ABRASIVE BLASTING

When performing abrasive blasting operations, from a safety standpoint, there are numerous hazards that must be addressed.

First and foremost are respiratory hazards. Dust hazards are created as the abrasive materials and the surface coatings are shattered and pulverized during blasting operations to particles of respirable size. The composition and toxicity of the abrasive as well as the coating must be known to determine the health hazard as well as respiratory selection.

The many types of abrasive materials have varying degrees of hazard with silica sand being perhaps the most hazardous mineral abrasive used. Whenever possible, silica sand use should be limited and, if possible, a substitute material used. Other types of abrasives include: synthetic or natural mineral grains; metallic shot or hard grit (made of steel or chilled cast iron); and organic abrasives such as ground corncobs and walnut shells.

The hazards of steel or cast iron dust are relatively minimal; however, combustible organic abrasives may be pulverized fine enough to be capable of forming explosive mixtures with air.

The coatings that are being blasted may, for example, contain lead (in paints); arsenic (in furnaces); cadmium (plating); and even silica sand (embedded in the surface of castings). These hazards require specific respiratory protection and are serious health hazards.

Some specific information regarding abrasive blasting can be found in the OSHA 29 CFR 1910.94. Additionally, each hazard must be dealt with in accordance with specific OSHA standards.

In addition to respiratory hazards, the following safety concerns, depending on the job, may need to be addressed:

A. Appropriate PPE for eye, hand, skin, foot, head hazards.
B. Fall protection.
C. Scaffold & ladder safety.
D. Release of toxic dust (Environmental (EPA) concern).
E. Correct pressure hoses and couplings.
F. Securing the work area to deny unauthorized entry.
G. Working in a permit-required confined space.
H. Hazard communication -- understanding the materials you are working with (lead, arsenic, cadmium, etc.).
ACCESS TO SAFETY INFORMATION - EMPLOYEES

As an employer, our company will make every effort to ensure that our employees do not work in conditions that are unsanitary, hazardous, or dangerous to their health or safety. To achieve this goal, employees will receive safety training on a continual basis. This scheduled safety meeting is but one example of providing access to safety information. All of our training, whether situational (addressing a specific hazard at a specific time) or formal (addressing a specific topic in its entirety in a structured training format, i.e., hazard communication) will be interactive with ample opportunity for employees to ask safety related questions and provide positive input.

The easiest way to address a safety concern is to ask! Never perform any task for which you do not feel fully qualified from a safety standpoint. Ask your supervisor or the safety representative at our company before putting yourself at risk.

Regularly check the posted information on the safety and health bulletin board. Posted information -- such as emergency phone numbers -- may be life saving.

During formal training, actively participate. If something doesn’t make sense, get clarification.

All of our formal safety programs provide direction for additional safety information. For example, our Hazard Communication Plan explains, among other things, the types of information found on labels and Material Safety Data Sheets (MSDS’s). More importantly, it explains how this information may be used to prevent physical or health hazard exposure. Our program references the appropriate standard and is readily available for review.

Look around almost any company and you will find safety information in abundance: danger, caution, warning signs & tags; operator and equipment manuals; ANSI and UL approvals; fire extinguisher inspection records (and gages); control zones; weight, speed, and capacity limits; as well as visual (hand signals) and audible warnings of danger.

All the safety information in the world is of no value if it is not internalized and put to use. Whether the information is highly technical or simply a reminder of a hazardous condition, it must be heeded. Employees are expected to actively participate in protecting themselves and their co-workers from injury.

Safety standards and procedures do not “pop out of the blue” -- they were, and are, developed after years of accident analysis by safety experts.

There is no point in becoming an accident statistic when safety information is so readily available. Think safety -- act safely!
ACCESS TO SAFETY INFORMATION - MANAGEMENT

Our company has an obligation to provide a workplace that is inherently safe. Where does safety information come from? Put simply, the safety “rules” come from the Occupational Safety & Health Administration (OSHA) in the form of standards. As a point of interest, there are some states which have adopted their own standards, however, these standards have to be as stringent as OSHA’s and approved by OSHA.

There are other agencies that provide safety information and guidance. Probably the three most important, from an occupational standpoint, are the National Institute for Occupational Safety and Health (NIOSH), the Environmental Protection Agency (EPA), and the Centers for Disease Control and Prevention (CDC).

Information from all of these agencies is available in larger libraries, in bookstores, and on the Internet. Of course, employees have the same access as employers.

We must operate within the framework of OSHA standards and all our safety efforts are geared toward meeting the directive found in section 5(a)(1) of the Occupational Safety and Health Act also know as the General Duty Clause. The employer “shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.” Additionally, the employer “shall comply with occupational safety and health standards promulgated under the [OSHA] Act."

In addition to the above, and more directly related to our daily operations, safety information comes from within our own organization. Hazard assessment, employee feedback, management participation, program evaluation, accident investigation and review --these are the “nuts and bolts” of our safety program which allow for adjustment and modification as circumstances and levels of safety commitment change.

The ultimate beneficiary of a quality safety program is the employee and it is in the employee’s best interest to assist us in determining its safety needs. The employee is in the best position to know if the safety policies, procedures, and training are appropriate, clearly understood, and meaningful. Management must encourage the correct behavior and use consistent discipline if safety procedures are not followed.

Be actively involved. Safety takes a commitment from both management and employees. Management striving for a safe work place without employee involvement is just as meaningless as employees striving for safe working conditions with management standing on the sidelines.

The most vital resource for safety information comes from the individual employee who assesses his own work situation, determines safety shortcomings, seeks resolution, and shares input with management.
ACCIDENTAL EXPOSURE TO POISONS

A poison can be defined as a chemical substance that causes harm when it comes into contact with living tissue. It is clear from reviewing Material Safety Data Sheets that poisons are found at our company. While you don’t think of solvents or gasoline, for example, as poisons, they are if ingested, inhaled, absorbed, or injected into your body in sufficient quantities to cause harm. As a point of interest, even prescribed medical drugs which are designed solely to help living organisms can result in poisoning if misused through improper diagnosis or overdose.

Knowing the hazards of the chemical products with which you are working, the location and ready accessibility of MSDS, the signs and symptoms of overexposure, the methods of exposure, and the first aid procedures to be taken if exposure occurs are items that could be of life saving importance. What are common on site chemicals which could cause harm and some of the symptoms of overexposure? Proper use, PPE requirements, and first aid procedures are found on appropriate MSDS. Job site chemical poisons include gases such as carbon monoxide; corrosive acids and alkali used in cleaners and paint removers; arsenic compounds found in paints; bleaches; carbon tetrachloride in degreasers; petroleum distillates such as gasoline and kerosene; turpentine which is found in solvents and cleaning solutions; and xylene and toluene which are also found in solvents and degreasers. The above types of products and literally all chemical products have the potential to poison your body.

The following is to emphasize the importance of MSDS and safe work practices. Poisons can cause: skin irritation; burns about the mouth and throat; dehydration; stomach pain; nausea; vomiting; weak, rapid pulse; cold, clammy skin; confusion; delirium; coma; throat constriction; internal bleeding; electrolyte loss; mild to throbbing headaches; dizziness; convulsions; swelling; hallucinations; seizures; cardiac irregularities; paralysis; spasms; drowsiness; stupor; fever; muscle weakness; kidney failure; respiratory failure; abdominal pain; cramps; diarrhea; coughing; choking; high blood pressure; shallow breathing; bone marrow damage; drooling; and, of course, death.

Rather than experiencing even the mildest of the above consequences of accidental poisoning, wouldn’t it be wiser to exercise caution when using any chemical product?

Note to Trainer: Be prepared to list and explain the specific chemicals that are present on your site and what the specific toxic effects are for each.
ACCIDENT INVESTIGATION

On site accidents do not happen in a vacuum. There is a reason, or more accurately reasons, for every accident. The five (5) W's must be answered by the accident investigator: Who; What; Why; When; and Where. The purpose of Accident Investigation is to prevent the same type of accident from reoccurring.

Apparently simple accidents may actually be caused by many complex and overlapping reasons. For example, a worker accidentally drops a hammer from a ladder and it strikes a co-worker who is holding (securing) the ladder. The co-worker is not wearing a hard hat. Certainly, the initial finding would blame the co-worker for not wearing a hard hat. Case closed. Wrong!

In the above scenario, why was the co-worker not wearing a hard hat? Were they available? Was it company policy to wear hard hats? Was this policy enforced? Had this violation of safety procedure been overlooked by supervisors to the point where it became standard operating procedure? Were shortcuts taken because someone put a higher premium on production than on safety? Why did the hammer fall in the first place? Did the hammer have a proper grip or was it extremely cold and the worker had no gloves? If so, were warm, non-slip gloves available? Could engineering controls (a net) or changes in procedure be devised to prevent the reoccurrence of this accident and like accidents? (Objects falling from above.)

