMENT

- Gloves, blankets, sleeves

TRAINING REQUIREMENTS



EYE PROTECTION

is provided for DNR employees who are exposed to potential eye injuries from:

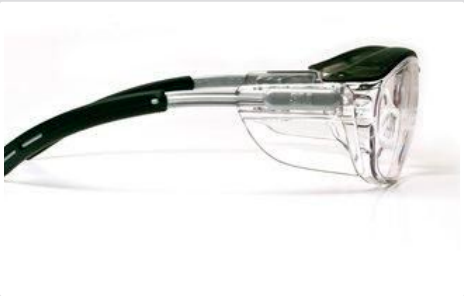
flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or injurious light radiation.

WHAT ARE SOME CAUSES OF EYE INJURIES?

PARTICLES	Dust	Metal shavings
CHEMICALS	Spray operations	Splashes
LIGHT	Welding	Lasers
BLOOD	Splash, splatter	Administering first aid

SAFETY GLASSES

Made with metal or plastic safety frames



Sideshields are required

Used for moderate impact from particles

SAFETY GOGGLES

Protect eyes and eye sockets from impact, dust and splashes

Some fit over corrective lenses

WELDING SHIELDS

Protect eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting

Without protection, eyes can be burned by infrared or intense radiant light

FACE SHIELDS

Protect the face from nuisance dusts, larger particles, and potential splashes or sprays of hazardous liquids

Do NOT protect employees from impact hazards

Safety glasses or goggles must be worn underneath

HEAD PROTECTION

OSHA says, “The employer shall ensure that each affected employee wears a protective helmet when working in areas where there is potential for injury to the head from falling objects.”

WHAT ARE SOME CAUSES OF HEAD INJURIES?

- Tools
- Equipment and loads
- Tree branches

FALLING OBJECTS

- Working in confined spaces
- Pipes
- Beams

BUMPING AGAINST FIXED OBJECTS

- Electric shock and burns can occur with contact

CONTACT WITH EXPOSED ELECTRICAL CONDUCTORS

CLASSES OF HARD HATS

Class G

General service hardhat

Good impact protection but limited voltage protection (tested to 2200 volts)

CLASSES OF HARD HATS

Class E

- Use for electrical work
- Protect against falling objects, high-voltage shock and burns
- Tested at 20,200 volts

CLASSES OF HARD HATS

Class C

Electrically conductive

Designed for comfort but offer limited protection

Protects heads that may bump against fixed objects, but don't protect against falling objects or electric shock

SNOWMOBILE HELMETS

DOT-approved helmet and face mask

- Collisions / Falls
- Tree branches
- Cold
- Loud noise

ATV/OHV HELMETS

DOT-approved helmet and goggles

- Collisions / Falls
- Tree branches
- Wind / Cold
- Loud noise
- Flying objects

HEARING PROTECTION

Protect your hearing on and off-the-job now, so you won't have to deal with the negative effects of hearing loss later in life.

Several different types of hearing protection are available for your use. Your supervisor will help you select the right type.

HEARING PROTECTION

Determining employee exposure to excessive noise

How loud is the noise measured in decibels (dBA)?	What is the duration of exposure?	Do employees move between work areas with different noise levels?	Is noise generated from one or multiple sources?

ENGINEERING CONTROLS FOR EXCESSIVE NOISE

- Choose low-noise tools and machinery
- Maintain and lubricate machinery and equipment
- Place a barrier between noise source and employee
- Enclose or isolate the noise source

EXAMPLES OF HEARING PROTECTORS

Earmuffs

Earplugs

Canal Caps

FOOT PROTECTION

OSHA requires the DNR to ensure that employees wear protective footwear in areas where there is danger of foot injuries due to falling or rolling objects, objects piercing the sole, and where the employee's feet are exposed to electrical hazards.

WHAT ARE SOME CAUSES OF FOOT INJURIES?

- Heavy objects
- Sharp objects
- Hot or wet surfaces
- Slippery surfaces
- Molten metal

SAFETY SHOES

- Have impact-resistant toes made of steel or composite material
- Heat resistant soles
- Some have metal insoles to protect against puncture wounds
- Some are non-conductive to protect from workplace electrical hazards

METATARSAL GUARDS

Metatarsal guards are either part of the safety shoes or are strapped to the outside of shoes to protect the top of the foot from impact and compression

HAND PROTECTION

OSHA says, “Employers shall select and require employees to use appropriate hand protection when employees are exposed to hazards such as: skin absorption of harmful substances, severe cuts or lacerations, severe chemical burns, thermal burns, and harmful temperature extremes.”

WHAT ARE SOME OF THE HAND INJURIES YOU NEED TO GUARD AGAINST?

- BURNS
- CUTS
- AMPUTATION
- BRUISES
- PUNCTURES
- CHEMICAL EXPOSURES
- ABRASIONS
- FRACTURES

SELECTING THE RIGHT GLOVE

What's Your Exposure?

Type of chemical	Area requiring protection (hand only, forearm, arm)	Thermal protection
Nature of contact		Size and comfort
Duration of contact	Grip requirements	Abrasion / resistance requirements

SELECTING THE RIGHT GLOVE

What type of glove do you need?

Gloves made of leather, canvas or metal mesh	Fabric and fabric-coated gloves	Chemical and liquid-resistant gloves	Insulating rubber gloves for electrical work

LEATHER, CANVAS OR METAL MESH GLOVES

LEATHER	• Protect against sparks, moderate heat, blows, chips and rough objects
ALUMINIZED	• Provide reflective and insulating protection against heat
ARAMID FIBER	• Protect against heat and cold, cut and abrasive resistant
SYNTHETIC	• Protect against heat and cold, cut and abrasive resistant, but do not stand up against alkalis and solvents

FABRIC AND COATED FABRIC GLOVES

FABRIC

- Protect against dirt, slivers, chafing and abrasion
- Not for use with rough, sharp or heavy materials

COATED FABRIC

- General purpose and slip-resistant

CHEMICAL AND LIQUID-RESISTANT GLOVES

BUTYL

- Protect against peroxide, highly corrosive acids, strong bases, alcohols, ketones and esters
- Resist oxidation and abrasion and remain flexible at low temperatures

NATURAL RUBBER

- May cause allergic reaction – use a hypoallergenic alternative
- Comfortable and general purpose
- Resist abrasion
- Protect against water solutions of acids, alkalis, salts and ketones.

CHEMICAL AND LIQUID-RESISTANT GLOVES

NEOPRENE

- Offer good pliability, finger dexterity, high density and tear resistance
- Similar chemical and wear resistance to natural rubber
- Protect against hydraulic fluids, gasoline, alcohols, organic acids and alkalis

NITRILE

- Protect against chlorinated solvents
- Good for jobs requiring dexterity and sensitivity
- Protect against oils, greases, acids, caustics and alcohols
- Not recommended for strong oxidizers, aromatic solvents, ketones and acetates

CARING FOR YOUR GLOVES

- Inspect before each use for punctures and tears
- Check for tiny holes by filling glove with water and tightly rolling the cuff towards the fingers
- Discard and replace discolored or stiff gloves

BODY PROTECTION

OSHA requires the DNR to provide body protection to staff who face bodily injury of any kind that can't be eliminated through engineering, work practice or administrative controls.

WHAT ARE SOME CAUSES OF BODILY INJURY?

Impacts from tools, machinery and materials

Intense Heat Splashes of hot metals and liquids	Cuts Hazardous Chemicals	Contact with potentially infectious materials like blood Radiation

TYPES OF BODY PROTECTION

Chainsaw Chaps and Pants

Protect against lacerations in case of accidental contact with saw chain

Cut-retardant material

Keep clean and replace if damaged

TYPES OF BODY PROTECTION

Personal Flotation Devices

Required to be worn if working on or near water

Check for rips, tears and holes

Care for it as the USCG recommends

TYPES OF BODY PROTECTION

Hi-Visibility Reflective Vest

Required if you are working in or near the traffic right-of way

Survey work, on roadside, or directing traffic

Orange is a good choice so you are visible during hunting seasons

TYPES OF BODY PROTECTION

Rubber Apron

Consult the Safety Data Sheet – is one required when working with a chemical?

Same protective properties as natural rubber gloves or boots

TYPES OF BODY PROTECTION

Laboratory Coat

Protect skin and clothing against incidental chemical exposure in case of small spills

Always wear a rubber apron when required while using hazardous chemicals

TYPES OF BODY PROTECTION

Tyvek Coverall Suit

Required for spray application of some pesticides

Suit provides a semi-breathable protective barrier against chemical splash and spray

TYPES OF BODY PROTECTION

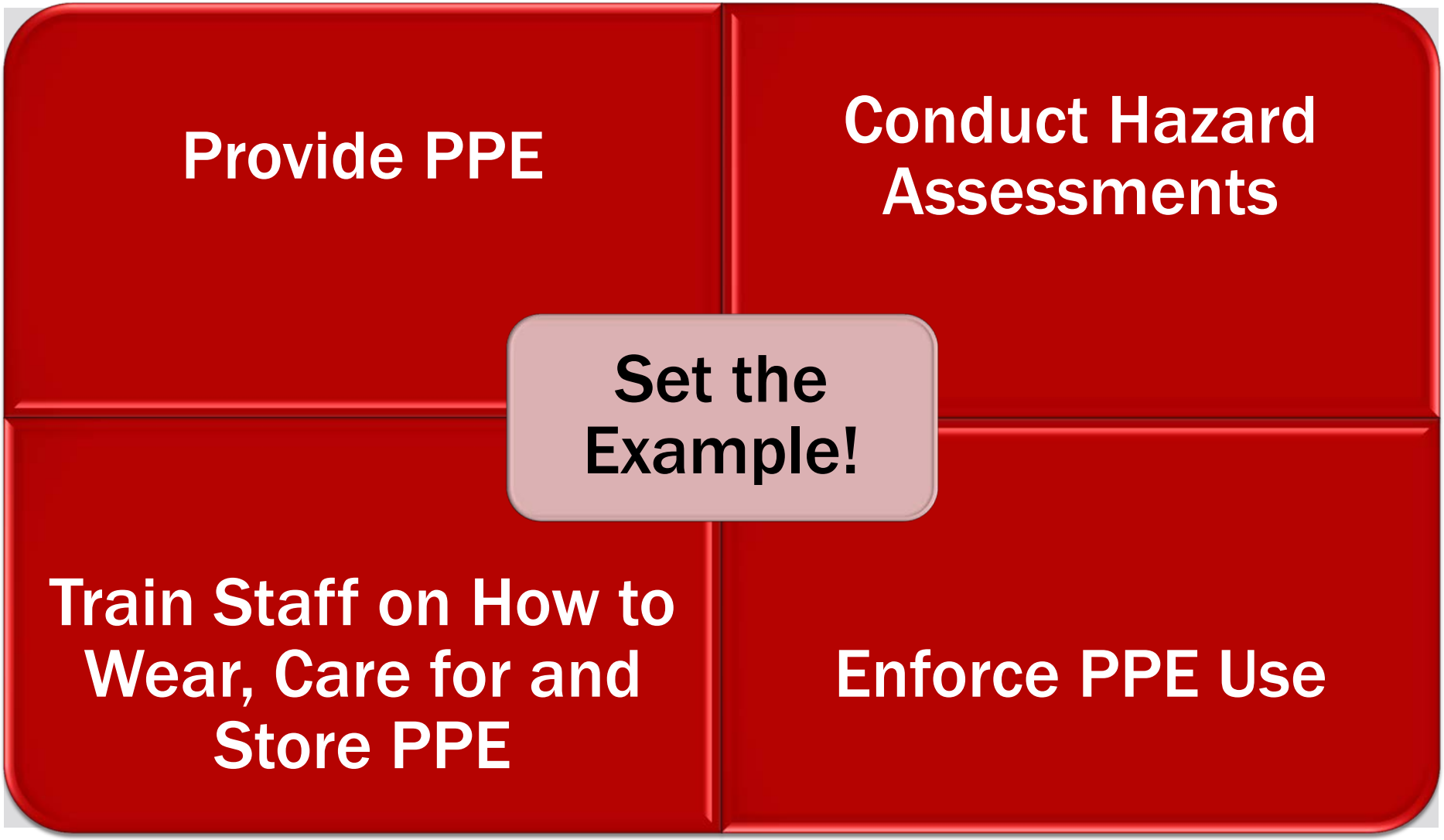
Personal Fall Arrest System

You are at risk if you are working 6 feet above the ground and you are not protected by a system of guardrails or safety nets

A proper fall protection harness has straps worn around the trunk and thighs

Inspect your harness for worn or damaged straps, buckles, D-ring and lines

THE SUPERVISOR'S RESPONSIBILITY



YOUR RESPONSIBILITY

Always wear PPE when required

Attend training on how to properly use PPE

Set the Example!

Tell your supervisor when PPE becomes worn or damaged

Speak up when you see others not wearing PPE

DO YOU HAVE QUESTIONS ABOUT PPE REQUIRED FOR YOUR JOB?

ASK YOUR SUPERVISOR OR SAFETY PROGRAM STAFF

Safety and Risk Supervisor
651-259-5471

Safety Admin. Northwest and Northeast Regions
218-999-7856

Safety Admin. Central and Southern Regions
651-259-5489