7 CORE ELEMENTS of an SMS (Safety Management System)

This is the recommended Framework that works for all-size companies, in all locations, in all industries to protect their work personnel and the public.

CORE ELEMENT 1 - MANAGEMENT & LEADERSHIP

- ❑ Demonstrates EHS commitment & continuous improvement
- ❑ Communicates to EHS commitment to workers
- ❑ Developing Programs, policies, procedures, processes, plans, permits
- ❑ Sets program expectations and responsibilities
- ❑ All level managers make EHS a core organizational value and establish safety and EHS goals and objectives
- ❑ Provides needed resources and support for the program(s)
- ❑ Sets a good example by also complying by all policies & procedures

CORE ELEMENT 2 - WORKER PARTICIPATION & TRAINING

- ❑ Workers are involved in all aspects of the program, including training
- ❑ Workers are involved in setting goals, identifying & reporting hazards
- ❑ Workers are involved in investigating incidents & tracking progress
- ❑ All workers, including contractors and temporary workers, understand their roles and responsibilities under the program and what they need to do to effectively carry them out
- ❑ Workers are encouraged & have means to communicate openly with management & report safety & health concerns without retaliation
- ❑ Any potential barriers or obstacles to worker participation in the program are removed (Ex: language, lack of information, disincentives, work scheduling)

CORE ELEMENT 3 - HAZARD IDENTIFICATION & RISK ANALYSIS

- ❑ Procedures to continually identify EHS hazards & evaluate risks
- ❑ Assessments of existing hazards & control measures are followed by periodic inspections & reassessments to identify new risks

CORE ELEMENT 4 - HAZARD PREVENTION & CONTROL

- ❑ Employers and workers cooperate to identify and select options for eliminating, preventing, or controlling workplace hazards.
- ❑ Plans are developed that ensure controls are implemented, interim protection is provided, progress is tracked, and the effectiveness of controls is verified.

Hazards are either permanently or temporarily corrected

- ❑ **Permanent = Prevention of Hazards** *(Elimination, Substitution)*
- ❑ **Temporary = Control of Hazards** *(Engineering, Administrative, PPE)*

CORE ELEMENT 5 - EDUCATION & TRAINING

- ❑ Workers are trained to understand how the program works and how to carry out the responsibilities assigned to them under the program
- ❑ All workers are trained to recognize workplace hazards and to understand the control measures that have been implemented, even STOP WORK Authority

CORE ELEMENT 6 - PROGRAM EVALUATION & IMPROVEMENT

- ❑ Control measures are periodically evaluated for effectiveness
- ❑ Processes are established to monitor program performance, verify program implementation, identify program deficiencies and opportunities for improvement, and take actions necessary to improve the program and overall safety and health performance
- ❑ Leading indicators include inspections, audits, BBS observations, near-miss investigations, how long it takes to correct hazards, worker surveys, etc.
- ❑ Lagging Indicators like accident and incident reports, OSHA 300 logged injuries, illnesses, rise in TRIR or DART rates, lawsuits, insurance increase due to rise in EMR (Experience Modification Rate).

CORE ELEMENT 7 - COORDINATION & COMMUNICATION

On Multiemployer Worksites

- ❑ The host employer and all contract employers coordinate on work planning and scheduling to identify and resolve any conflicts that could impact safety or health.
- ❑ Workers from both the host and contract employer are informed about the hazards present at the worksite and the hazards that the work of the contract employer may create on-site.

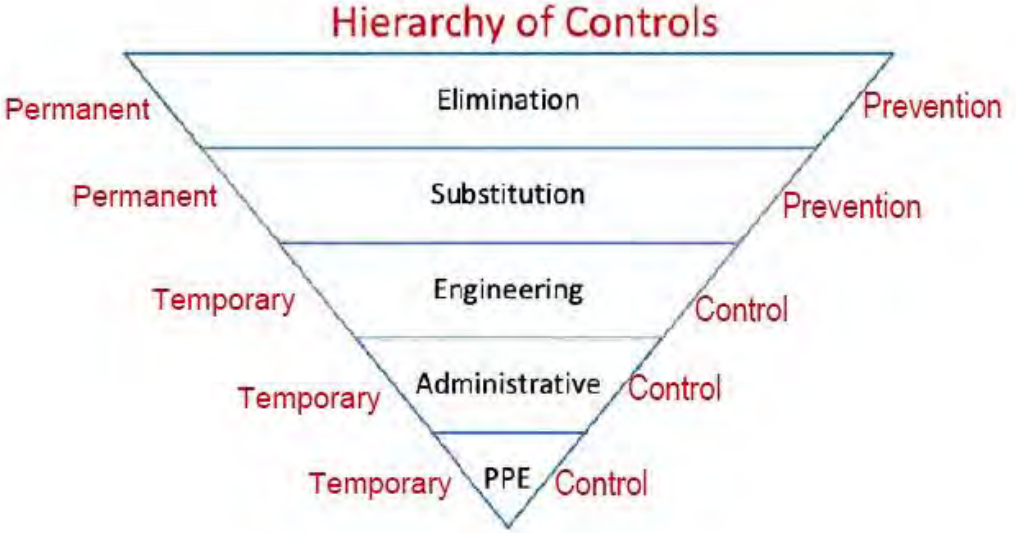
Note:
SMS Core Element 3 & 4 are normally accomplished by:

- ❑ Competent person inspections and corrective actions, and
- ❑ Workers conducting JSA/JHAs, PSA/PHAs, and taking corrective actions prior to work operations and reporting issues or MOC

COMPETENT PERSON
VS
QUALIFIED PERSON

Competent
Qualified
Authorized
Affected
Certified

Hierarchy of Controls



"COMPETENT PERSON" means on who is:

1. **Capable of identifying existing and predictable hazards** in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and

2. Has **authorization to take prompt corrective measures** to eliminate or control them.

QUALIFIED PERSON

- by possession of a recognized degree
- certificate,
- or professional standing,
- or who by extensive knowledge, training,

and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

ELIMINATION
Completely remove the hazard or completely remove the personnel

SUBSTITUTE
Substitute a less harmful materials for more harmful materials
(Ex: fiberglass for asbestos (insulation, roofing, fireproofing)
Substitute equipment, tool/material for less harmful
Substitute with subcontractors or differently qualified personnel

CONTROL
ENGINEERING
Build walls, sound barriers, mufflers, dampers, buffers, guards, rails,

ADMINISTRATIVE
Policies, Procedures, Programs
Training, Coaching, Discipline
Supervision, BBS Observations, Authorizations,
Permits, Permissions, Warnings, Signage
Work-rest cycles, body positioning STOP WORK

PPE (PERSONAL PROTECTIVE EQUIPMENT)
Fast line of defense

OSHA REGULATIONS VS. BEST PRACTICES

- ❑ OSHA sets minimum legal requirements, while best practices exceed these standards to further enhance workplace safety.
- ❑ OSHA compliance standards are legally enforceable, whereas best practices are voluntary guidelines that improve safety culture beyond compliance.
- ❑ OSHA standards focus on hazard identification and control, while best practices emphasize proactive risk prevention before hazards become violations.
- ❑ OSHA standards may be outdated due to slow regulatory updates, whereas best practices evolve with new technology, research, and industry trends.
- ❑ OSHA inspections are reactive, triggered by complaints, fatalities, or serious incidents, whereas best practice programs encourage continuous self-auditing and improvement.

WHY OSHA WOULD VISIT A WORKSITE

- ❑ Fatality or Catastrophic Event – OSHA is required to investigate any workplace if a worker is killed or an incident results in the hospitalization of three or more workers.
- ❑ Employee Complaints – Workers can file confidential complaints if they believe unsafe conditions exist, triggering an inspection.
- ❑ Imminent Danger Situations – OSHA will respond immediately if a hazard poses an immediate risk of death or serious harm.
- ❑ Programmed Inspections – High-risk industries like construction, manufacturing, and chemical processing are subject to random
- ❑ OSHA audits. Follow-Up Investigations – OSHA revisits worksites to ensure previous violations have been corrected, particularly after serious infractions

OSHA GOAL DURING INVESTIGATIONS

OSHA's goal during investigations is not just to issue citations but to identify contributing and root causes to help employers prevent future incidents, improve safety programs, and protect workers' health and lives.

DIRECT & INDIRECT COSTS OF INJURIES

Workplace injuries can have significant financial, operational, and human impacts on an organization.

Direct Costs are immediately measurable expenses
Indirect Costs are often hidden & exceed direct costs over time.

DIRECT COSTS OF WORKPLACE INJURIES

Direct costs are immediate expenses that occur due to the injury and are usually covered by insurance or employer payments.

- ❑ Medical Expenses
- ❑ Workers' Compensation
- ❑ Legal Fees & Fines
- ❑ Equipment Damage
- ❑ Insurance Premium Increases

INDIRECT COSTS OF WORKPLACE INJURIES

Indirect costs are hidden, harder to quantify, and typically not covered by insurance. These can have long-term effects on a company's operations, morale, and financial stability.

- ❑ Lost Productivity
- ❑ Replacement & Training Costs
- ❑ Administrative Costs
- ❑ Decreased Morale
- ❑ Reputation Damage
- ❑ Overtime & Increased Workload
- ❑ Regulatory Compliance Costs

THE TRUE COST OF WORKPLACE INJURIES

While direct costs are often measurable, indirect costs can be 3-10 times higher than the initial medical and compensation expenses. This is why preventing workplace injuries through proactive safety measures is critical for financial stability, operational efficiency, and worker well-being.

HEAT RELATED ILLNESSES

HEAT SYNCOPE

Fainting (syncope) episode or dizziness that usually occurs when standing for too long or suddenly standing up after sitting or lying. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Symptoms of heat syncope include:

- *Fainting (short duration)*
- *Dizziness*
- Light-headedness from standing too long or suddenly rising from a sitting or lying position

HEAT EXHAUSTION

The body's response to an excessive loss of water and salt, usually through excessive sweating.

Symptoms of heat exhaustion include:

- Headache
- Nausea
- Dizziness
- Weakness
- Irritability
- Thirst
- *Heavy sweating & tacky/sticky skin*
- Elevated body temperature
- *Decreased urine output*
- *Dilated pupils*

HEAT STROKE

The most serious heat-related illness. It occurs when the body can no longer control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause permanent disability or death if the person does not receive emergency treatment.

Symptoms of heat stroke include:

- Confusion, altered mental status, slurred speech
- Loss of consciousness (coma)
- *Hot, dry skin or profuse sweating*
- Seizures
- *Very high body temperature*
- Fatal if treatment delayed
- *Constricted/small pupils*

HEAT RELATED ILLNESSES

HEAT CRAMPS

Affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles cause painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Symptoms

Muscle cramps, pain, or spasms in the abdomen, arms, or legs

HEAT RASH

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

Symptoms of heat rash include:

- Red clusters of pimples or small blisters
- Usually appears on the neck, upper chest, groin, under the breasts, and in elbow creases

HYPERTHERMIA (hyper means hot)

Abnormally high body temperature. Also called heat illnesses, there are several forms of hyperthermia. Heat cramps are fairly mild, whereas heat exhaustion is more severe. Heatstroke is the most serious form of hyperthermia and can be life-threatening

RHABDOMYOLYSIS (rhabdo)

A medical condition associated with heat stress and prolonged physical exertion. *Rhabdo causes the rapid breakdown, rupture, and death of muscle.* When muscle tissue dies, electrolytes and large proteins are released into the bloodstream. This can cause irregular heart rhythms, seizures, and damage to the kidneys.

Symptoms of rhabdo include:

- Muscle cramps/pain
- Abnormally dark (tea or cola-colored) urine
- Weakness
- Exercise intolerance
- Asymptomatic

COLD RELATED ILLNESSES

HYPOTHERMIA

When exposed to cold temperatures, your body begins to lose heat faster than it is produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. Particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures.

Early Symptoms
- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

Late Symptoms
- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

CHILBLAINS

Caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees F. The cold exposure causes damage to the capillary beds (groups of small blood vessels) in the skin. This damage is permanent and the redness and itching will return with additional exposure. The redness and itching typically occurs on cheeks, ears, fingers, and toes.

Symptoms of chilblains include:
- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

TRENCH FOOT

Trench foot, also known as immersion foot, is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as freezing to 60 degrees F if the feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. Therefore, to prevent heat loss, the body constricts blood vessels to shut down circulation in the feet. Skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products. Normally starts at 31 degrees or below and as high as 60.

Symptoms of trench foot include:
- *Reddening of the skin*
- Numbness
- Leg cramps
- Swelling
- *Tingling pain*
- *Blisters or ulcers*
- *Bleeding under the skin*
- *Gangrene (the foot may turn dark purple, blue, or gray)*

FROSTBITE

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly. Affects hands, feet, fingers toes (limbs & appendages) also nose

Symptoms of frostbite include:
- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin (white waxy skin)

RESPIRATORY PROTECTION

100% BREATHABLE AIR
78% Nitrogen
21% Oxygen
1% All other gases

ATMOSPHERIC HAZARDS
Caustic/ Acid
Oxygen Deficiency (Enrichment)
LEL/LFL
Toxins

ROUTE OF ENTRY
Inhalation
Injection
Ingestion
Absorption

RESPIRATORS USE
CBRN, CBRNe, CBRNE
Chemical
Biological
Radiological
Nuclear
E *Hi Yield Explosives*

WMD *Weapons of Mass Destruction*

RESPIRATORY INLET COVERINGS aka RESPIRATORS
¼ Face *(nose only)*
½ Face *(nose & mouth)*
Full Face
Helmets
Hoods
Blouses
Suits

TRAINING & FIT TESTING
Before Initial Use and
then Annually
Also
Complete medical questionnaire
and pulmanary test

9 ELEMENTS OF A RESPIRATOR PROGRAM
1. Selection
2. Medical evaluation
3. Fit testing
4. Safe Use
5. Maintenance and care
6. Air quality
7. Training on *hazards*
8. Training *respirators*
9. Program evaluation

RESPIRATORS TYPES
Purifying
Air-supplied

AIR PURIFYING
Cartridges, Canisters, Filter
Filters examples are N95 Mask
Canisters hold more impurities than cartridges

AIR PURIFYING PARTICULATES
Dust *Ex. Lead, silica, etc...*
Fibers *Ex: Asbestos, fiberglass*
Fumes From metal welding
And low concentrations of some toxins. See note below.

AIR-SUPPLIED AIR-LINE
Air-line with escape pack
SCBA *Self Contained Breathing Apparatus*
Escape Packs
SCUBA *Self Contained Underwater Breathing Apparatus*

AIR SUPPLIED
Gases, Vapors, Mists, Arenols

NOTE
Air supplied respirators are mostly worn in oxygen deficient atmospheres and around toxic environments gases, vapors, mists & aerosols

Sometimes in low toxic atmospheres an air purifying respirator may be used. First check Section 8 of the SDS to verify what type of respiratory protection is needed.

Air-purifying respirators

Air-purifying respirators, which remove contaminants from the air.

Half mask Filtering Facepiece Dust mask
APF=10
Needs to be fit tested

Half mask Elastomeric Respirator
APF=10
Needs to be fit tested

Full Facepiece Elastomeric Respirator
APF=50
Needs to be fit tested

Original illustrations created by Attilis & Associates

Examples of Air-purifying respirators that can not be fit tested because they are loose-fitting

Loose-Fitting Powered Air-Purifying Respirator (PAPR)
APF=25

Hooded Powered Air-Purifying Respirator (PAPR)
APF=25 (1,000)*

Atmosphere-supplying respirators

Atmosphere-supplying respirators, which provide clean air from an uncontaminated source

Tight-Fitting Full Facepiece Powered Air-Purifying Respirator (PAPR)
APF=1,000
Needs to be fit tested

Tight-Fitting Half Facepiece Powered Air-Purifying Respirator (PAPR)
APF=50
Needs to be fit tested

SCBAs - safest type of respirators, therefore worn in atmospheres by workers, rescue personnel and firefighters in atmospheres that are below 19.5% oxygen or that are toxic.

Tight-fitting Self-Contained Breathing Apparatus (SCBA) pressure-demand mode
APF=10,000
Demand mode
APF=50
Needs to be fit tested

Tight-fitting Abrasive Blasting Respirator Continuous flow
APF=25/1,000*
SAR Full Facepiece
*Needs to be fit tested***

Tight-fitting Atmosphere-Supplying Respirator with an auxiliary escape bottle
APF=10,000 in escape mode only; otherwise APF=1,000
Full facepiece
Needs to be fit tested

WORKERS MUST ACCESS TO CLEAN, SAFE DRINKING WATER ON THE JOB.

1. **Potable Water Must Be Provided**
- ❑ Employers must provide safe drinking water that meets EPA standards for potability.
- ❑ Water must not be contaminated and should be tested if necessary.
- ❑ Non-potable water (e.g., for industrial use) must be clearly labeled “Not for Drinking”.

2. Accessibility of Drinking Water
- ❑ Potable water must be readily accessible to all employees.
- ❑ Employees cannot be charged for drinking water.
- ❑ Workers should not have to travel unreasonable distances to access water.

3. Individual Drinking Cups Must Be Provided
- ❑ Common drinking sources (e.g., shared cups, dippers, buckets) are prohibited due to contamination risks.
- ❑ Single-use or reusable personal cups or bottles should be provided or allowed.

4. Proper Water Dispensing Equipment
- ❑ If water is stored, it must be in clean, sanitary, covered containers.
- ❑ Drinking fountains, taps, or approved dispensers must be used.
- ❑ Water dispensers must prevent backflow contamination.

5. Water Supply in Construction Sites (29 CFR 1926.51)
- ❑ Water must be available in sufficient quantity for all workers.
- ❑ Storage containers must be kept clean, covered, and regularly replenished.
- ❑ Non-potable water must be labeled and kept separate from potable sources.

6. Protection from Heat and Dehydration
- ❑ Employers must provide cool, potable water in hot environments.
- ❑ Encouraging frequent hydration breaks is recommended.
- ❑ Encourage workers to drink at least a gallon of water daily or more.

ANSI FIRST AID KIT REQUIREMENTS FOR ALL WORKSITES

ANSI provides guidelines for workplace first aid kits through the ANSI/ISEA Z308.1-2021 standard. This standard classifies kits into two categories:

- ❑ **Class A Kits:** Designed for common workplace injuries, such as minor cuts, abrasions, and sprains. Kits include items like adhesive bandages, antiseptic applications, and burn treatments.

- ❑ **Class B Kits:** Intended for more complex or high-risk environments, these kits contain a broader range and quantity of supplies, including items like a tourniquet and splint, in addition to the contents of Class A kits.

Employers should assess their specific workplace hazards to determine the appropriate class of first aid kit required.

OSHA REQUIREMENTS FOR CONSTRUCTION SITES

OSHA mandates construction sites comply with specific first aid requirements:

- ❑ Employers must ensure that medical personnel are available for advice and consultation on occupational health matters. (Don't have to be on-site, just accessible to travel to them in needed. Ex: clinics, hospitals, EMS)
- ❑ Adequate first aid supplies must be readily accessible.
- ❑ While OSHA does not specify exact contents for general industry, it refers to ANSI/ISEA Z308.1-2021 standards as a source of guidance.
- ❑ First aid kits should be placed in weatherproof containers with individually sealed packages for each type of item.
- ❑ Employers must check the contents before sending them out on each job and at least weekly to ensure that expended items are replaced.

INSPECTION INTERVALS AND TECHNIQUES

Regular inspections are crucial to maintain the efficacy of first aid kits:

- ❑Inspect first aid kits at least weekly on each job site to ensure all items are present and in usable condition.
- ❑Use an inventory checklist to verify the presence and condition of each item.
- ❑Replace any used, damaged, or expired supplies promptly.

Storing Materials Near Fire Sprinklers

FIRE WATCH DUTIES

- Have fire extinguishing equipment ready & be trained in its use
- Be familiar with facilities for sounding an alarm in the event of a fire
- Watch for fires in all exposed areas, try to extinguish them only when within the incipient stage of a fire, or sound the alarm
- Be maintained for at least 30 minutes after completion of welding or cutting operations to detect and extinguish possible smoldering fires.
- Firewatch required when hot-working within 35 feet of a flammable or combustible that cannot be relocated.

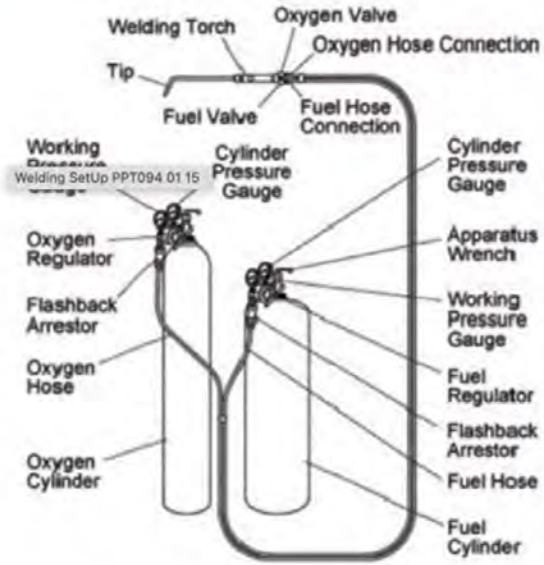
Storage of LPG within buildings is prohibited

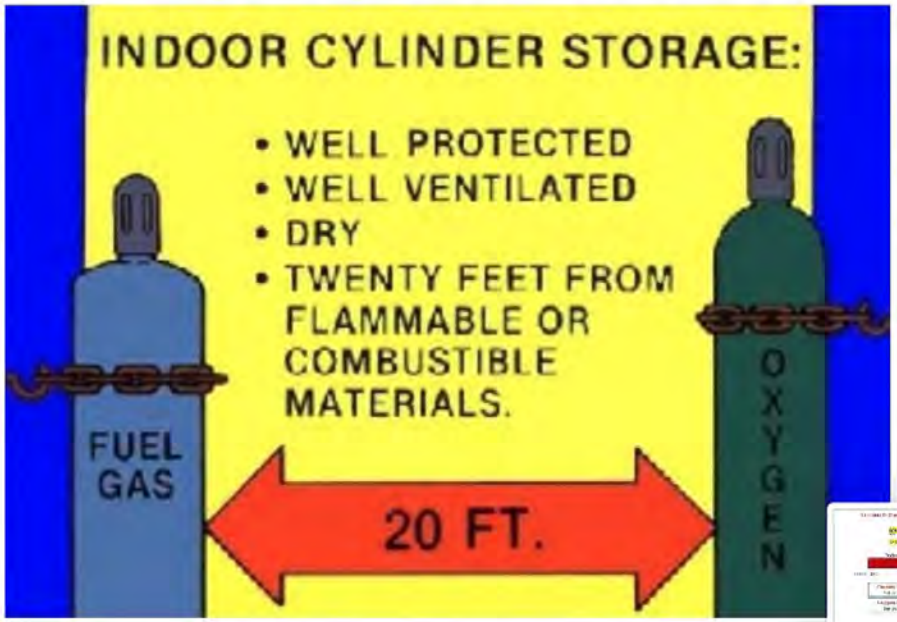
Storage outside of buildings. Containers must be in a suitable ventilated enclosure or otherwise protected against tampering.

OSHA use the CGA-Pamplet P-1 for guidance

CGA= Compressed Gas Association

Oxygen cylinders in storage must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least 30 mins





FUEL CANS REQUIREMENTS

- Must be UL Listed *(because Static Electricity)*
- Self Closing Lid
- Arrest Flasher Screen
- 5 Gallon Max
- Must Be Bondable
- Labeled with contents
- Labeled "NO SMOKING"

FLAMMABLE LOCKER STORAGE

Must be UL Listed

60 gallons max.
Category 1, 2, or 3

120 gallons max.
Category 4

4 STAGES OF A FIRE

1. INCIPIENT developing stage of a fire is immediately after ignition

2. GROWTH the fire has established itself and burns self-sufficiently

3. FULLY DEVELOPED reaches its hottest point and engulfs all the available fuel sources

4. DECAY (longest stage) when it runs out of oxygen or fuel to sustain fire

FIRE EXTINGUISHERS

Fire extinguishers are used to extinguish incipient fires. Employee that may be responsible to put out an incipient fire must be properly trained on the safe use and hazards associated with fire extinguishing equipment.

Pull the pin
Aim
Squeeze
Sweep

CLASS A

Ordinary combustible materials, like wood, cloth, paper, rubber, and many plastics. Primarily contains water.

CLASS B

Flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and gases. Primarily contains foam or CO_2.

CLASS C

Electrical and energized equipment.
Primarily contains foam or CO_2.

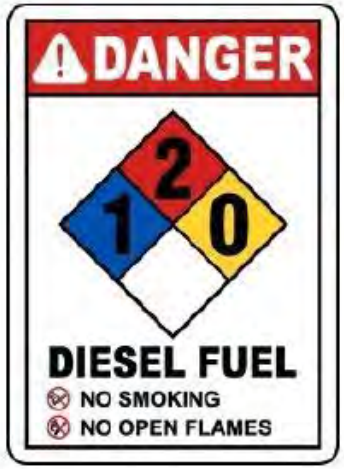
CLASS D

Combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium.
Primarily contains foam or CO_2.

CLASS K

Industrial Kitchens, grease trap trucks and other environments with significant animal fats

NFPA 704 Placards

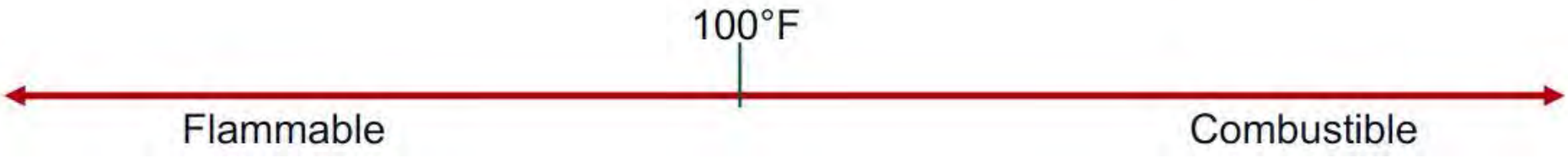


- ❑ UN 1203
- ❑ Must be UL Listed
  (because Static Electricity)
- ❑ Self Self-closing lid
- ❑ Arrest Flasher Screen
- ❑ 5 Gallon Max
- ❑ Must Be Bondable
- ❑ Labeled with contents
- ❑ Labeled "NO SMOKING"

- ❑ Flashpoint of -50° or below makes it a **flammable**
- ❑ 60 Max Gallons - Flammable Locker

- ❑ UN 1202
- ❑ Must be UL Listed
  (because Static Electricity)
- ❑ Self Self-closing lid
- ❑ Arrest Flasher Screen
- ❑ 5 Gallon Max
- ❑ Must Be Bondable
- ❑ Labeled with contents
- ❑ Labeled "NO SMOKING"

- ❑ Flashpoint of 125° or above makes it a **combustible**
- ❑ Max 120 Gallons - Flammable Locker



NFPA 704 Placard

For Transportable Quantities

0 - 4

0 - least hazardous

4 - most hazardous

COLOR CODES

Red	**F**ire
Yellow	**I**nstability
White	**S**pecial Hazards
Blue	**H**ealth

Consensus Group Directive by

National Fire Protection Association
www.nfpa.org
(800) 344-3555

SPECIAL HAZARDS

White Section

~~**OX**~~ Oxidizers

~~**W**~~ Water Reactives

~~**SA**~~ Simple Asphyxiants

OSHA® QUICK CARD™

Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

OSHA® QUICK CARD™

Hazard Communication Safety Data Sheets

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*
Section 13, Disposal considerations*
Section 14, Transport information*
Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1910.1200(g)(2)).

Employers must ensure that SDSs are readily accessible to employees.
See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.

OSHA® QUICK CARD™

Hazard Communication Standard Pictogram

As of June 1, 2015, the Hazard Communication Standard (HCS) will require pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

CHRONIC HAZARDS OF DUST
ASBESTOS, LEAD, AND SILICA

ASBESTOS DUST HAZARDS & CHEMICAL EXPOSURE

- ❑ Causes asbestosis (lung scarring), mesothelioma, and lung cancer.
- ❑ Fibers become airborne during demolition, renovation, and insulation removal.
- ❑ Symptoms may appear decades later.
- ❑ No safe exposure level, requires strict containment and PPE.
- ❑ Can contaminate clothing and spread to others (secondary exposure).

LEAD DUST HAZARDS

- ❑ Lead poisoning, affecting the brain, kidneys, and nervous system.
- ❑ Inhalation leads to cognitive impairment, memory loss, and high blood pressure.
- ❑ Extremely toxic to children and pregnant workers.
- ❑ Common in old paint, plumbing, and roofing materials.
- ❑ Requires HEPA filtration, wet methods, and blood lead monitoring.

SILICA DUST HAZARDS

- ❑ Silicosis is an incurable lung disease leading to respiratory failure.
- ❑ Long-term exposure increases lung cancer risk.
- ❑ Generated from cutting, grinding, drilling, or crushing concrete, stone, and brick.
- ❑ Can lead to chronic kidney disease (CKD) and autoimmune disorders.
- ❑ OSHA mandates exposure limits and respiratory protection apply.

POWER-ACTUATED TOOLS SAFETY TIPS

Powered by gunpowder or compressed gas to drive fasteners into concrete, steel, or masonry.

- ❑ Acts like a firearm – The tool fires a fastener with explosive force, requiring muzzle depression against the work surface before firing.
- ❑ Operator training required – OSHA mandates that only trained and authorized workers operate power-actuated tools.
- ❑ Always assume it's loaded – Never point at anyone; keep fingers off the trigger until ready to fire.
- ❑ Use the correct fastener and charge – Incorrect loads or fasteners can cause misfires or ricochets.
- ❑ Wear proper PPE – Safety glasses, face shields, ear protection, and gloves are required.
- ❑ Check for misfires safely – Hold the tool against the surface for 30 seconds before clearing a misfire.
- ❑ Inspect before use – Ensure the tool is in good condition, with working safety mechanisms.

AIR NAIL GUN SAFETY TIPS

Uses compressed air to drive nails common in construction & framing.

- ❑ Works like a firearm – The nosepiece (muzzle) must be depressed before the trigger will fire.
- ❑ Choose the right trigger type – Sequential triggers are safer than contact (bump) triggers, reducing accidental discharges.
- ❑ Keep hands and body clear – Nails can ricochet or penetrate unintended materials.
- ❑ Disconnect air supply before maintenance – Prevents accidental discharge while clearing jams.
- ❑ Use appropriate pressure settings – Excessive PSI can cause over-penetration or nail misfires.
- ❑ Train workers on proper use – OSHA recommends training on tool handling, work area safety, and injury prevention.
- ❑ Store safely – Always disconnect and store unloaded when not in use.

GUIDELINES FOR PERSONAL FALL ARREST SYSTEMS (PFAS)

Guidelines to help ensure proper use and maintenance of PFAS, enhancing worker safety

ABCDs of Fall Arrest (Component) Must meet ANSI Z359 standards
All must support 5,000 lbs. per employee unless there is an exception noted in the ANSI Z359 standard

Anchor Point
Body Harness
Connectors Include lanyards, deceleration devices, and lifelines
D-Ring Dorsal D-Ring

INSPECTION
Inspect PFAS components before each use
Remove defective components from service immediately

TRAINING
Employers must train workers on PFAS use, inspection, and maintenance
Training includes recognizing fall hazards and using equipment correctly

USAGE
PFAS is required for fall hazards of 6 feet or more
Applicable on ladders, scaffolds, roofs, and elevated platforms

FALL CLEARANCE
Ensure enough clearance below to prevent hitting lower levels during a fall.

COMPATIBILITY
Ensure all PFAS components are compatible to avoid failure and must hold a minimum of 5000 pounds.

STANDARDS
29 CFR 1910.140 Personal Fall Protection Systems (General Industry).
29 CFR 1926.502 Fall Protection Systems Criteria and Practices (Construction).

RESCUE PLAN
Employers must have a prompt rescue plan for fallen workers.

REGULAR TRAINING
Continuous training to maintain proficiency and stay updated on safety procedures.

SLIP, TRIP & FALLS PREVENTION TIPS

GENERAL REQUIREMENTS:

- ❑ Keep all places of employment, passageways, storerooms, and service rooms clean and orderly.
- ❑ Ensure that all places of employment are kept clean and orderly and that they are free from accumulations of materials that could cause tripping or slipping hazards

WALKING AND WORKING SURFACES

- ❑ Provide and maintain safe means of access and egress
- ❑ Ensure walking and working surfaces have the strength and structural integrity to support employees safely
- ❑ Keep walking and working surfaces clean and orderly

GUARDRAILS, HANDRAILS, AND COVERS

- ❑ Provide guardrails and toe boards on all exposed sides and edges of platforms, runways, and ramps
- ❑ Ensure all stairways having 4 or more risers have standard stair railings or handrails
- ❑ Cover floor openings and floor holes

OSHA STANDARDS RELATED TO FALL PROTECTION

General Industry	4 ft. and above
Construction	6 ft. and above
On Scaffolding	10 ft and above (most clients prohibit this)

3 CONVENTIONAL METHODS OF FALL PROTECTION

1) Guardrails
2) Personal Fall Arrest System
3) Safety Nets

HOUSEKEEPING

- ❑ Maintain all places of employment, passageways, storerooms, and service rooms in a clean, orderly, and sanitary condition
- ❑ Ensure all spills and other accumulated materials are cleaned up as soon as possible
- ❑ Provide for the safe removal of waste materials from the jobsite

FLOOR LOADING PROTECTION

- ❑ Ensure all materials stored are stacked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse.
- ❑ Store all materials so that the load is balanced safely
- ❑ Remove all materials stored on levels when possible

SAFETY NET SYSTEMS

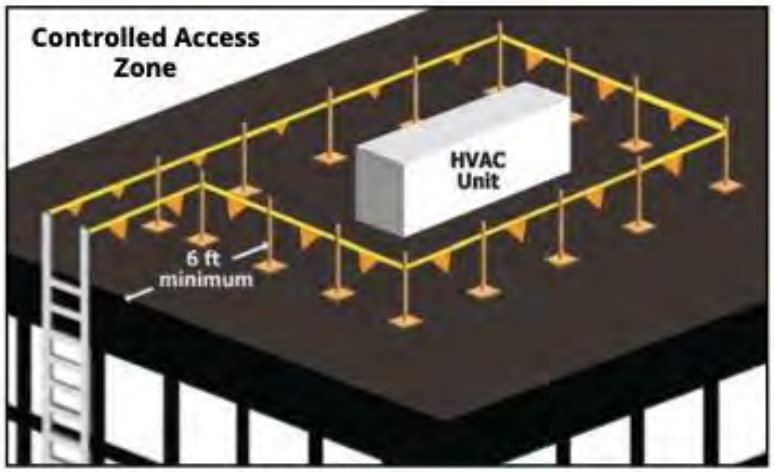
- ❑ Provide safety nets, personal fall arrest systems, or positioning device systems when working at heights above 6 feet
- ❑ Ensure all safety net systems are inspected at least weekly, and after any incident that could affect safety net integrity

PPE

- ❑ Provide appropriate PPE to all employees at no cost to them and ensure that PPE is used correctly by everyone
- ❑ Ensure all employees have been trained in the proper use of PPE and that they use it correctly.

WARNING LINE SYSTEM RULES
FOR FALL PROTECTION

- ❑ Used for roofing work on low-slope roofs (less than 4:12 pitch).
- ❑ Must be placed at least 6 feet from the roof edge (or 10 feet if mechanical equipment is in use).
- ❑ Lines must be highly visible and capable of resisting at least 16 pounds of force.
- ❑ Supports (stanchions) must be spaced no more than 6 feet apart.
- ❑ Warning lines must be at least 34 inches and no more than 39 inches high from the walking surface.
- ❑ Only workers performing roofing tasks may work within the warning line; others require additional fall protection.
- ❑ Must be used in combination with other fall protection (e.g., personal fall arrest system, safety monitoring, or guardrails) if within 6 feet of the edge.
- ❑ Mechanical equipment must not be operated between the warning line and the roof edge unless additional protection is provided .
- ❑ Workers must be trained on warning line system use and fall hazards.
- ❑ If a safety monitor is used, they must be a competent person and must not have other duties that distract them.



ELECTRICAL SAFETY TIPS

GENERAL SAFETY TIPS
- ❑ **Check Your Gear**: Inspect electrical tools regularly and remove any faulty ones.
- ❑ **Grounding**: Ensure electrical systems are properly grounded.
- ❑ **Use GFCIs**: Especially for 120-volt outlets.

WORKING WITH LIVE EQUIPMENT
- ❑ **Lockout/Tagout**: De-energize circuits before work and use lockout/tagout procedures.
- ❑ **Qualified Only**: Only trained personnel should work on live parts.

PERSONAL PROTECTIVE GEAR
- ❑ **Wear PPE**: Use insulated tools and wear gloves, boots, and flame-resistant clothing.

SAFE WORK PRACTICES
- ❑ **Keep Distance**: Stay clear of live electrical equipment and power lines.
- ❑ **Use Barriers**: Protect yourself with insulating barriers and tools.
- ❑ **Post Warnings**: Put up clear warning signs.

TEMPORARY WIRING
- ❑ **Check Cords**: Use rated extension cords and avoid damaged ones.
- ❑ **Protect and Remove**: Install temporary wiring properly and remove it when done.

OVERCURRENT PROTECTION
- ❑ **Use Proper Fuses**: Use the right circuit breakers and fuses, don't bypass them.

ENVIRONMENT CONTROLS
- ❑ **Stay Dry**: Avoid working in wet conditions unless equipment is designed for it.
- ❑ **Use GFCIs in Wet Areas**: Always.

TRAINING AND EMERGENCY PROCEDURES
- ❑ **Get Trained**: Ensure everyone is trained in electrical safety.
- ❑ **Be Ready**: Know the emergency procedures and CPR