To get the answer to these and other questions, as soon as possible, statements should be taken from all witnesses to an accident. All relevant factors should be considered. Was the accident preventable by a change in work methods? (Physically securing the ladder.) Was the accident preventable through redesign of the hammer? (A non-slip handle.) Was the accident preventable by increased safety training? (Emphasis on the reasons for, and the requirement to, wear hard hats.) Was the accident preventable through stronger management supervision? (Not letting slipshod safety practices become standard operating procedures.)

The primary focus of an accident investigation, after gathering all the facts, is to determine how to prevent the accident from reoccurring. It is not to find fault with any particular individual. However, the results of an accident investigation may indicate that additional safety training is necessary.

It is easy to overlook near-miss accidents (a hammer drops and no one is hit) or minor accidents such as a worker falling off a ladder and not getting hurt at all. This is a mistake because near-miss and minor accidents have the same causes as serious accidents and each time they reoccur, it is just a matter of luck whether or not an injury develops.

**Note to Trainer:** Be prepared to discuss how your company follows-up on accidents, and near misses.

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

Developed by STEP, LLC  P.O. Box 1402, Murray, Kentucky 42071 (270)753-6529  General Industry – TBT 5
ACCIDENTS – HELP PREVENT THEM

During safety meetings, while talking with other employees, when listening to the radio, while watching TV, when reading newspapers & magazines, you run across stories of people who have been hurt on a job site.

Put yourself in their place. Try to figure out why the accident happened. See if you can identify some safety standard, some procedure, some sort of personal protective equipment (PPE) that would have prevented the accident.

Reflect on the possibility of the same accident happening to you. Have you done the same thing and been lucky enough to not have had an accident. Have you ever used a shortcut because of laziness, lack of knowledge, or just to save time?

What ever the injury, imagine it happening to you. Imagine the measurable costs -- lost wages, medical bills, wasted time. Imagine the immeasurable costs -- the pain and suffering, the possibility of living the rest of your life with a job induced disability, the unfairness of it all to you and your family.

Make a resolution to not only be aware of safety considerations relating to the job tasks you perform, but to actually follow the safety procedures.

Think of speeding in your car. If every time you exceeded the speed limit you got a ticket, you wouldn’t speed. However, most of the time you don’t get a ticket. You can speed for days, weeks, months, and even years -- BUT -- eventually you get nailed.

The same holds true for occupational accidents. You can slide for days, weeks, months, and even years -- BUT -- eventually you will have an accident. It’s a sure bet.

You cannot change the laws of nature. Gravity will drive you into the ground, chemicals will explode if not properly handled or stored, electricity will go through your body and destroy cells, acids will burn your skin, the momentum of a machine will not be slowed while sucking in one of your body parts, oxygen deficient or poisonous atmospheres will kill you, and the inhalation or ingestion of many job site chemicals will cause cancer or other very serious diseases.

While you cannot change the laws of nature, on a job site they are surprisingly easy to deal with -- just follow established safety procedures. It’s that simple. Do that and you’re going to be fine.

Try to imagine going to work one morning, fit and healthy and full of life. By the end of the day, you are in a hospital with a limb missing and your life is changed forever. Changed because of one stupid omission, one lax moment, one act of carelessness. It may be hard to believe that an accident will happen to you, but throughout the world accidents happen and they happen to working men and women who thought it wouldn’t be them.

Put yourself in their place. Imagine how their morning started.
ACCIDENT LOTTERY

If you don’t bet on a lottery, you have no chance of winning -- absolutely none! If you bet on a lottery, you might win, but you probably won’t. The more you bet, the greater your chances of winning. If you cover all the numbers, you’ll absolutely win, but probably you’ll win less than you bet.

That’s the way it is. If you do not violate any safety procedure and are careful in all you do on the job, you will not have an accident. If you occasionally violate safety procedures, you may have an accident, but, in truth, you probably won’t. However, if you constantly ignore safety procedures, it is a pretty sure bet that eventually you’ll have an accident and get injured. Of course, anytime you violate safety rules, you may get hurt and the more safety chances you take the greater the odds are that you will have an accident. That’s the way it is.

Why would you, in your right mind, tempt fate and expose yourself to possible injury? Where is the benefit to you? Do taking safety shortcuts save time? You are getting paid a day’s wage for a day’s work, and safety is part of your job. Do you really think anyone is impressed, or even cares, if you take a shortcut and save a minute or two on a three hour job? On the other hand, you can bet that you, your fellow workers, your supervisors, and your significant others will certainly be upset and disappointed in your judgment and behavior if you, as a result of your safety shortcut, get injured.

Aside from the injury itself, your selfishness will cost time, money, and emotional capital -- all of which are irreplaceable. You’ll be noticed, all right, but it is not the kind of exposure you want. Why would you gamble when the pay-off is an injury? The bet doesn’t make sense. It would be one thing if you risked injury for a great reward -- such as fame or tons of money -- as do professional football players or Indianapolis 500 drivers (even they take safety as seriously as their respective sports will allow), but just to risk it for, at best, a few minutes of saved time, is not worth it!

Don’t for a minute think that you are doing the company, your fellow workers, or yourself a favor by rushing headlong into a work situation without factoring in the safety procedures. Rather than being a valued employee, you become a loose cannon, a bull in a china shop, a hazard, a danger, a liability -- to put it bluntly: a persona non grata! (an unwelcome person). Just as there are compulsive gamblers who, over time, lose everything, there are employees who, for whatever reason, seem to compulsively gamble on safety. Not surprisingly, over time, they too lose. Sometimes it’s a minor injury, sometimes a major injury, sometimes it is the ultimate injury -- death!

If you must gamble, gamble on a sure winner -- safety. You win every time!
ACCIDENT PREVENTION

How can we prevent accidents at our facility? First and foremost, there must be a commitment to safety from both management and employees. Part of management’s commitment to safety is to assess and reassess the job site environment to determine what hazards exist and what training, engineering controls, job procedures, and/or personal protective equipment is required to eliminate the hazards.

These scheduled safety meetings are designed to keep all of us thinking about safety concepts in general as well as focusing on specific topics that are applicable at your job. You must think in terms of safety at all times because one lax moment can cause a lifetime of pain, suffering, or even death to yourself or a co-worker.

Do not take chances or attempt any job you are not trained to do. Understand what risks are involved and what methods are appropriate for eliminating the risks. Knowledge is your first line of defense in accident prevention. Are you aware of labels and Material Safety Data Sheets? Do you know where to find them? Do you use the appropriate personal protective equipment? Does it fit properly? Are you aware of the dangers of falling from any height? Do you know how to prevent falls? Do you know how to eliminate fire hazards? Do you know where the fire extinguishers are and how to use them? Do you check ladders, extension cords, and equipment before using? Do you know what to do if they are faulty? This line of questioning could go on and on, but, it boils down to this: do you know how to perform your job in a safe manner and do you know where to find the answers to your safety related questions?

If you have questions, ask! If you are unsure of a procedure, ask!

Do not be lulled into complacency. Because an accident does not happen when an unsafe act is committed does not mean an accident will not happen in the future. In fact, over time, disregard for safety rules will lead to an accident -- its almost a sure bet!

Basically, one must always be alert and aware.

Safety rules and procedures are generally easy to understand. Why are they repeated over and over? The answer is simple. Accidents on the job site can be prevented only if all persons think and act in terms of "safety" all the time. During our Safety Meetings, a specific safety subject will be covered. However, should any employee have a safety concern about any subject, this will be addressed immediately. If the answer to a specific question is not known, it will be researched and the answer given to all employees as soon as possible.

Remember: Think Safety!
AERIAL LIFTS

Aerial lifts include the following types of vehicle-mounted aerial devices to elevate personnel to job-sites above the ground:

A. Extendible boom platforms.
B. Aerial ladders.
C. Articulating boom platforms.
D. Vertical towers.
E. A combination of any of the above.

Only authorized persons may operate an aerial lift.

Lift controls must be tested each day prior to use to determine they are in a safe working condition.

Belting off to any adjacent pole, structure, or other equipment while working from an aerial lift is not permitted.

When working from an aerial lift, one must stand firmly on the floor of the basket or cage and not sit or climb on the edge, use planks, ladders, or other devices for a work position.

Personnel working from an aerial lift must be attached by a lanyard and safety harness to the boom or basket.

Load limits set by the manufacturer must never be exceeded.

The brakes must be set and, when outriggers are used, they shall be positioned on pads or a solid surface.

Aerial lifts shall not be moved with personnel in the basket unless it is designed for this type of operation. Aerial lifts designed as personnel movers must have controls that are clearly marked as to their use. The lower controls must be able to override the upper controls.

Except in an emergency, the lower controls shall not be used unless permission has been granted by the persons in the lift.

Extreme care must be exercised to avoid contact with electrical energy.

If you are working near an aerial lift, be aware of the dangers of its operation, the operator’s limited visibility, and the possibility of falling objects.
ASBESTOS

The purpose of this safety meeting is to provide awareness about asbestos. Surprisingly, in many industries you are around asbestos and don’t even know it. Asbestos can be found in older tile flooring, pipe and mechanical insulation, plaster, fireproofing, and roofing materials. Undisturbed, it is perfectly safe.

Asbestos is not a specific mineral, but rather a fibrous form of various minerals. It is a remarkable product because it is resistant to corrosive chemicals, it is a nonconductor of electricity, it has a high tensile strength (equal to that of steel wire), and is resistant to heat (it will not burn, but will disintegrate at extremely high temperatures). Some forms of asbestos, such as chrysotile, can be spun into thread. In fact, one pound of chrysotile can produce 30,000 feet of thread -- it is that fine. Other types of asbestos have fibers which can not be spun, but are excellent for their frictional properties (brakes) and their insulation and sound deadening properties. The actual minerals found in asbestos include iron, magnesium, silica, and water. Asbestos is a truly remarkable product which has been serving mankind since the ancient Greeks and Romans.

Unfortunately, asbestos has a down side that has been discovered and statistically documented in recent years -- it is hazardous to your health.

Workers who deal with asbestos on a regular basis are familiar with OSHA 29 CFR 1910.1001, the standard which deals with asbestos. They are familiar with the exposure limits, the types of respiratory protection, the disposable clothing, medical surveillance programs, the containment procedures, the training programs, the certifications, the air monitoring, and so on. Workers who do not work with asbestos probably will fall into one of two groups: 1) those who have an unreasonable fear of asbestos, and 2) those who have no knowledge of asbestos and its dangers. The truth is, asbestos and the associated health hazards are something to be aware of and respect, they are not something to panic about.

Undisturbed, an asbestos product is perfectly safe. Asbestos found in floor tiles and mastic will not harm anyone. The problem with asbestos is the microscopic fibers which, when released, enter the deepest portion of the lung (past your natural defenses such as hairs, mucus, cilia, and macrophages). Scar tissues can develop and the lung stiffens thus reducing gas exchange. This is called asbestosis. Another disease associated with asbestos is lung cancer. High exposure levels of asbestos increases one's chance of lung cancer by a factor of five. Mesothelioma, a disease caused primarily by exposure to amosite and crocidolite, can be fatal.

The health hazards associated with asbestos are chronic and, as such, present themselves after a long period of time.

If you believe the materials you will be working with contain asbestos, or are simply not sure; do not disturb the material and contact your supervisor.
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**BACK INJURIES**

Occupational back injuries are generally caused by falling or improper lifting such as lifting an object that is too heavy and/or bulky; not having a good grip; and/or improper bending or twisting. If you cannot comfortably lift an item, get help!

If your spine were perfectly straight, which it isn't, and the object you were carrying were placed on your head, the weight on your lower spine would be the weight of your upper body plus the weight of the object. The load on your back increases at a tremendous rate the farther out from your spine the object is carried due to mechanical disadvantage. Keep objects as close to you as you can when lifting. Lift with your legs, not your back.

Take shorter strides when carrying loads to lessen the strain on your muscles and back. To increase your stability and balance, your feet should be at a wider stance than normal, approximately the width of your shoulders.

Wear proper footwear for maximum traction. Be aware of the condition of the surface on which you are walking. Ice, mud and damp surfaces are slippery.

Types of accidents that can lead to back injury include:

1. Slips, trips, and falls (the most common of accidents and preventable by close attention to your surroundings and maintaining a clear line of sight). Slips, trips, and falls can be prevented by something as simple as seeing where you are going. Maintain a clear line of sight when carrying an object.
2. Falling from height.
   a. employees on a walking/working surface with an unprotected side or edge which is 4 feet or more above a lower level must be protected from falling by using a guardrail system, a safety net system, or a personal fall arrest system.
   b. employees on a scaffold more than 10 feet above a lower level must be protected from falling by the use of a guardrail system and/or personal fall arrest system (depending of type of scaffold being used.)
3. Vehicular accidents (wearing a seat belt/shoulder harness will greatly reduce the likelihood of injury).

There isn’t one type of fall or accident noted above that can’t be prevented through exercising care, good judgment, and foresight.

Should a back injury occur, particularly as a result of fall or accident, be aware of these symptoms: pain, tingling, numbness, or inability to move arms or legs. Should these symptoms occur, an ambulance should be called and the injured employee should not be moved unless there is a greater immediate life threatening hazard. If the injured employee must be moved, keep the head, neck and back together as a unit; avoid bending or twisting the body; and do not let the head fall forward or backward. Improper movement could injure the spinal cord and cause permanent paralysis.
BASIC TOOLS

Much is written about powered (electric, gas, pneumatic) tools and the importance of guards and other safety related topics. Seldom are the hazards associated with simple, non-powered tools addressed. Every tool is potentially dangerous if not properly used. For the purpose of this Safety Meeting, basic tools would include, but are not limited to: hammers, screwdrivers, shovels, pry bars, axes, shears, utility knives, wrenches, brooms, and chisels.

Below are five guidelines for basic tool use.

1: *Never use a tool for a purpose other than that for which it was designed!*

Improper use of a tool will certainly damage it and may result in injury if the tool slips or breaks.

2: *Never exceed a tool’s design limits!*

It is easy to exceed a tool’s design limits by placing a hollow pipe over a hand tool such as a claw hammer or wrench. If the tool cannot do the job being properly used, you’ve got the wrong tool. Exceeding a tool’s design limits will certainly damage the tool and, of course, expose yourself to injury if it slips or breaks.

3: *Inspect tools before use.*

Crack or splintered handles, loose heads, “mushroomed” striking surfaces, dull chisels or blades, bent shafts, worn or deformed ends – are all potentially dangerous conditions for tool use. Either repair or replace damaged tools -- do not use them!

4: *Clean tools after use.*

It is much easier to clean and/or lubricate tools immediately after use than waiting till the tools become encrusted with gunk or rust. This is an ideal time, as a matter of course, to inspect the tool, fulfilling the 3rd guideline above.

5: *Store tools properly.*

If tools are properly stored, automatically, over time, you will save hours not having to look for them. From a safety standpoint, you have the right tool at the right time. You will not reach into a tool box and, while rummaging around, cut yourself on an exposed sharp object. You will not trip on tools. Tools in tool belts will not fall from heights and hit persons below.
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**Bloodborne Pathogens**

Bloodborne pathogens are not something you generally think about at this facility. However, you should be aware of them because they exist in all environments. Designated First Aid Providers can protect themselves through certified CPR training and following the provisions of an Exposure Control Plan to prevent the introduction of bloodborne pathogens into their system by exposure to skin, eye, mucous membrane or contact caused by piercing mucous membranes or the skin barrier through bites, cuts, needle sticks, or abrasions with blood or other potentially infectious material. Actually, if work facilities are reasonably close to a medical facility, designated First Aid Providers are not required.

Exactly what are bloodborne pathogens? They are pathogenic microorganisms that are present in human blood and can cause disease in humans. These include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). Other potentially infectious materials include: human body fluids; unfixed tissue or organ from a human (living or dead); and HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions. OSHA standard 29 CFR 1910.1030 deals specifically with the reduction of these hazards through awareness, training, engineering controls, work practice controls, and personal protective equipment requirements. Further, all employees exposed by occupation to bloodborne pathogens must be given the opportunity to be vaccinated with the hepatitis B vaccine at no charge to themselves. Should one decide not to have this vaccination, the declination must be in writing and this declination may be revoked by the employee at any time (provided he/she remains at exposure risk).

If exposure occurs, specific procedures are followed concerning documentation of the incident, providing HBV and HIV testing, counseling, and safe and effective post-exposure procedures.

All employees that deal with bloodborne pathogens in their assigned job must understand and use Universal Precautions which basically means that all human blood and certain body fluids are treated as if they are known to be infectious for bloodborne pathogens.

Certain procedures apply in all situations. These include good housekeeping, wearing of personal protective equipment, proper disposal of waste, the immediate cleaning up of spills, personal hygiene, and the prohibition of eating, drinking, smoking, applying cosmetics and handling contact lenses in work areas where there is a likelihood of occupational exposure.

One should be aware of the limitations of personal protective equipment. For example, rubber gloves will not protect against the dangers of a needle prick.

Do not expose yourself to bloodborne pathogens -- let the emergency medical responders, who have had appropriate training, deal with them.
BURNS

Of all the unfortunate types of injuries that can occur, certainly one of the most devastating is burns. Fortunately, job related burn injuries are relatively rare -- unfortunately, some burn victims are innocent bystanders who had nothing to do with the event that caused the burn. A single fire or explosion can affect many persons.

Eliminate the cause (fire or explosion) and you eliminate the result (burn). Even if a fire or explosion occurs, with proper training before the event, injuries may be reduced or eliminated.

At our job site, are:

A. Appropriate fire extinguishers readily available and routinely inspected?
B. All personnel trained in portable fire extinguisher use?
C. All personnel aware of what type of fire extinguisher puts out what type of fire?
D. All employees aware of how to summon the fire department and emergency responders? Are these phone numbers posted? Is the address of the facility posted or known by all persons?
E. Compressed gas cylinders properly stored and segregated?
F. LP-Gas containers stored outside and appropriately distanced from the buildings?
G. All employees aware of assembly or muster points, if appropriate?
H. All employees aware of first aid procedures for minor burns and first aid procedures for major burns?
   (Note: In the event of a serious injury, the first rule of first aid is: “if you don’t know what you are doing, don’t do it! Immediately call for an emergency responder.)
I. All employees aware that oily rags and debris may result in spontaneous combustion?
J. All exits and routes of egress clearly marked and clear?
K. Fire hydrants located close to the facility are clear and readily accessible?
L. Appropriate “NO SMOKING” signs posted? Just as importantly, are these rules enforced?
M. Welding, cutting, and/or brazing operations carried out in a manner that precludes the possibility of starting a fire?
CHEMICAL SPILLS (GENERAL)

There are over 1,000,000 chemicals alone. The total number of known and unknown chemical compounds cannot even be imagined. Therefore, for obvious reasons, specific cleanup procedures for each chemical or chemical compound would be impossible to list in a short Safety Meeting. At our facility you must know, from individual training, labels, and Material Safety Data Sheets, the proper cleanup procedures for the chemicals (chemical products) with which you are working.

There are certain general themes which must be considered when a spill occurs. They include, but are not limited to:

A. Should there be an immediate warning or evacuation of other employees?
B. What are the acute and/or chronic health hazards?
C. Will there be an undesirable reaction with other chemicals?
D. Will protective clothing and safety equipment be required (including respirators)?
E. Will explosive or poisonous vapors be produced? Is it possible for them to spread to an ignition source?
F. How will contaminated clothing be properly disposed of?
G. How will the cleaned-up chemical be properly disposed of?

The answers to the above questions must be known before there is a spill or accident and they should be second nature.

Most chemicals have some undesirable health effects if inappropriate exposure occurs. Chemical products that get on your skin or in your eyes may cause damage if not properly dealt with. Both the label and the Material Safety Data Sheet will provide information for medical treatment and clean-up.

Even if a chemical were completely inert, as part of good housekeeping in our facility and to prevent additional accidents (such as slipping and falling), chemical spills should be cleaned up immediately.

When working with benign chemicals such as latex paint, for example, the immediacy is not as apparent (though messy and slippery conditions may result) as when working with stronger chemicals which are acids or strong bases. An awareness of the characteristics of vapors must be known -- flammable, reactive, heavier or lighter than air. There are exposure limits for certain vapors which must not be exceeded.

Knowledge of all chemical used at our facility is imperative. If you have any questions or concerns please contact a member of management or the safety and health director immediately.

Your health and safety depends on it!!!!

Note to trainer: Be prepared to discuss some of the on site chemical classes, their hazards, and proper clean-up.
COMPRESSED GAS CYLINDERS - 1

Compressed gas cylinders are used on many job sites -- the most common being oxygen and acetylene for welding and cutting.

Failure to follow basic storage and handling procedures could result in:
A. a sudden, violent, explosive rupture of the cylinder itself, resulting in flying pieces of metal.
B. an abrupt release of dangerous gas which could, depending on circumstances, be inhaled, explode, or start a fire.
C. a slow leak which could drift to a source of ignition.
D. the creation of an “unguided missile” if the neck of the cylinder were to break off.
E. crushed toes or fingers from falling or rolling cylinders.

Basic standard handling and storage procedures include:

A. Damaged cylinders should be segregated, tagged out of service, and returned to the gas supplier for disposal.
B. Read and have readily available the appropriate MSDS.
C. Cylinders must be labeled to indicate the gas identity and appropriate hazards such as health, flammability, and reactivity.
D. Cylinders should be stored in compatible groups:
   1. flammable (acetylene) from oxidizers (oxygen) by at least 20” apart or separated by non-combustible barrier at least 5” high having a fire-rating of at least ½ hour.
   2. corrosives stored away from flammables.
   3. all cylinders should be kept from corrosive vapors. Corrosive vapors will attack metal cylinders
   4. full cylinders should be kept from empty (Marked “MT” or “EMPTY”) cylinders.
E. Secure both full and empty cylinders by chain to a substantial support in an upright position with the valve closed, protective cap on, away from heat and electrical current, and in a well ventilated area designated for cylinder storage.
COMPRESSED GAS CYLINDERS – 2

If possible, cylinders should be moved using a cylinder cart to which they are chained. For short moves and in the absence of a cart, cylinders must have the regulators removed, the valves closed and the protective caps in place prior to being tilted and rolled on their bottom edge.

Steel toed footwear should be worn when moving cylinders.

When compressed gas cylinders are moved in a powered vehicle, they must be secured in a vertical position.

If compressed gas cylinders are frozen, bars must not be used under valves or valve protection caps to pry cylinders loose nor should striking tools be used. Cylinders will be thawed by warm, not boiling, water.

Cylinders may be hoisted only when secured on a cradle, sling-board, or pallet.

For the record, never use a flame to locate gas leaks.

Never:
A. Leave an open cylinder unattended.
B. Leave a cylinder unsecured.
C. Force improper attachments on to the wrong cylinder.
D. Grease or oil the regulator, valve, or fittings of an oxygen cylinder.
E. Place a compressed gas cylinder within a confined space.
F. Lift or carry a cylinder by the valve.

Compressed gas cylinders represent both a potential health hazard as well as a physical hazard. Misuse of cylinders may result in a cylinder instantly taking off like an unguided missile, an explosion, and, depending on the cylinder contents and what the contents inadvertently reach following accidental release, a major catastrophe.

As part of our Hazard Communication Plan, each employee who works with compressed gases must read and understand the MSDS for the product being used. Further, those MSDS must be readily available in the event of an emergency.
COMPRESSED GAS CYLINDERS - USE

Compressed gas cylinders are used at many facilities -- the most common being oxygen and acetylene for welding and propane for heat and powered industrial trucks.

Failure to follow basic safety procedures could result in serious injury such as:

A. Flash burn - due to explosion.
B. Fragment impalement - due to explosion.
C. Compression of the foot - due to mishandling of tanks.
D. Inhalation of hazardous gases - due to leakage.

Basic safety procedures for gas cylinder use:

A. Cylinders must remain upright and chained to a substantial support or cart when in use.
B. Wear appropriate personal protective equipment for the job -- such as steel toed shoes, apron, goggles, gloves, helmet, etc..
C. Read and understand the MSDS for the gas being used and know the location of the MSDS in case of an emergency.
D. Have appropriate fire extinguisher readily available.
E. To release the gas, open the cylinder valve slowly -- standing away from the face and back of the gage -- and leave the opening tools in place (on the valve stem) for quick shut-off in the event of an emergency.
F. Ensure cylinders valves, regulators, couplings, and hose are free of oil and grease and ensure all connections are tight.
G. When using oxygen-fuel systems, use flashback arrestors and reverse-flow check valves to prevent flashback.
H. Keep cylinders away from open flames and sources of heat.
I. Cylinders are never allowed in confined spaces.
J. Do not alter or attempt to repair safety devices or valves.
K. Remove the regulators when: a) moving cylinders; b) work is completed; and c) cylinders are empty.
L. Take care to prevent combustible materials from exposure to welding or cutting operations.
CONFINED SPACE

You see a fellow worker unconscious in a confined space such as a tank, silo, pit, etc... What do you do? Your first instinct may be to rush in and either give first aid or, at least, pull your co-worker out of danger. Wrong! In such a situation do not enter the confined space! Get help immediately. An emergency rescue is required. Rescue personnel must be trained and have, at the minimum, certification in first aid and CPR. They would bring to the scene the proper safety equipment to protect them and help insure a rescue.

DANGER

PERMIT REQUIRED-CONFINED SPACE---AUTHORIZED ENTRANTS ONLY.

If you see the above warning sign on a job site, do not enter the designated confined space without proper training and authorization. In fact, if you see the above warning during permit entry work operations, you would not be able to enter the designated space because it would be sealed off, barricaded, or have a person at the entrance guarding against unauthorized entry. Why? Because permit required confined-spaces are extremely dangerous and require special training and education before a worker is allowed to enter and require special safety measures to protect the worker.

Exactly what is a confined space? A confined space, as its name implies, is a space which has limited access and is not designed for continuous occupancy. There are many confined spaces which do require special measures for working. However, a confined space which has one (1) or more of the below listed characteristics is a permit-required confined space:

A. an actual or potential hazardous atmosphere.

B. a material that has the potential of engulfing the entrant.

C. an internal configuration that might cause an entrant to be trapped or asphyxiated by its shape.

D. contains any serious safety or health hazard.

Be aware of the potential danger of any confined space. If you were to enter a confined space with an atmospheric oxygen concentration of 15%, you would not be able to come out. You might get in, but you would have a strong chance of dying. It's that simple! It's that tragic! 19.5% to 23.5% oxygen is the acceptable limit. Confined spaces are dangerous. One last note to think about -- some materials such as fluoride gas or cadmium vapor may produce transient effects which may pass without medical attention. Twelve to 72 hours later, you may collapse and die. Do not enter Permit Required Confined Spaces unless you have been properly trained.

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CONTROL OF HAZARDOUS ENERGY
(Lockout/Tagout)

You would not work on a toaster, for example, without unplugging it from the wall. The
danger of electrical shock is obvious. People who would practice essentially the
"lockout/tagout" procedures at home often take chances at work doing basically the same
thing.

It is possible that you will, on the job site, be servicing fixed mechanical or electrical
equipment (the major condition for the use of lockout/tagout procedures). Additionally,
it is likely that you will see lockout/tagout devices (locks and tags). You should have a
general knowledge and awareness of what lockout/tagout is all about. Whenever anyone
works on a piece of powered machinery or equipment, either mechanical or electrical, for
servicing or maintenance it must be disconnected from its power source. Furthermore,
stored energy must be released and there must be a method to prevent other people from
reconnecting the power source while the item is being worked on.

Generally, the power source is physically "locked out". Under certain circumstances, the
power may be tagged out. Both methods require standardized procedures and have
specific requirements.

Unplugging a machine whose only source of energy is electricity and having control of
the plug during maintenance does not require either lockout or tagout.

What is important for all employees to understand is that "lockout/tagout" procedures
exist, the reasons for their existence, and, most importantly, to be aware that if there is a
lockout or a tagout device in place on an energy-isolating device, it must be left alone and
no attempt to operate the equipment should be made.

"Tagout", the least desirable method of energy isolation, is not just the simple procedure
of putting a tag on a fuse box. Tagout requires the attachment of a non reusable,
attachable by hand, self locking, non releasable (at least 50 pounds of force to release)
standardized tag. The color, shape or size as well as the print and format must be
standardized.

OSHA estimates that adherence to the requirements of the Control of Hazardous Energy
Lockout/Tagout will prevent about 122 fatalities a year.

At our facility, you should be aware of the lockout and tagout procedures. Should a piece
of machinery need to be locked out, it should be done by a trained, authorized employee
using established company procedures.

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CRANES

Cranes, including overhead cranes, if not properly operated, inspected and maintained, have a potential of causing major bodily injury or property damage. Care must be taken in all facets of crane operation.

Not only do cranes require a thorough annual inspection (a record of the dates and results of these inspections must be maintained); they require inspection prior to each use and even during use by a competent person.

All rated load capacities; recommended operating speeds, special hazard warnings or instructions must be readily visible to the operator of the crane.

While cranes easily have the lifting ability to hoist employees on a personnel platform, this is absolutely prohibited except in very special cases, i.e., when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

Dangers associated with cranes include numerous moving parts. These dangers can be minimized or eliminated through ensuring that all guards are in place and not tampered with.

Care must be taken to ensure that areas within the swing radius of the rear of the rotating superstructure of the crane be barricaded to prevent a person from being struck or crushed.

It almost goes without saying that all employees must keep clear of loads that are about to be lifted as well as suspended loads.

Hand signals used to guide the crane operator will be consistent with the ANSI standard for the type of crane in use and an illustration of the signals must be posted at the job site.

Care must be taken while actually operating the crane in hoisting applications as well as when relocating the crane superstructure.

If you are not directly involved with crane operations, keep clear!

Keep in mind that a mistake around an active crane could be your last -- stay alert!
DETERMINATION OF HEALTH HAZARDS

The health hazards associated with a chemical used in this facility can be found in the chemical product's Material Safety Data Sheet (MSDS). A listing of our MSDS’s as well as the sheets themselves are part of our Hazard Communication Plan and are readily available at our facility.

You intuitively know that the vapor from a chemical you are using could be dangerous to your health. Fortunately, intuition is not a determining factor in the area of health hazards. Hazard determination must be scientifically justified. What you, as an employee, may consider dangerous may be nothing more than a pleasant odor to another employee. In fact, some chemicals, which are health hazards, have a very pleasant citric odor intentionally placed by the manufacturer. There must be some consistency, some reliable method for the determination of health hazards.

Physical hazards are relatively easier to determine. Chemicals have certain properties which may be measured in the laboratory to determine whether the chemical is a combustible liquid, compressed gas, explosive, flammable, organic peroxide, oxidizer, pyrophoric, and/or unstable or water-reactive.

Health hazards, on the other hand, are often much more difficult to establish. Some health hazards take years to present themselves while others are immediate and fatal. Hazard determination is generally conducted by the manufacturers and importers. Employers must rely on the professional judgment of the evaluator, particularly in the area of chronic (long term) hazards.

Carcinogenicity (cancer causing) of a chemical is conclusive if it is so determined by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA.

The results of laboratory tests using animals may be used to predict the possible results in humans. The results of any scientifically acceptable study which indicate a chemical health hazard shall be used for hazard determination. It is also possible that new and more complete studies may refute earlier findings and reverse a health hazard determination.

For other determinations, actual human experience should be considered. For example, if thousands of workers have been exposed to a specific chemical for 50 years without using any personal protection with no ill effects, it would be safe to assume the chemical poses no chemical hazard.

Knowing what the health hazards of a particular chemical product are is vital to determining what personal protective equipment should be utilized when using that product on the job site.
STEP ing toward safety compliance!

DIALS, GAUGES, DATA PLATES

Sometimes safety information is right in front of your face and you don’t see it.

Have you ever looked at the data (information) plate on a piece of equipment? Not only does it contain information such as the date of manufacture, model and serial number, it often contains rated capacities -- the points beyond which an item is unsafe. Ladders, hoists, cranes, powered hand tools - machinery of all kinds -- generally have data plates. When you are operating a piece of gas or diesel powered equipment, do you routinely scan the instrument cluster immediately after starting? Do you understand the significance of the various gauges and the problems that could develop if the machine is run with the dials and gauges outside their normal operating limits?

When using compressed air tanks, do you routinely scan the pressure gauges to ensure that the equipment is operating with a margin of safety? Compressed gas tanks, when in use, have regulators and gauges to ensure your safety. However, if these gauges are not regularly checked, they are of no value and your safety is not assured. You can’t say that this safety information is more important than that. For example, which is more important: -- the gauge that indicates the amount of breathable air in a self-contained breathing apparatus (SCBA) tank or the data plate on a ladder? You might say the SCBA gauge because running out of air can result in immediate death. That’s true, but falling on your head from eight feet because a ladder fails from overloading can have the same result.

Something as simple as over or under inflation of a vehicle tire can result in an accident -- not necessarily likely, but certainly possible. What happens when you overcharge a battery, run an engine with low oil pressure or extremely high temperatures, have too much pressure on a welding tank, or too much pressure in a hydraulic line, and so on? Sometimes, the result is needless damage to the equipment -- other times it results in catastrophic failure of the equipment resulting in injury to yourself or a fellow employee. Using dials, gauges, and data plates takes advantage of safety information which is readily available. Dials and gauges give you instant information on important information which is constantly changing. If it were not important, the information would not be presented. Use it to your advantage.

Stay within operational limits!

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Developed by STEP, LLC P.O. Box 1402, Murray, Kentucky 42071 (270)753-6529 General Industry – TBT 23
DRESSING AND GROOMING

Employees must use discretion in deciding what type of clothing to wear. Of course, the obvious would include warmth and rain protection. Less obvious, are items of clothing that provide coolness during hot working conditions. Overheating, extreme cold, and dampness can cause medical problems which result in lost work days.

Safety can be enhanced by not wearing loose clothing which can catch on protruding objects throwing you off balance. Loose clothing can also trip switches, knock items over, and generally get in the way.

Items hanging from your clothing or body can be sucked into machinery causing loss of a body part or, in extreme circumstances, loss of life -- yes this really does happen!

Clothing should fit properly and provide a level of comfort and movement appropriate to the job. It is of no value to be snugly warm on a frigid job site, yet unable able to move. What good are gloves if you can’t use your hands?

Extremities such as ears, fingers and toes are particularly susceptible to frostbite -- a condition where the blood cells can actually freeze and die. During cold conditions, wear dry, warm socks; appropriate gloves; and ear protection.

Heat can be just as hard on your body as cold. Wear clothing that can “breath” and, if a hard hat is not required, wear a cap to keep the sun off you head and the sun out of your eyes. A sweat band may make work a lot more comfortable. You will be cooler in white or lighter colored clothing which will reflect the heat away from your body.

Clothing will not only protect your skin from minor abrasions, it will prevent sunburn which, in extreme cases, can be disabling.

Regardless of heat, cold, rain, or wind; work goes on and never forsake personal protective equipment if it is called for by the occupational hazards at hand.

Grooming. Leave job company grime, dirt, chemicals, oils, and general crud at the company. Don’t take them home. Whatever products are needed for cleaning up -- particularly for removing chemical products from your skin -- are available at the job site -- use them.

Under fingernails, the space between jewelry and the skin, and your hair are natural traps for unwanted foreign objects which includes plain old dirt as well as chemicals and possibly harmful pathogens.

As a reminder -- rings and jewelry in an industrial setting can be a contributing factor in an accident where a body part is caught in equipment or electrical shock.

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DRIVER SAFETY

Not wearing safety belts, speeding, driving while under the influence of alcohol or drugs, tailgating, driving without a license, weaving, not using rear view mirrors and turn signals -- the list goes on and on. For each type of improper behavior, there are statistics proving how dangerous they are. Whether you are driving a 500 pound motorcycle or an 80,000 pound tractor-trailer combination, you are actually in control of a potentially lethal weapon if not properly controlled.

One might take a lesson from professional drivers. Do you get plenty of rest before driving? Do you inspect your vehicle before driving? Is your vehicle maintained on a regular basis? Do you replace tires before they blow out or have such minimal tread that they hydroplane (when hydroplaning, you have no control whatsoever)? Do you overload your vehicle? Do you know the load limits of your vehicle? Are your wheels aligned and your brakes in good shape? Is the exhaust system in good repair? Do you exercise care when fueling your vehicle? Do you check the oil and other fluids? Is the inside and outside of your windows clean? Are they free from cracks? Do your headlights, turn signals, brake lights, parking lights, flashers, and horn work? Do you have insurance? Do you carry a first aid kit? Do you have a flashlight?

On various job sites, motor vehicles may be found which, if not safely handled, present a safety hazard for the operator, persons around the vehicle, and property. There are all types of industrial motor vehicles and they come in all shapes and sizes powered by battery, propane, gasoline, or diesel. All vehicles are dangerous when care is not exercised in their use. Vehicular accidents on the job site can be serious because of the power and weight of the machine and load.

Persons, who operate forklifts, tow motors, tractors, etc., know the basic safety rules for job site operation because they have been trained and they are authorized to operate the vehicle. They know, for example, to:

A. Ensure the vehicle is inspected before use, well maintained, and has appropriate safety equipment such as a fire extinguisher, horn, adequate lighting, rollover cage, backup alarm, mirrors and flashing light.

B. Sound an audible warning when going backwards and to use a ground guide when there is limited visibility or very tight spaces in which to maneuver.

C. Permit no riders and to keep their own arms and legs within the protection of the driver's compartment or cage.

D. Be aware that the surface on which they travel can safely carry the weight of the vehicle, driver, and load and to keep the load low and secure.

The person most likely to be injured in a job site vehicular accident is not the operator of the vehicle but the person struck by the vehicle or the load.
ELECTRICAL SHOCK

Common sense and OSHA standards dictate that when using temporary wiring a ground fault circuit interrupter should be used. Additionally, electrical cords and equipment should be inspected before use. Why is this so important? What actually happens when you receive a shock? How dangerous is it?

Electrical current is very dangerous -- it can kill!

Because 115V at 15A is so common, its safety is often taken for granted. The danger is not the voltage, it is the Amps (current). 0.015 Amps is enough current to cause a painful shock. Notice the table below which was prepared by the National Safety Council and the Pacific Telegraph Company:

<table>
<thead>
<tr>
<th>Safe Current Values</th>
<th>Unsafe Current Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amps</td>
<td>Amps</td>
</tr>
<tr>
<td>0.001A (1 mA)</td>
<td>0.015 - 0.02A (15 - 20mA)</td>
</tr>
<tr>
<td>Cannot be felt</td>
<td>Painful shock: muscular control lost; cannot let go; not harmful to body organs</td>
</tr>
<tr>
<td>0.001 - 0.008A (1 - 8 mA)</td>
<td>0.02 - 0.09A (20mA - 90mA)</td>
</tr>
<tr>
<td>Felt, but not painful: muscle control is not lost.</td>
<td>0.1 - 0.2A (100mA - 200mA)</td>
</tr>
<tr>
<td></td>
<td>0.2 - 2A (200mA - 2A)</td>
</tr>
<tr>
<td></td>
<td>2A and up</td>
</tr>
<tr>
<td>frying currents; severe burns</td>
<td></td>
</tr>
<tr>
<td>of two types:</td>
<td></td>
</tr>
</tbody>
</table>

*Ventricular Fibrillation is essentially a fluttering of the heart which is useless in circulating blood.

If current is the factor that harms you, what about voltage. Voltage is the “pressure” that pushes the current. The higher the voltage, the more current can be pushed through your body.

As current is forced through your body, it meets resistance (dry, intact skin has an average resistance of 20,000 to 30,000 ohms/cm² while moist thin skin has about 500 ohms/cm²) and it heats up and literally cooks your insides.

Because muscles are operated by electrical signals from your brain through your nerves, current passing through your body can make your muscles involuntarily contract. This may make you unable to release the source of the electricity and greatly increase your risk because the longer the current is passing through your body, the more damage is done.

If you receive a severe shock, you should seek medical evaluation even if there is no apparent damage.

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ELECTRICAL WORK - I

All electrical work must be done according to the latest adopted National Electrical Code, NFPA, OSHA, and established local codes.

ELECTRICAL SAFETY MEASURES

A. Daily, prior to use, all electrical equipment -- including extension cords -- will be inspected and defective items will be tagged out of service and not used.

B. With the exception of double insulated tools (with UL approval), all electrical tools and equipment will be grounded.

C. Tools will not be hoisted by their flexible electrical cords.

D. Except in an emergency, load rated switches and circuit breakers will be used for the opening and closing of circuits under load conditions as opposed to fuses and splice connections.

E. While working on electrical equipment, unauthorized persons will be kept clear by barriers or other means of guarding.

F. Temporary wiring and extension cords will be kept off of walking/working surfaces and out of vehicle traffic areas [or covered to prevent tripping and vehicle damage], and:

1. not suspended with staples, hung from nails, or suspended by wire.
2. not be used if frayed, cut or worn or visibly unsafe.

G. Hands will be dry when working on electrical equipment and particularly when plugging and unplugging extension cords.

H. Areas in which electrical work is to be done must be adequately illuminated and temporary lighting must:

1. have guards in place.
2. not be suspended by its cords unless specifically designed for such installation.

I. A trained person, before work commences, will inform all employees in the work area of both exposed and concealed electrical hazards. If appropriate, warning tags will be used to prevent accidental contact with electrical energy.
ELECTRICAL WORK - I I

Only qualified persons may perform testing work on electric circuits or equipment.

When working around any electrical power circuit, employees will:

A. Protect themselves by deenergizing the circuit and grounding it or by establishing insulation between themselves and the current.

B. Ensure that any conductive materials and equipment that are in contact with any part of their body will be handled in a manner that will preclude contact with exposed energized conductors or circuit parts.

C. Use portable ladders that have non-conductive siderails.

D. Remove or insulate conductive articles of jewelry and clothing that might contact exposed energized parts.

E. Lock out must be used as required

All 15, 20, or 30 amp receptacle outlets that are not part of the permanent wiring of the building or structure and that are used by personnel shall have ground-fault circuit interrupter protection for personnel. GFCI pigtails may be used to meet this requirement if properly sized. Remember, extension cords are considered temporary wiring.

You must assume all lines, cables, capacitors, or parts have an electrical hazard until you are absolutely sure they have been deenergized, grounded, and free from potential electrical energy hazard.

Ground fault circuit interrupters are to be tested before use.

What’s so dangerous about electricity? Electricity can, depending on the amperage and your individual physiology, cause a faint tingle, a slight shock, involuntary muscle spasms, painful shock, loss of muscular control, the inability to release your grasp, extreme pain, respiratory arrest, and death.

Electricity, under the right circumstances such as striking or cutting a main power cable, can literally blow your body apart. An electrical burn should be treated as a serious injury and medical evaluation should be considered immediately after such an event. Unknown internal damage may take place as electricity is flowing through your body.

In a real sense, your body is an electrical system and a major electrical overload may result in temporary or permanent damage to your skin, muscles, bones, blood vessels, nerves, and organs. Only a physician can properly diagnose electrical burn injuries.

Using the proper equipment and work methods, working around electricity is perfectly safe. If you are not absolutely sure of what you are doing, DON’T DO IT!
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EMERGENCY PROCEDURES

There are many types of emergencies that can occur at our facility -- fire, medical emergencies, natural disasters (primarily weather related), and man made disasters (chemical spills and utility failure). Each type of emergency requires a specific response.

Should an emergency situation develop, you should be aware of the proper procedures for being alerted and for alerting others. You should know your escape route from a building or outside work area. You should know what methods are to be employed to account for all personnel. All employees must know where available safety equipment is located and how to use it. Certainly, you must know the location of fire extinguishers, first aid kits, and the Material Safety Data Sheets.

Stay calm during any emergency!

The primary goal of our Emergency Procedures is the protection of all employees from harm. If harm occurs, the prompt application of proper medical care becomes the goal.

The protection of company equipment and property is second. People **always** come first.

Ask yourself these questions:

Do you know the location of job site first aid kits?

Do you know the proper evacuation route?

Do you know how to alert others of danger?

Do you know the chain of command?

Do you know your notification responsibilities, if any?

Do you know where to find emergency phone numbers?

Do you know where to find information on chemicals in the workplace?

Do you know where to meet after an evacuation of a job site?

These are just some of the questions to which the answers should be second nature.

If you don’t know the answers to the above, ask during our meeting! It could save your life.
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**General Industry – TBT**

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**ERGONOMICS**

Ergonomics is a relatively new field which will have a greater and greater impact on our work environment as time goes on.

Ergonomics is a word derived from the Greek word *érgon* which means work. Ergonomics involves the design of tools, personal protective equipment, machinery, and even physical layout to reduce the amount repetitive motion, lessen vibration, and to lessen the strain on the muscles and skeletal system of the body. Ergonomics also involves redesigning the way tasks are performed. Ergonomics, properly employed, makes work easier and results in fewer injuries.

You may have noticed how much easier it is to see, reach, and grasp the various controls in newer automobiles compared with older vehicles. This is applied ergonomics. Obviously, there are trade-offs. A car which has a perfectly designed seat, for example, can not be low and sleek. The trade off is style and aerodynamic efficiency (fuel mileage) versus no back strain.

Who hasn’t heard of Carpal Tunnel Syndrome which is caused by pressure being exerted on the median nerve at the wrist. While Carpal Tunnel Syndrome may apply mainly to typists and computer operators, the identification and reduction of this syndrome is an example of where applied ergonomics has made an impact. Ergonomics will affect industry with improved tool design and work methods.

Tools are being redesigned to make them more user friendly and personal protective equipment is being used to provide back support, reduce wrist motions, and provide padding while kneeling.

Repetitive wrist motions should not exceed 30° of flexion or extension. A wrist restraint can keep your wrist from exceeding 30° extension. Vibration can be reduced to a minimum by machine design and something as simple as proper gloves. Your work environment should not have temperature extremes. Temperature extremes can be directly controlled by you without interfering with your work assignment. For example, protect yourself from extreme cold with proper clothing, gloves and ear protection. How about a back support belt when lifting heavy objects? Use proper lifting techniques, keeping the back straight and the weight of the object close to your body. Wear ear protection in the event of continuous loud background noise (this is actually an OSHA requirement). Good posture and exercise (to warm up and loosen muscles before starting work) can reduce the chance of developing cumulative trauma disorders.

Be aware of ergonomics and look for ways to improve job performance and cut down on repetitive motions. No one knows your job better than you do. You may have an idea for redesigning your tools, your work methods, and your safety equipment. If you have a suggestion, present it!
EXPECTING THE UNEXPECTED

Safety programs, as a rule, address hazards that do -- or are likely to -- impact employees while they are in a work environment.

How do you provide safety planning for events that are likely not to happen? Hopefully, you will spend your entire life never having experienced, for example:

A. A fire.
B. A violent weather condition such as a flood, hurricane, or tornado.
C. An explosion.
D. A structural collapse.

The odds of any of the above events happening is minimal. However, because the resultant havoc could be so devastating, it is in our best interest to plan for these possible occurrences.

One method to prepare for the unexpected is to create an “Emergency Action Plan” which, regardless of the event, addresses:

A. Informing all personnel of what is going on.
B. Identifying who is responsible for what, i.e., fire fighting, emergency providers.
C. Moving employees from danger to safety.
D. Accounting for all personnel at assigned rendezvous point(s).
E. Notifying outside safety & health providers of our immediate needs.

Personnel should be familiar with the emergency action plan and their specific duties -- duties which may range from just walking to a rendezvous point or:

A. Notifying others.
B. Shutting down equipment.
C. Fighting fires.
D. Providing first aid.

Expecting the unexpected may sound like a contradiction in terms, however safety preparedness must be an on-going endeavor for all of us.

The last point cannot be overemphasized: never put yourself at risk to save facilities, material, product, or data -- these items can be replaced.

**Note to trainer:** Discuss your site specific plan
EXTENSION CORDS

Extension cords are not a substitute for permanent wiring and, if not needed, it is better not to use them. However, in many facilities, extension cords are often required so the following safety precautions must be adhered to:

A. Inspect the cord for cracks and cuts. Worn or frayed cords will not be used.

B. Make sure the extension cord has a ground (three prong plug). Proper grounding helps to protect against shock, fire, and lightning. Use of a ground fault circuit interrupter will insure the integrity of the ground. Never break off the grounding prong.

C. Use the shortest continuous length of cord possible. For example, one (1) 50' cord will be used in lieu of two (2) 25' cords. Cords will not be spliced together.

D. Make certain the cord does not lay in water.

E. Make sure the cord is properly rated for the job. Buy only extension cords which bear the UL (Underwriters' Laboratories, Inc.) label. Without a UL approval, there is no assurance of safety. If you make your own extension cords, again, use only UL approved components.

F. Cords will be secured and out of the traffic flow to prevent tripping and/or damage to the cord. Extension cords will not be fastened with staples, hung from nails, or suspended by wire.

G. Extension cords shall be at least the gauge of the device to which they are connected. Should a 14-gauge cord (rated for 9-14 amps and 1,080-1,680 watts) be connected to a device requiring a 10-gauge cord (20-amps and 2400 watts), the cord may overheat and even catch fire yet not trip the fuse or circuit breaker. Fuses and circuit breakers are designed to protect the permanent wiring.

H. Extension cords are to never be used for purposes other than that for which they were designed. They are not tow ropes.

I. Extension cords should be disconnected by pulling on the male and female ends, not by yanking out of the socket by pulling on the cord itself.

Extension cords are used all the time in the work place -- use them with care!
EYE INJURIES

For every job task, a hazard assessment will be made to determine the types of personal protective equipment (PPE) that are to be worn within areas of our facility, or during a particular work procedure.

It is vital that each employee knows what PPE is required, how to obtain it, how to maintain it, how to fit it, how to replace it, and when to wear it.

The easiest, and generally the least expensive, of all PPE is eye protection. Knowing that eye protection is required and failing to wear it is inexcusable.

Unfortunately, the “penalty often far exceeds the crime”. The penalty: pain, suffering, possible loss of sight, loss of visual perception, total change of life style. The crime: ignoring the requirement to wear eye protection. It isn’t fair, but that’s the way things go sometimes.

Safety standards are established to provide workable solutions to workplace hazards and eye hazards are common as “ants on sugar.” Everything from dust and projectiles to extreme light values and chemical splashes -- the obvious and not so obvious. Eyes must be protected from physical, chemical, or radiation agents.

Suppose you could take a pill every morning that would ensure that no harm would befall you at work. Would you take it? Probably. Would your wife, husband, parent, child or any significant other insist you take it? You bet they would!

There is no such pill, however, the same results can be achieved by wearing appropriate PPE and following established safe work practices and work procedures.

Minor injuries are a minor inconvenience -- annoying at best. More serious injuries -- like true occupational eye injuries -- are a needless waste. A little more attention to safety, a little more attention to detail, a little more attention to proper eye protection -- just a little -- and the injury could have been prevented.

It is true that accidents always happen to the “other guy”. Unfortunately, you could be the “other guy” your fellow workers are talking about. You could be the “other guy” who is used as an example in a future safety meeting about eye protection.

While on the topic of eye protection, whenever the eyes (or body) of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eye and body must be established in the work area for immediate emergency use.
EYE PROTECTION

Your precious eyes are a marvel of engineering. Most of us take them for granted as we do all our senses until an accident, injury, or disease forces us to realize the miracle we lost or almost lost. Can you imagine a system that can take (absorb) light and convert it to electrical signals (by way of the 120 million rods and 6 million cones on the retina) and transfer these signals through an optic nerve, which has about one million fibers, directly into the brain.

Most of us see the world in living color and with depth perception. The body itself does much to protect the eyes. There is a bony eye socket in the skull which protects the eye from many mechanical injuries. There are orbital fluids and tissues which cushion direct blows. Eyelids close by reflex from visual or mechanical stimuli. Eyes, by reflex rotate upward with lid closing to protect the cornea. Tears can flush away chemicals and foreign objects. We all come with these safeguards. Sometimes, they are not enough.

Eye protection is required by OSHA (and common sense) when there is a possibility of eye injury. Eye injury is not confined to flying objects. Eye injury can be caused by bright light, dust, chemicals, heat, and literally, anything that can reach the eye. Different dangers require different types of protection. Federal law requires that all prescription glasses be made with impact-resistant lenses. Hardened lenses, through a tempering process, are extremely hard and resistant to impact and breakage. Safety lenses are similar to hardened lenses but are 1 mm thicker. Safety lenses are used in goggles where there is a danger of flying glass or chips of metal.

First Aid procedures, per the American Trauma Society, for the three major types of eye injury are:

FOREIGN OBJECT IN THE EYE: Have the victim pull upper eyelid over lower eyelid. Run plain water over open eye. If object does not wash out, cover both eyes with a gauze dressing and seek medical help promptly. DO NOT rub the eye.

WOUND TO THE EYE: Apply loose sterile dressing over both eyes. Seek medical attention immediately. For bruising or "black eye", a cold compress or ice pack may relieve pain and reduce swelling. DO NOT try to remove any embedded object. DO NOT apply pressure to the eye.

CHEMICAL BURN: Flush immediately with water over open eye for at least 30 minutes. It may be necessary to hold the patient's eyelids open. Cover both eyes with sterile dressing. Seek medical attention immediately. DO NOT put anything but water in the eye.

Remember, an inexpensive pair of safety glasses can save your priceless eyesight.
FALL PROTECTION

Mention “Fall Protection” and one can easily conjure up images of workers bravely risking life and limb 20 feet, 30 feet or higher above solid ground -- their safety guaranteed only by a few buckles, a lanyard and body harness. Of course, the above does not reflect the realities of fall protection. A properly implemented fall protection program limits the risk of falling from an open-sided floor or platform four (4) feet or higher to a lower level by providing appropriate training in recognizing fall hazards and using fall protection systems and equipment.

Fall hazards may exist at any facility. In fact, falls are the leading hazard at work. Because all facilities are not the same and working conditions vary, OSHA has provisions within their standards for us to create a Fall Protection Plan to our specific site. It is important to note that a Fall Protection Plan can only be used when conventional systems provided within the standard (guardrail systems; personal fall arrest systems; safety net systems; positioning device systems; warning line systems; controlled access zones; and safety monitoring systems) are not feasible.

Fall protection also concerns the falling of objects from any height. The mandatory wearing of hard hats, toeboards on scaffolds, and controlled access zones aid in the protection of workers where falling objects present a potential hazard.

It is interesting to note that fall protection standards do not apply directly to ladders and scaffolds. Scaffolds and ladders have their own safety requirements which, when followed, prevent falls.

Safety equipment such as harnesses, ropes, and lanyards used as personal fall protection devices must be used for no other purpose such as lifting materials.

It should be noted that effective January 1, 1998, body belts are not acceptable as part of a personal fall arrest system. However, they are acceptable as part of a positioning device system.

Falls from a height of four feet or more can result in very serious injury. Be aware of fall hazards and never work without fall protection if a fall hazard exists.
FIRES

Each year fire kills thousands of people, and destroys billions of dollars worth of property. These losses can be prevented. Industrial plants, laboratories, research centers, science laboratories, and, yes, manufacturing facilities are stocked with flammable and combustible liquids, gases and solids.

For a fire to start, three conditions must be met at the same time. There must be something to burn -- a fuel; a source of oxygen -- an oxidizer; and most importantly, there needs to be an initiating event that imparts sufficient energy to start a chain reaction -- an ignition source. It is these three factors that essentially create a chain reaction that results in the rapid oxidation of a fuel -- fire.

Fuels: Fuels are materials that burn; the higher the temperature, the easier and quicker they burn. Common fuels include: diesel fuel; gasoline; solvents, such as acetone, alcohol and toluene; gases, like acetylene and propane; and solids, such as wood, paper and ordinary trash. Additionally, dust and even metal shaving can be a fuel under the right circumstances.

Oxidizers: Although ordinary air is 80 percent non-burning nitrogen, the remaining 20 percent is oxygen, and is more than enough to support combustion. In some cases fires can be prevented by displacing the air with a non-burning atmosphere, like helium, argon or pure nitrogen. Fire extinguishers generally remove oxygen from the fire event thus eliminating the fire. Some materials release oxygen when they burn. These substances, called "oxidizers" or "oxidizing agents", are capable of releasing oxygen to a potential fire. Common oxidizers include acids, especially nitric and perchloric acids; chlorine dioxide; and other oxidizing agents such as potassium permanganate and potassium chlorate. These oxidizers must be stored away from all flammable materials. The material safety data sheet of the chemical products you are using is the best source for finding its chemical properties.

Source of Ignition: An ignition source can be a spark, static electricity, arcs from faulty electrical equipment, or even a hot light bulb. The hot surface of a heating unit or tow motor may also be at a high enough temperature to serve as an ignition source.

Routine use of flammable gases, solids or solvents must occur in well ventilated areas, isolated from ignition sources.

Always remember: the combination of a fuel and a source of oxygen, along with a source of ignition can result in a fire. Fire prevention consists of ensuring that the three conditions required for a fire do not exist at the same time.
FIRE EXTINGUISHERS

Portable fire extinguishers are available in this facility. You should know their location and have an understanding of what types of fire extinguishers put out what types of fires. You should know how to operate each type of fire extinguisher in this facility before it may be needed. Instructions for proper use are printed on the extinguishers and should you have any questions, ask your supervisor. Extinguishers shall be routinely inspected.

Fire extinguishers will be serviced and certified by qualified personnel at least annually.

All fire extinguishers are identified by type of fire they will put out as noted below. The most common way of identifying fire extinguisher is the use of pictograms. Each pictogram corresponds with the type of fire the extinguisher is rated for. The table below shows the most common pictograms used.

The older method of identifying fire extinguisher types is as follows:

**Class A:** (Extinguisher has an "A" on a green triangle.)
Location: Within 75' of employees.

**Class B:** (Extinguisher has a "B" on a red square.)
Example: Combustible liquids, greases, flammable gasses.
Location: Within 50' of potential fire.

**Class C:** (Extinguisher has a "C" on a blue circle.)
Example: Electrical fires.
Location: Within 50' of potential fire.

**Class D:** (Extinguisher has a "D" on a yellow star.)
Example: Combustible metals such as potassium and magnesium.
Location: Within 75' of potential fire.

Not all fire extinguishers can put out all types of fire. In fact, using the wrong fire extinguisher on some fires can actually spread the fire. An example of this would be using a Type A extinguisher on an oil fire. An oil fire should be put out with a Type B extinguisher. Additionally, using a Type A extinguisher on an electrical fire (for example) could cause serious injury. An electrical fire should be put out with a fire extinguisher that is rated class "C". Make sure the proper fire extinguisher is used for the type of fire you are dealing with.

Know routes of egress, whom to contact in the event of fire, where the fire extinguishers are located, and how to use them.

Remember: Have a plan for escape before using a fire extinguisher!
FIRE PROTECTION/FIRE PREVENTION

Fire protection addresses what to do after a fire starts and deals with:

A. Fire detection systems

B. Fire alarm systems

C. Portable fire suppression systems

D. Fixed fire suppression systems

E. Employee training in the use of fire protection equipment.

Fire prevention deals not with handling a fire emergency or evacuation of our facility, but rather preventing a fire in the first place. One of the first rules of fire prevention is good housekeeping. Good housekeeping can prevent a fire from starting (properly storing combustibles, for example) and should there be a fire, good housekeeping will: 1) help prevent the spread of the fire, and 2) make fighting the fire an easier task. Some specific housekeeping rules that impact directly on fire prevention are:

A. Combustible liquids must be stored and covered in approved containers.

B. All chemical spills must be cleaned up immediately.

C. Cleanup materials and damaged containers must be properly disposed of.

D. Combustible liquids and trash will be segregated and stored away from ignition sources.

E. Aisle ways will be kept free of clutter and trash.

In addition to good housekeeping, the elimination of major workplace fire hazards must be addressed by adhering to the following guidelines:

A. Smoking is allowed only in designated areas and smoking materials will be totally extinguished and placed in the appropriate receptacles.

B. All chemical and chemical products will be handled and stored in accordance with the procedures noted on their individual Material Safety Data Sheet.

C. Special precautions will be taken when working with an open flame and those areas will be made fire safe by removing or protecting combustibles from ignition.

D. Fire exits must never be blocked.
**FIRST AID**

First aid kits should be readily accessible in all industrial facilities. Further, in the absence of plentiful amounts of clean water, eye flush stations, if needed, will be available. First aid kits are worthless if not immediately available and therefore they will not be locked up.

Should a medical emergency occur, including minor scrapes and bruises, it is important that it is immediately reported to the facility safety representative. In the even of a serious medical emergency, medical professionals should be called. