Menasha Facilities Department Safety Training

AGENDA

- Hazard Communication
- Bloodborne Pathogens
- Lockout Tagout
- Personal Protective Equipment
- Ladder Safety
- Proper Lifting

HAZARD COMMUNICATION TRAINING

UNDERSTANDING CHEMICAL HAZARDS

Prevent injuries, deaths from:

- ✓ Violent chemical reactions, fires, explosions
- ✓ Burns, irritation, trouble breathing, nausea, diseases

WHAT IS HAZARD COMMUNICATION?

- Evaluation of the potential hazards of chemicals
- Communication of hazards and protective measures to employees
- Written Hazard Communication Program
  - ✓ Hazardous Chemical Inventory
  - ✓ Container labeling
  - ✓ Safety Data Sheets (SDS)
  - ✓ Training Program

WHAT IS A HAZARDOUS CHEMICAL?

A hazardous chemical is defined as: any element, chemical compound, or mixture of elements or compounds that when used could present a ***physical hazard*** or a ***health hazard***

DETECTING HAZARDOUS CHEMICALS

- Air monitoring equipment
- Appearance, odor, physical and chemical characteristics
- Treat unknown chemicals as hazardous

HOW CHEMICALS ENTER THE BODY

Ingestion

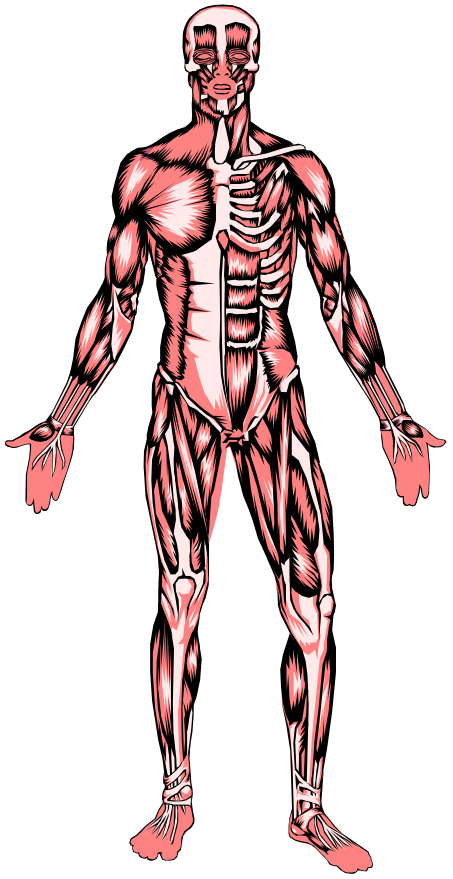
Chemical is swallowed and absorbed in the digestive tract

Inhalation

Airborne chemicals are breathed in through the mouth or nose

Absorption

Chemical passes through the skin and enters the body's systems



CHEMICAL HAZARD CLASSIFICATION

Chemical manufacturers or importers must classify chemicals according to their hazards

- ✓ Physical (16 Classifications)
- ✓ Health (10 Classifications)

PHYSICAL HAZARDS

A chemical is a 'physical hazard' if it has the potential to cause damage the workplace environment

PHYSICAL HAZARDS

- Explosives
- Flammable gases
- Flammable aerosols
- Flammable liquids
- Flammable solids
- Oxidizing liquids
- Oxidizing solids
- Oxidizing gases
- Self-Reactive substances
- Pyrophoric liquids
- Pyrophoric solids
- Self-heating substances
- Organic peroxides
- Corrosive to metals
- Gases under pressure
- Substances which, in contact with water emit flammable gases

HEALTH HAZARDS

A chemical is a ‘health hazard' if it has the potential to cause illness or other health problems

HEALTH HAZARDS

- Acutely toxicity
- Skin corrosion or irritation
- Serious eye damage or irritation
- Respiratory or skin sensitization
- Germ cell mutagen
- Carcinogenicity
- Reproductive toxin
- Target organ systemic toxin
  - ✓ Single exposure
  - ✓ Repeated exposure
- Aspiration hazard

PROTECTIVE CONTROL MEASURES

Engineering Controls

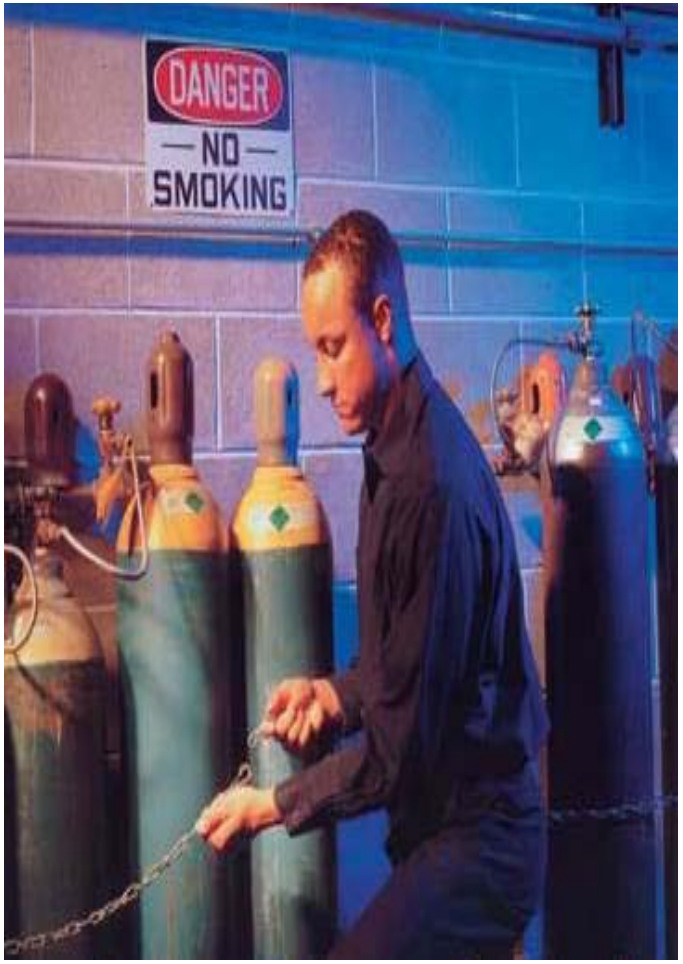
- Enclosing operations
- Ventilation equipment

Administrative Controls

- Substituting less hazardous chemicals

Work Practice Controls

- Chemical handling procedures



PERSONAL PROTECTIVE EQUIPMENT

- Used when hazards are not completely controlled or eliminated by other control measures
- PPE selection based on hazard assessment and effectiveness of PPE

PERSONAL PROTECTIVE EQUIPMENT

Chemical-resistant:

- ✓ Goggles
- ✓ Face shields
- ✓ Gloves
- ✓ Boots
- ✓ Coveralls
- ✓ Aprons
- ✓ Respirators

Do not use damaged, malfunctioning PPE

EMERGENCY PROCEDURES

- Chemical emergencies can involve fires, explosions, burns, asphyxiations, etc.
- Consider unknown chemicals as hazardous
- Emergency responders manage:
  - ✓ Releases of unknown chemicals
  - ✓ Any potentially dangerous release
- Others go to safe area, report emergency

FIRST AID

- First aid information is on the SDS
- Report overexposures to any chemical
- Get prompt first aid and/or medical attention

HAZARD COMMUNICATION PROGRAM

Written program documenting how the employer will meet the following requirements:

- ✓ Inventory of hazardous chemicals
- ✓ Non-routine hazardous tasks
- ✓ Safety Data Sheet (SDS) management
- ✓ Labels
- ✓ Hazards associated with chemicals in unlabeled pipes
- ✓ Information and training

GHS LABELING REQUIRMENTS

- Product identifier (matches SDS and list)
- Signal word
  - ✓ Danger = severe hazard
  - ✓ Warning = less severe
- Hazard statement
- Pictogram (show hazard class)
- Precautionary statement (safe use, storage)
- Name, address, phone number of manufacturer, importer, or responsible party

LABELING – SHIPPED CONTAINERS

SAMPLE LABEL

CODE _____
Product Name _____

Product Identifier

Company Name _____
Street Address _____
City _____ State _____
Postal Code _____ Country _____
Emergency Phone Number _____

Supplier Identification

Hazard Pictograms

Signal Word
Danger

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measures against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

Precautionary Statements

Highly flammable liquid and vapor.
May cause liver and kidney damage.

Hazard Statements

Supplemental Information

Directions for Use

_____
_____
_____

Fill weight: _____ Lot Number: _____
Gross weight: _____ Fill Date: _____
Expiration Date: _____

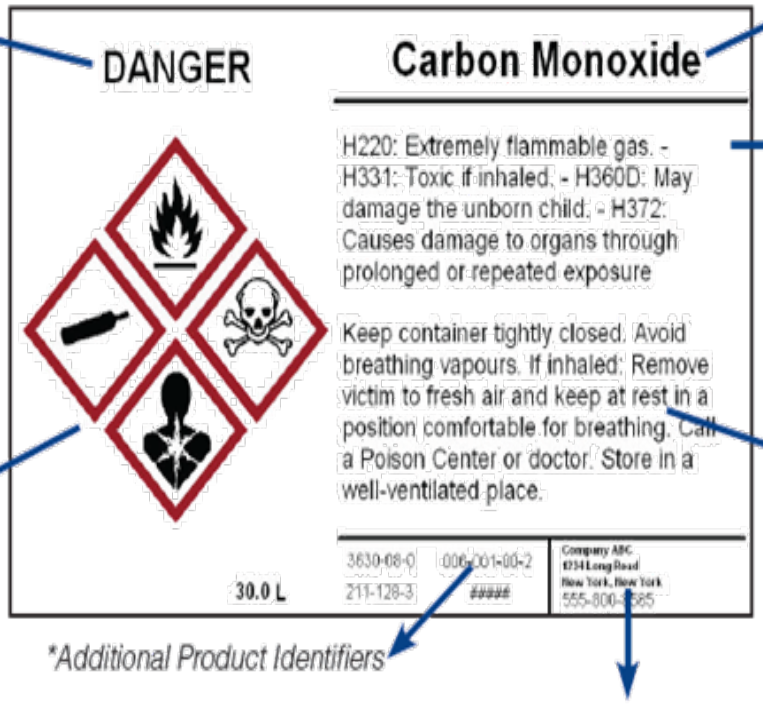
LABELING - WORKPLACE CONTAINER

1. **Signal Word:**

   Indicates relative level of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.

2. **Symbols (Hazard Pictograms):**

   Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.



*Additional Product Identifiers

3. **Product Name or Identifiers***

4. **Hazard Statements:**

   Phrases that describe the nature of hazardous products and oftentimes the degree of hazard.

5. **Precautionary Statements:**

   Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.

6. **Manufacturer Information:**

   Company name, address & telephone number.

LABELING - WORKPLACE CONTAINER

NFPA system identifies:

- ✓ Health hazards – Blue
- ✓ Flammability hazards – Red
- ✓ Reactivity hazards – Yellow
- ✓ Special hazards – White

Hazard severity (0 to 4):

- ✓ 0 = none
- ✓ 4 = severe

NFPA container labeling can be used until June 2016

LABELING - WORKPLACE CONTAINER

HMIS system identifies:

- Blue - Health hazards
- Red - Flammability hazards
- Orange - Physical hazards
- White - Personal protection

Hazard severity (0 to 4):

- 0 = minimal
- 1 = slight
- 2 = moderate
- 3 = serious
- 4 = severe

HMIS container labeling can be used until June 2016

LABELING - WORKPLACE CONTAINER

- Rely on labels on shipped containers
- Relabeling required if:
  - ✓ Label falls off
  - ✓ Label can’t be read

Transferring hazardous chemicals to another container:

- ✓ Must label container if another person will use it
- ✓ Must label container if it is available during another shift

PICTOGRAMS - HEALTH HAZARD

Carcinogen, Mutagenicity, Reproductive Toxicity, Respiratory Sensitizer, Target Organ Toxicity or Aspiration Toxicity

- Do not swallow, breath or come into contact with skin

PICTOGRAMS - FLAME

Flammables, Pyrophorics, Self-Heating, Emits Flammable Gas, Self-Reactives or Organic Peroxide

- Avoid Ignition Sources
- Wear PPE

PICTOGRAMS – FLAME OVER CIRCLE

Oxidizer

- Keep away from ignition sources
- Wear appropriate PPE

PICTOGRAMS - EXCLAMATION MARK

Irritation of a less serious nature or Less severe than Skull and Crossbones

- Keep away from eyes and skin
- Harmful if swallowed
- Do not allow release to the environment

PICTOGRAMS – GAS CYLINDER

Gas under pressure

- Do not heat containers
- Avoid contact with eyes and skin
- Keep regulator cover on when not in use
- Keep heat and ignition sources away
- Keep chained and in upright position
- Do not drop
- Wear appropriate PPE

PICTOGRAMS - CORROSION

Skin corrosion/burns, Eye damage or Corrosive to metal

- Avoid eye and skin contact and do not breath vapors
- Wear appropriate PPE
- Keep away from metals

PICTOGRAMS – EXPLODING BOMB

Explosives, Self-reactives and Organic Peroxides

- Keep away from ignition sources
- Wear appropriate PPE

PICTOGRAMS – SKULL & CROSSBONES

Acute Toxicity (fatal or toxic)

- Do not allow this material to come in contact with your skin.
- Do not swallow or breath fumes

PICTOGRAMS - ENVIRONMENT

Toxic to the environment and aquatic organisms

- Avoid release to the environment

Note: This pictogram was not adopted by OSHA and is therefore non-mandatory

SAFETY DATA SHEET (SDS)

- Replaces the MSDS
- Chemical fact sheets
- Provided by chemical manufactures / distributors
- Employer keeps them up to date
- Must be in English
- Immediately available
- Report missing SDSs

SAFETY DATA SHEET (SDS)

Section 1 - Identification:

- Product ID
- Manufacturer name, address, phone number
- Emergency phone
- Recommended use
- Restrictions on use

Section 2 - Hazard identification:

- All hazards
- Required label elements

SAFETY DATA SHEET (SDS)

Section 3 - Composition:

- Chemical name, synonyms
- CAS number
- Percentage of ingredients
- Trade secret claims

Section 4 - First aid:

- Required treatment for each route of exposure
- Acute (immediate) symptoms, effects
- Immediate, special treatments

SAFETY DATA SHEET (SDS)

Section 5 - Fire fighting:

- Extinguishing techniques
- Extinguishing equipment
- Hazardous combustion products
- Equipment, precautions for firefighters

Section 6 - Accidental release:

- Personal precautions
- Protective equipment
- Emergency procedures
- Containment and cleanup methods

SAFETY DATA SHEET (SDS)

Section 7 - Handling, storage:

- Safe handling
- Safe storage
- Incompatible materials

Section 8 - Exposure control / personal protection

- Permissible exposure limits (PELs)
- Threshold limit values (TLVs), other exposure limits
- Engineering controls
- Personal protective equipment (PPE)

SAFETY DATA SHEET (SDS)

Section 9 - Physical, Chemical properties:

- Chemical appearance
- Odor, odor threshold
- Physical properties (pH, flash point, flammability limits, vapor pressure and density, auto-ignition temp., decomposition temp., viscosity, etc.)

Section 10 - Stability, Reactivity

- Conditions to avoid
- Incompatible materials
- Hazardous decomposition products

SAFETY DATA SHEET (SDS)

Section 11 - Toxicological information:

- Routes of exposure
- Immediate, chronic effects
- Toxicity data
- Carcinogenicity

Section 12 - Ecological information (non-mandatory):

- Ecotoxicity
- Biodegradability

SAFETY DATA SHEET (SDS)

Section 13 - Disposal considerations (non-mandatory):

- Waste description
- Waste handling, disposal

Section 14 - Transport information (non-mandatory)

- DOT shipping name, hazard class, packing group
- UN number

SAFETY DATA SHEET (SDS)

Section 15 - Regulatory information (non-mandatory):

- Product-specific safety, health, environmental regulations

Section 16 - Other information:

- Date of SDS's preparation or last revision

SDS indicates if no relevant information is available within a section

Contractor Hazard Communication

Contractors

- ✓ Notify company of hazardous chemicals that will be brought on site
- ✓ Provide company with an SDS for each hazardous chemical brought on site
- ✓ Following the Company's Hazard Communication Contractor Requirements

Company

- ✓ Inform contractor of hazardous chemicals they may encounter while on-site performing their work

BLOODBORNE PATHOGEN TRAINING

REGULATORY REQUIRMENTS

Regulatory standards apply if there is an occupational risk for exposure to bloodborne pathogens.

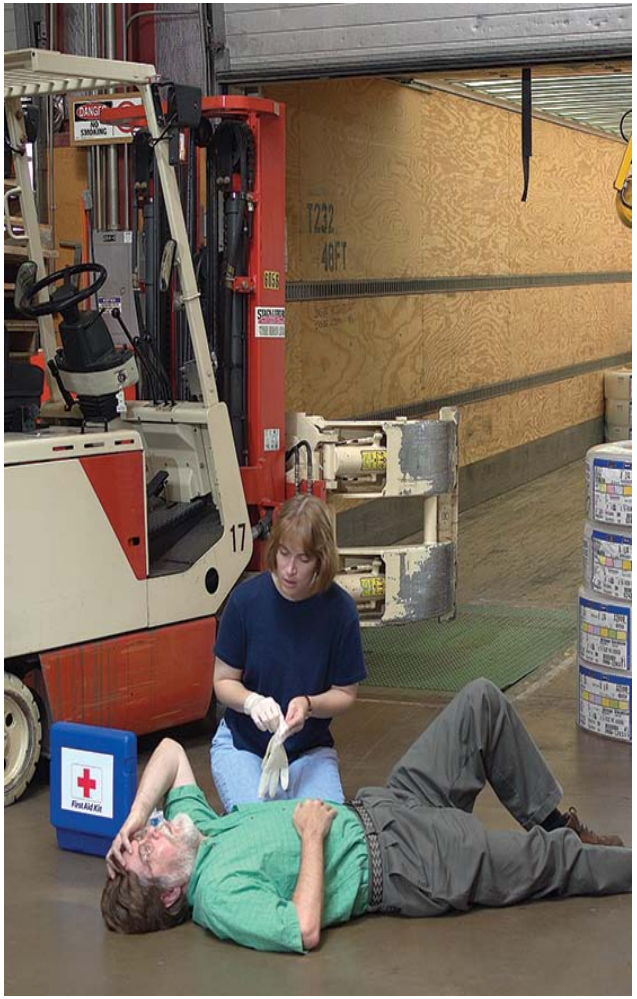
Requirements:

- Exposure Control Plan
- Hepatitis B Vaccination
- Exposure Controls
- Exposure follow-up procedures
- Training
- Recordkeeping

WHO'S AT-RISK?

- Individuals with occupational exposure to bloodborne pathogens

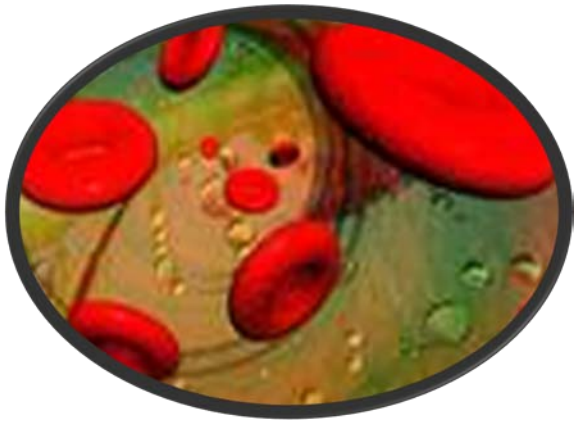
- Good Samaritans



SAFETY AND HEALTH RISKS

Blood and body fluids can carry pathogenic mircoorganisms that can cause:

- ✓ Hepatitis B virus
- ✓ Hepatitis C virus
- ✓ Human immunodeficiency viruses
- ✓ Other bloodborne diseases



CAUSES AND MODES OF TRANSMISSION

Exposure can be divided into two subgroups:

Direct: Microorganisms transferred without a contaminated intermediate object or person

Indirect: Transfer of infectious agent through contaminated intermediate object or person

EXPOSURE CONTROL PLAN

- Universal precautions
- Exposure Controls - Engineering controls, work practice and personal protective equipment
- Hepatitis B vaccinations
- Post-exposure evaluation and follow-up
- Labels and signage
- Training

EXPOSURE CONTROLS

- Engineering Controls
- Safe Work Practice Controls
- Personal Protective Equipment (PPE)

ENGINEERING CONTROLS

Reduce exposure by either removing or isolating the hazard or isolating the worker from exposure

Include but not limited to:

- Self-sheathing needles
- Sharps Disposal Containers
- Bio-Hazard Waste Containers
- Resuscitation bags and ventilation devices

ENGINEERING CONTROLS

BIOHAZARD WASTE CONTAINERS:

Biohazard waste will be collected and placed in approved containers

- Closable container
- Constructed to contain all contents
- Prevent leakage during handling, storage, and transport
- Not allowed to overflow

ENGINEERING CONTROLS

SHARPS CONTAINERS:

Contaminated sharps should be discarded as soon as possible in an approved container

- ✓ Puncture resistant container
- ✓ Closable container
- ✓ Leak proof on sides and bottom
- ✓ Labeled or color coded
- ✓ Dispose of when ¾ full

WORK PRACTICE CONTROLS

- Restricting eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses
- Prohibiting mouth pipetting
- Preventing the storage of food or drink in refrigerators or other locations where blood or OPIMs are kept
- Providing and requiring the use of hand washing facilities

WORK PRACTICE CONTROLS

- Routinely checking equipment and decontaminating it prior to use
- Washing hands when gloves are removed and as soon as possible after exposure with blood or OPIMs
- Always using gloves when cleaning up any blood or OPIM spills
- Prohibiting recapping, bending, removing, shearing, or breaking contaminated needles

PPE CONTROLS

- Must be used if engineering and work practice control do not eliminate exposure
- Can consist of:
  - ✓ Gloves
  - ✓ Gowns / Laboratory coats
  - ✓ Face shields or masks
  - ✓ Eye protection
- Appropriate only if it prevents blood or OPIMs from passing through or reaching clothes or body

PROPER PPE USE AND HANDLING

- Remove protective equipment when contaminated and before leaving work area
- Place in appropriately designated areas or container
- Wear appropriate gloves when there is reasonable hazard of contact with blood or OPIMs
- Replace gloves if torn, punctured, contaminated, or no longer function as a barrier (i.e. gloves)

PROPER PPE USE AND HANDLING

- Never reuse disposable gloves
- Wear face and eye protection whenever risk of splashes, sprays or spatters of blood or OPIMs
- Wear protective body coverings when occupation exposure is anticipated

PROPER GLOVE REMOVAL

HOUSEKEEPING

- Cleaning and decontaminating areas contaminated with blood or OPIM
- Decontaminating work surfaces after completion of procedures and immediately after spills of blood or OPIMs
- Removing and replacing protective coverings when contaminated
- Regularly inspecting and decontaminating reusable receptacles that are likely to become contaminated

HOUSEKEEPING

- Using mechanical means to pick up contaminated sharps
- Placing biohazard waste in closable, leak-proof, and labeled or color-coded containers
- Placing discarded contaminated sharps in labeled or color-coded containers that are closable, puncture-resistant, and leak-proof
- Keeping sharps containers upright during use, replaced routinely, closed when moved, and not overfilled

HOUSEKEEPING

- Handling contaminated laundry as little as possible and using appropriate PPE
- Placing wet contaminated laundry in labeled or color-coded leak-proof containers

UNIVERSAL PRECAUTIONS

Taking precautionary measures and treat all blood or OPIMs you come in contact with as infectious regardless of the perceived status of the source

SIGNS, LABELS, COLOR-CODING

Warning labels will be affixed to items such as:

- Containers of regulated waste
- Containers of contaminated reusable sharps
- Refrigerators and freezers containing blood or OPIMs
- Containers used to store, transport, ship blood or OPIMs
- Contaminated equipment being shipped or serviced
- Bags or containers of contaminated laundry

SIGNS, LABELS, COLOR-CODING

Labels will:

- Include appropriate legend in fluorescent orange or orange-red
- Be affixed as close as feasible to the container

HEPATITIS B VACCINE

Vaccine is:

- Free of charge to workers with occupational exposure
- Best way to prevent hepatitis B
- Given in 3-4 shots over a 6-month period

Possible side effects of vaccination:

- May still get the illness if body does not respond
- Fever or soreness at injection site
- Allergic reactions

POST-EXPOSURE

If occupational exposure occurs:

- Medical evaluation and follow-up will be available at no cost
- Evaluation and follow-up will be performed by or under supervision of licensed health care professional
- Laboratory tests will be conducted by an accredited laboratory at no cost

POST-EXPOSURE

Medical evaluation and follow-up involves:

- Documenting exposure route and circumstances
- Identifying and documenting the source individual
- Testing the source individual's blood
- Making the results of testing available to exposed employee
- Collecting exposed employee's blood
- Providing post-exposure measures
- Providing counseling
- Evaluating reported illnesses

POST-EXPOSURE

Health care professional will be provided:

- Copy of OSHA regulation 1910.1030
- Description of exposed employee's duties in relation to exposure incident
- Documentation of exposure route and circumstances
- Results of source individual's blood testing
- All relevant medical records appropriate for treatment

POST-EXPOSURE

Exposed employee will receive a copy of evaluating health care professional's written opinion within 15 days of completion of evaluation

LOCKOUT / TAGOUT TRAINING

Authorized Employee

TYPES OF EMPLOYEES

Employers classify employees into classifications

Authorized employee:

- A person who locks out or tags out machines or equipment to perform servicing or maintenance

Affected Employee:

- An employee responsible for operating the equipment
- An employee who works in the area

TYPES OF EMPLOYEES

Authorized employees must:

- Understand role in controlling energy
- Ensure that affected employees are informed
- Understand energy control program
- Be able to recognize:
  - ✓ Hazardous energy sources
  - ✓ Type and magnitude of energy available
  - ✓ Methods and mean to isolate and control energy

LOCKOUT DEFINITION

Process of preventing the flow of energy

- Consists of installing a lock, block, or chain
- Requires an authorized employee to apply/remove lock

TAGOUT DEFINITION

Process of placing tag on power source

- Tag acts as a warning
- Tag must clearly state “Do not operate”
- Tag used when machine won’t accept lock
- Tag must be applied/removed by an authorized employee

HAZARDOUS ENERGY SOURCES

- Electrical
- Mechanical
- Pneumatic
- Hydraulic
- Chemical
- Thermal
- Water under pressure
- Gravity
- Potential energy

ENERGY CONTROL PROGRAM

- Energy control procedures
- Employee training
- Periodic inspections

ENERGY CONTROL PROGRAM

Energy control procedure includes:

- Intended use of the procedure
- Specific steps to control hazardous energy
- Specific requirements for verification

ENERGY CONTROL PROGRAM

- Each type of machine needs its own LOTO procedure
- Lockout must be used unless device cannot be locked out
- Tagout must be used when unable to lockout

WORK ACTIVITIES

- Constructing
- Installing
- Setting up
- Adjusting
- Inspecting
- Modifying
- Repairing
- Cleaning equipment

PREPARE FOR SHUTDOWN

Procedures for controlling energy:

- Prepare for shutdown
- Shutdown
- Isolate equipment from energy
- Apply lockout or tagout device
- Release of stored energy
- Verify isolation

PREPARE FOR SHUTDOWN

Step one:

- Know the type and magnitude of energy
- Know the hazards of energy
- Know the methods or means to control it

SHUTDOWN

Step two:

- Turn off equipment using normal controls
- Use orderly shutdown

ISOLATE EQUIPMENT

Step three:

- Isolate equipment from energy sources
- Secure lock to energy isolating device

APPLY DEVICES

Step four:

- Notify affected employees
- Attach lockout/tagout devices

RELEASE STORED ENERGY

Step five:

- Relieve stored energy
- Verify machine isolation from energy

RELEASE STORED ENERGY

Steps to release stored energy:

- Relieve pressure in compressed air line
- Insert a block

VERIFY ISOLATION

Step six:

- Verify machine is deenergized
- Verify machine is isolated

LOCKOUT DEVICES

- Authorized employee must have own device
- Device must be used to control energy only

LOCKOUT DEVICES

Devices could be:

- Locks
- Tags
- Chains
- Wedges
- Key blocks
- Adapter pins
- Self-locking fasteners

LOCKOUT DEVICES

Devices must have the following qualities:

- Be durable
- Must identify person who applied it
- Be standardized in color, shape, or size
- Be substantial enough to prevent removal

TAGS

Tags must have the following qualities:

- Be durable
- Be standardized in print and format
- Be substantial enough to prevent removal
- Be one-piece, environmental tolerant
- Include warning statements

GROUP LOCKOUTS

- Each authorized employee must affix a personal lockout or tagout device
- Each authorized employee must remove the device when works stops

SHIFT CHANGES

- Lockout/tagout protection must be continuous
- Lockout/tagout protection must have an orderly transfer between employees

DEVICE REMOVAL

- Lockout or tagout device must be removed by the authorized employee who applied it
- Device may be removed under direction of employer if authorized employee unavailable

DEVICE REMOVAL

Steps employers must take before removing a lock or tag:

- Verify that authorized employee who applied lock is not at the facility
- Take all reasonable efforts to contact the authorized employee

RESTORING ENERGY

- Inspect work area
- Ensure employees are safe
- Notify affected employees

PERSONAL PROTECTIVE EQUIPMENT

PPE HAZARD ASSESSMENT

- Evaluate hazards in the workplace

- PPE is not a substitute for:
  - engineering controls
  - work practice controls
  - administrative controls

EYE AND FACE PROTECTION

CAUSES OF EYE INJURIES

- Gases, vapors, and liquids
- Dusts, powders, fumes and mists
- Flying objects or particles
- Glare
- Splashing metal
- Thermal and radiation hazards
- Lasers
- Electrical hazards

EYE AND FACE PROTECTION

- Joint effort between employer and employee
- Safety glasses
  - Polycarbonate lenses
  - Tinted lenses
  - Safety frames
  - Side shields

EYE AND FACE PROTECTION

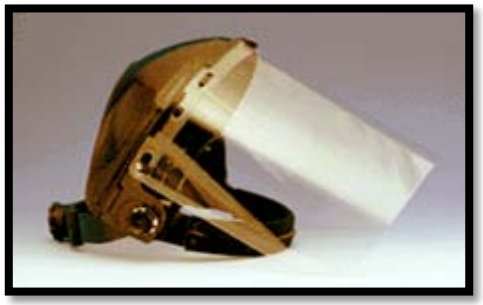
Goggles

- Fit closer to the eyes
- Some models fit over prescription glasses

EYE AND FACE PROTECTION

Face shields

- Provides full-face protection
- Wear eye protection under a face shield



DONNING, DOFFING, ADJUSTING, AND WEARING

- Must be comfortable
- Must be worn properly
- Wear proper eye protection for the job
- Understand its purpose and limitations
- Proper fitting is important

LIMITATIONS OF EYE AND FACE PROTECTION

- Presents a false sense of security
- User may be less alert to hazards
- Loses protective ability over time
- May restrict vision

CARE, MAINTENANCE, USE AND DISPOSAL

- Perform regular inspection and maintenance
- Keep lenses clean
- Replace pitted, scratched, broken lenses

EYEWASH STATIONS

- Eyewash stations are required if certain eye hazards are present
- Know the location and operation of eyewash facilities
  - Eyewash fountains
  - Drench showers
  - Emergency bottles

HEARING PROTECTION

EFFECTS OF NOISE

- Causes hearing loss
- Noise-induced hearing loss can be temporary or permanent
- Prolonged exposure generally causes permanent damage
- Hearing loss typically starts with hearing threshold shifts in the higher frequencies

TYPES OF HEARING LOSS

Sensory Hearing Loss

- Wearing down of the hair cells in the cochlea
- Usually permanent and treated with hearing aids

Conductive Hearing Loss

- Problem with sound transmitting through ear canal
- Usually temporary and medically treated

Tinnitus

- Ringing of the ears

WHEAT FIELD EFFECT

- Wheat represents hair cells
- Wind represents noise
- Wind damage to wheat represents noise damage to tiny hair cells in inner ear

ALLOWABLE NOISE EXPOSURE

NOISE LEVEL (DECIBELS)	ALLOWABLE EXPOSURE TIME
85	8 hours
90	4 hours
100	1 hour
105	30 minutes
110	15 minutes
115	0 minutes

NOISE COMPARISON

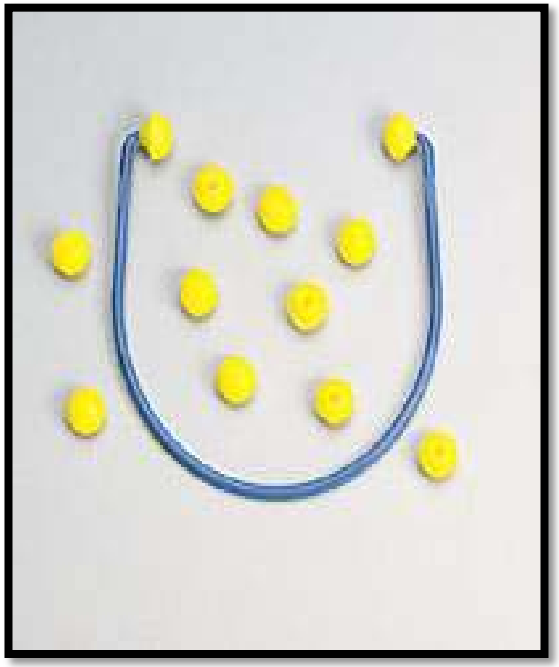
EQUIPMENT	NOISE LEVEL (DECIBELS)
Gunshot	140
Chain Saw	110
Tractor	95 - 105
Circular Saw	90 - 100
Lawn Mower	90

TYPES OF HEARING PROTECTION

EARMUFFS

EARPLUGS

EAR CAPS



HEARING PROTECTION SELECTION

- Noise Exposure Level
- Environment
- Comfort
- Noise Reduction Rating (NRR)

NOISE REDUCTION RATING (NRR)

- Approximate amount of protection provided when properly worn
- Manufacturers required to calculate and state NRR on the package
- Higher the NRR, greater the protection

EAR PLUGS

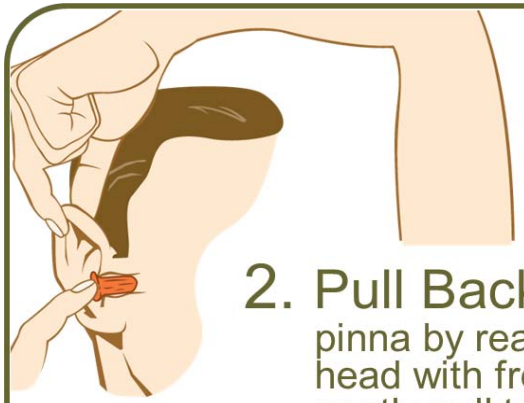
ADVANTAGES	DISADVANTAGES
Small and easily carried	More time to fit
Convenient to use with other personal protection equipment	More difficult to insert and remove
Can be worn with ear muffs	Require good hygiene practices
More comfortable for long-term wear in hot work areas	May irritate the ear canal
Convenient for use in confined work areas	Can be easily misplaced
	More difficult to see and monitor usage

EAR MUFFS

ADVANTAGES	DISADVANTAGES
Less attenuation variability among users.	Less portable and heavier.
Easier to monitor the use.	More inconvenient for use with other PPE.
Designed so that one size fits most head size.	Uncomfortable in hot work area.
Not easily misplaced or lost.	More inconvenient for use in confined work areas.
May be worn with minor ear infections.	May interfere with the wearing of glasses.

FITTING OF EAR PLUGS

1. Roll
entire earplug into a crease-free cylinder



2. Pull Back
pinna by reaching over head with free hand, gently pull top of ear up and out

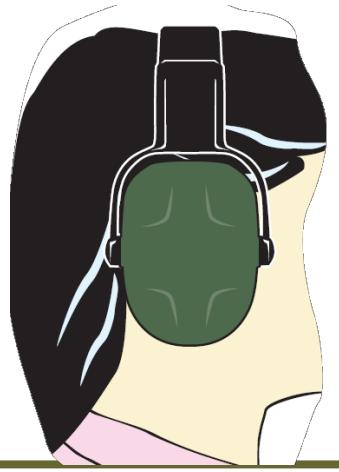
3. Insert
earplug well into ear canal and hold until it fully expands

FITTING OF EAR MUFFS

1. Place ear cups over each outer ear

2. Adjust the headband by sliding the headband up or down at the attachment buttons

3. The ear cushions should seal firmly against the head



CARE & MAINTENANCE OF EAR PLUGS

- Dispose of single-use earplugs daily
- Clean multiple-use earplugs with mild soap and water, dry thoroughly
- Inspect multiple-use earplugs for dirt, cracks or hardness, replace if damaged

CARE & MAINTENANCE OF EARMUFFS

- Clean ear cushions and headband regularly with mild soap and water
- Replace ear cushions and foam inserts when they become dirty or damaged

AUDIOMETRIC TESTING

- Checks a person's hearing
- Trained technician uses an audiometer to send sounds through headphones
- Person being tested responds to the sounds when they are first heard
- Chart records responses

FOOT PROTECTION

- Skin diseases, cuts, punctures, burns, sprains and fractures
- Electricity
- Slipping
- Chemicals
- Molten metal
- Extreme temperatures
- Wetness

TYPES OF FOOT PROTECTION

- Safety shoes
- Metatarsal guards
- Conductive shoes
- Safety boots
- Electrical hazard shoes
- Sole puncture resistant
- Static dissipative
- Foundry shoes

TYPES OF FOOT PROTECTION

- Add-on foot protection
- Rubber spats
- Steel puncture-proof inserts

DONNING, DOFFING, ADJUSTING, AND WEARING

- Must be comfortable
- Must be worn properly
- Understand the shoe's purpose and limits
- Shoes must not be altered

LIMITATIONS OF FOOT PROTECTION

- Creates false sense of security
- Loses protective ability over time

CARE, MAINTENANCE, AND USE,

- Perform periodic inspection
- Follow cleaning and maintenance procedures

LADDER SAFETY

INTRODUCTION

Ladders are important and essential tools that are used in a variety of industries

Although ladders are easy to use, they are often misused or abused, causing serious injuries and deaths

INTRODUCTION

Workers injured in falls from ladders are usually less than 10 feet above the ladder's base of support

HAZARDS OF LADDERS

- Falls
- Slips
- Reaching too far
- Weather
- Falls
- Slips
- Reaching too far
- Weather

REASONS FOR FALLS FROM LADDERS

- Setting up the ladder on an unstable or slippery base surface
- Overreaching by the user
- Setting up the ladder improperly
- Loss of balance

REASONS FOR FALLS FROM LADDERS

- Improperly getting onto or off of the ladder
- Slipping of the foot while climbing or descending
- Being bumped while on the ladder

RATINGS AND LABELS

RATING	MAXIMUM LOAD	USES
Type I-AA	375 lbs.	Special duty industrial use, such as CATV, utilities, contractors, and higher capacity needs
Type I-A	300 lbs..	Extra-heavy-duty industrial use, such as utilities and contractors
Type I	250 lbs.	Heavy-duty industrial use, such as utilities and contractors
Type II	225 lbs.	Medium-duty work, such as painting, offices for building maintenance, and light industrial use
Type III	200 lbs.	Light duty work, such as household use

RATINGS AND LABELS

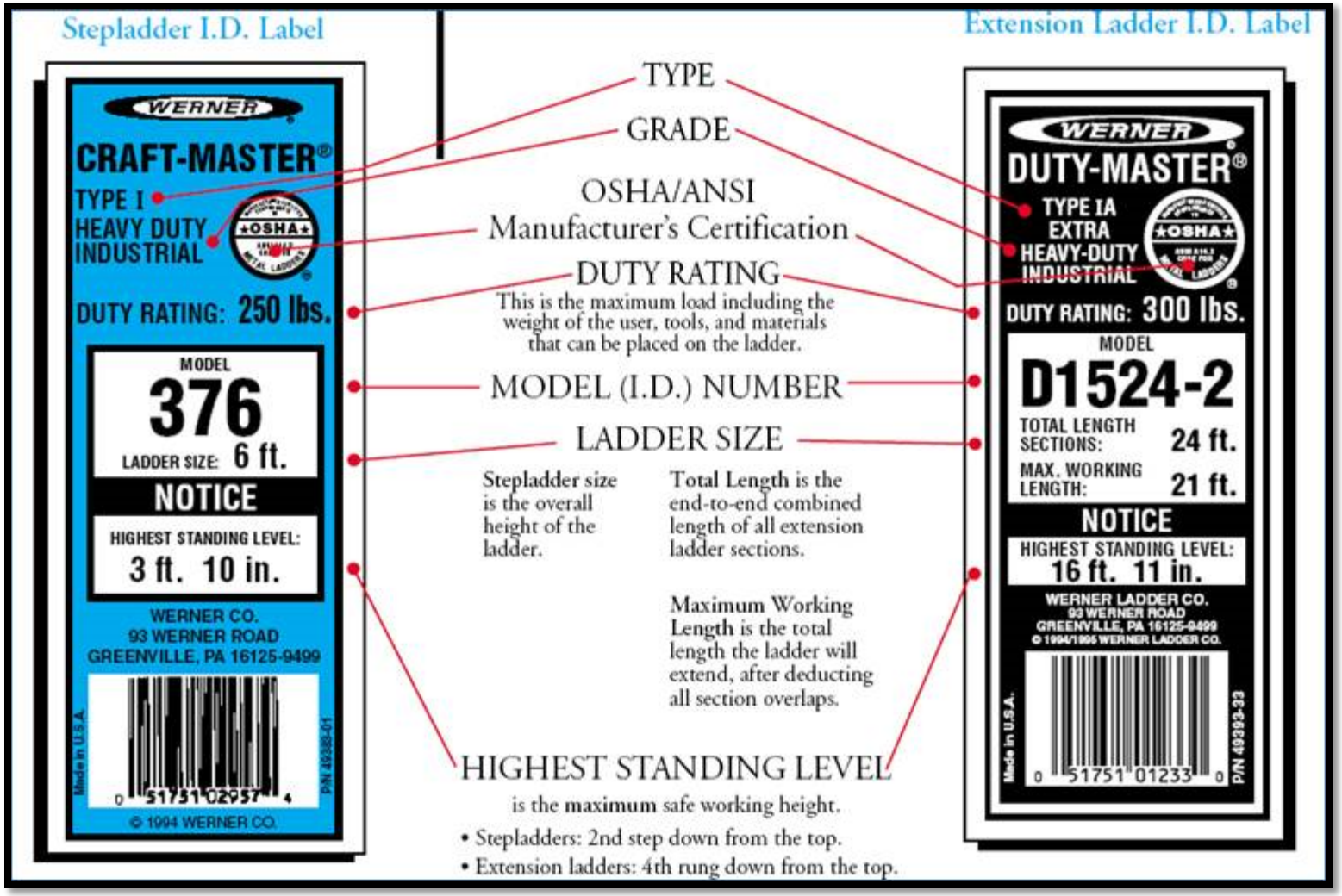
- Ratings must meet American National Standards Institute (ANSI) standards
- Must be indicated on the duty rating sticker or manufacturer's label
- Every ladder shall be labeled

LABELS AND RATINGS

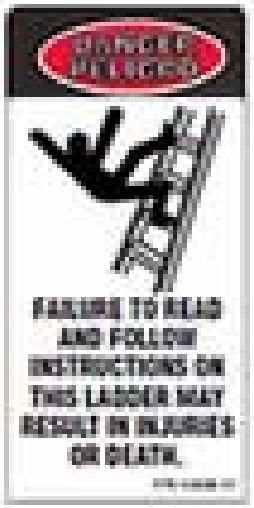
Manufacturer's label contains:

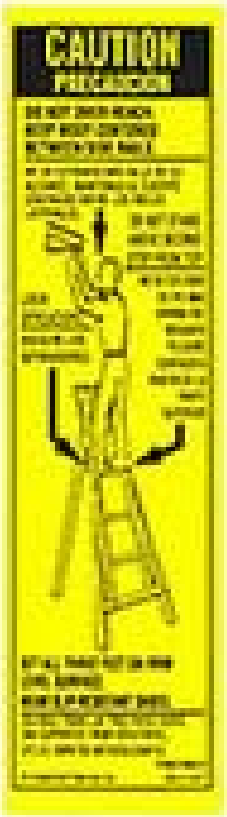
- Manufacturer's name
- Ladder's model number/name
- Month and year of manufacture
- Ladder's size/length, maximum working length
- Highest standing level

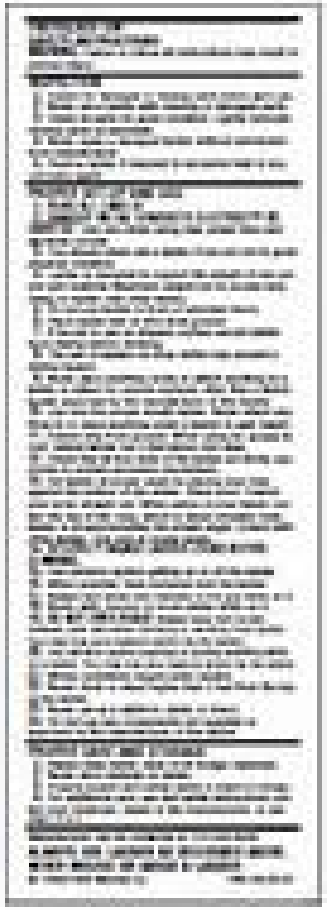
LABELS AND RATINGS

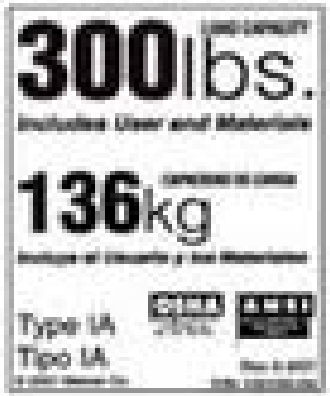


LABELS AND RATINGS









LADDER COMPOSITION

Each material has specific care, maintenance, and storage requirements and may be preferred for specific uses, or under certain conditions.

WOOD

FIBERGLASS

METAL

LADDER COMPOSITION

Material	Durability	Strength	Weather-resistance	Conductivity
Wood	Less	Good	Not as good	Non-conductive when clean and dry
Fiberglass	Better	High	Better	Non-conductive when clean and dry (***preferred**)
Aluminum / Metal	Better	High	Better	Conductive – do not use near exposed electrical sources

LADDER COMPOSITION

Do not use a metal ladder when working around energy sources. Metal ladders must be labeled with a DANGER warning sticker stating:

- Electrocution Hazard
- This Ladder Conducts Electricity
- Do Not Use Around Electrical Equipment
- Or other equivalent wording

LADDER INSPECTION

- Inspect ladders frequently
- Portable metal ladders must be inspected immediately if it tips over
- Construction ladders are inspected by a competent person
- Follow manufacturer’s guidelines for inspection
- Include inspections in preventative maintenance schedules

SAFE LADDER USE

- Inspect ladder for defects before using it
- Select ladder with adequate length and load limits
- Do not use metal ladders near electrical lines
- Use ladders for their intended purpose
- Set up the ladder on a firm, solid surface
- Keep ladders secured/barricaded
- Keep areas around the top and bottom of the ladder clear

SAFE LADDER USE

- Open stepladders fully, and lock the spreaders
- Set up straight ladders using the 4-to-1 rule
- Face ladders when ascending/descending
- Use both hands to grip the side rails
- Only one person on a ladder at a time
- Don’t stand on the top 2 steps of a stepladder
- Never move a ladder with someone on it
- Hoist material up to you
- Work within the side rails
- Store ladders in designated areas

PROPER LADDER SETUP

- For every four feet of ladder length measured from where the ladder contacts the support point, the base of the ladder should be one foot away from the supporting structure
- Extend at least three feet above the surface

MAINTENANCE

- Remove ladders with structural defects, corrosion, or defective parts from service
- Tag ladders “Do Not Use”
- Repair ladders to the original design
- Have qualified personnel make repairs

PROPER LIFTING

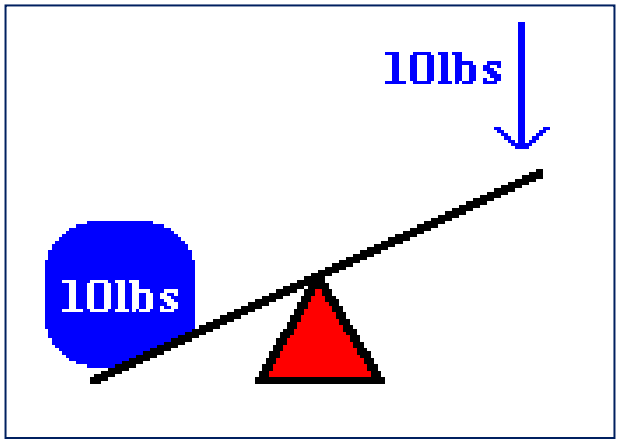
HOW TO PREVENT BACK INJURIES

- Avoid lifting and bending whenever you can
- Place objects up off the floor
- Raise/lower shelves
- Use carts and dollies
- Use cranes, hoists, lift tables and other lift-assist devices whenever you can
- Test the weight of an object before lifting by slightly pushing with hand or foot
- Get help if it’s too heavy for you to lift by yourself

THE FORCES INVOLVED

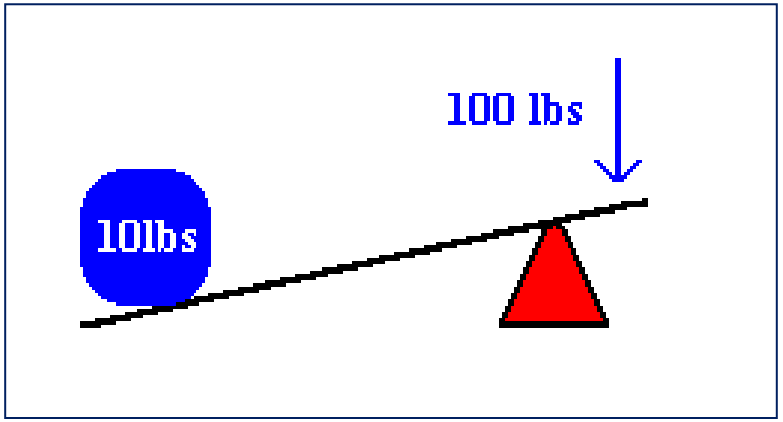
The amount of force on your back when lifting may surprise you!

- Think of your back as a lever.
- With the fulcrum in the center, it only takes ten pounds of pressure to lift a 10 pound object.



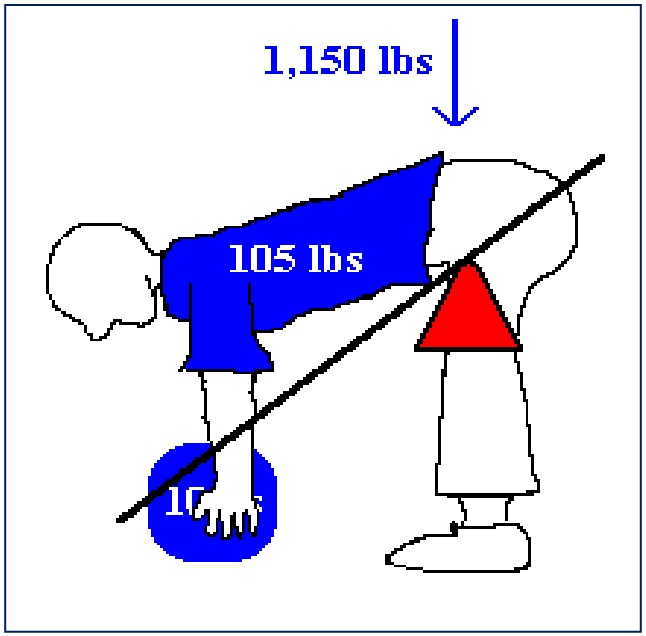
THE FORCES INVOLVED

- If you shift the fulcrum to one side, it takes much more force to lift the same object
- Your waist acts like the fulcrum in a lever system, on a 10:1 ratio
- Lifting a 10 pound object puts 100 pounds of pressure on your lower back



THE FORCES INVOLVED

Adding in 105 pounds of the average human upper torso = 1,150 pounds of pressure on the lower back when lifting a 10 pound object.



PROPER LIFTING TECHNIQUE

- Take a balanced stance, feet shoulder width apart
- Squat down to lift and get as close as you can
- Bend your knees

PROPER LIFTING TECHNIQUE

- Get a secure grip, hug the load
- Lift gradually using your legs
- Keep load close to you
- Keep back and neck straight

PROPER LIFTING TECHNIQUE

- Once standing, change directions by pointing your feet and turning your whole body
- Avoid twisting at your waist
- To put load down, follow these steps in reverse

PROPER LIFTING TECHNIQUE

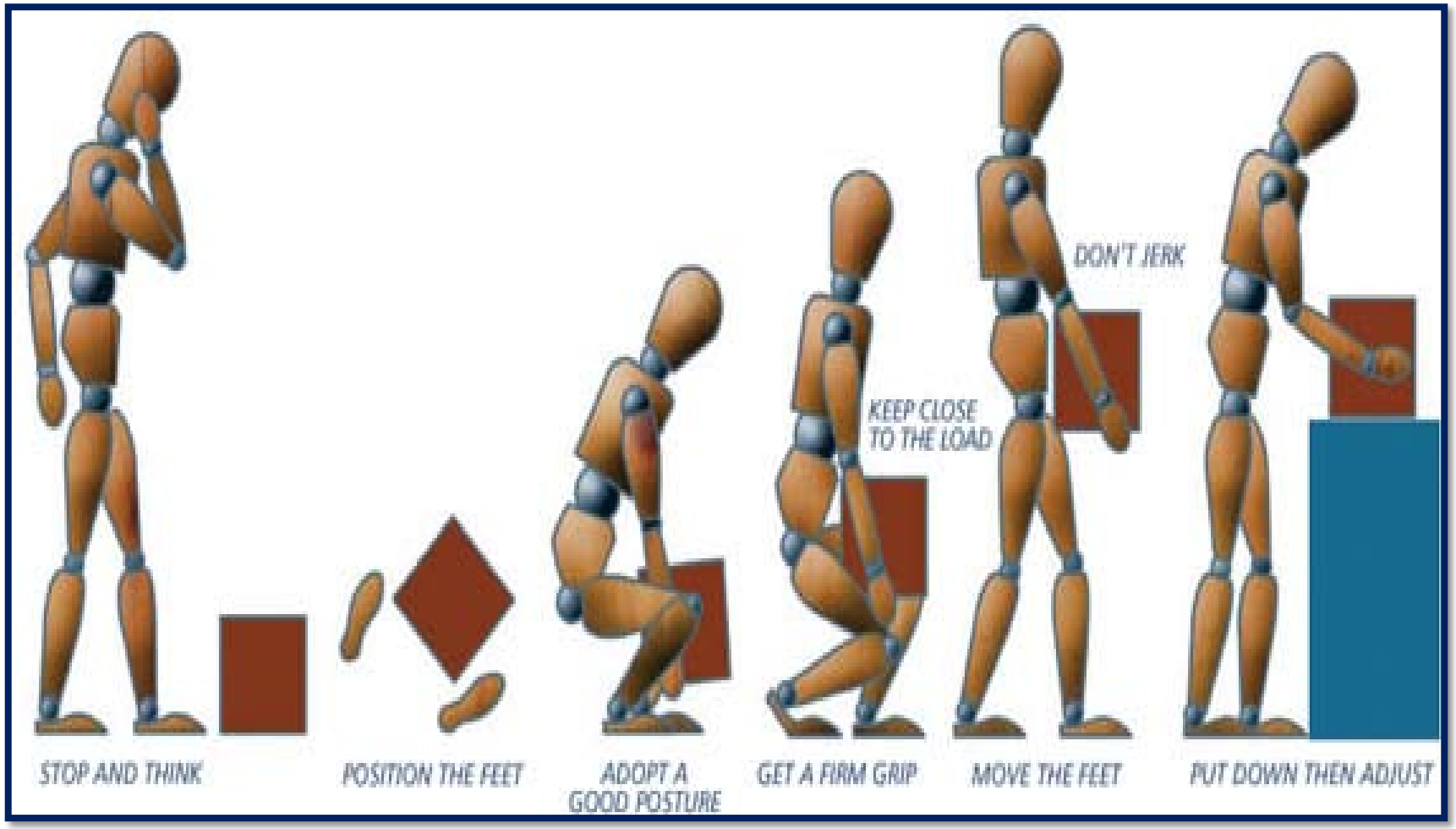


Photo Source : Occupational Health Consultancy, www.ohc.org.uk

YOU CONTROL LIFTING RELATED BACK INJURIES!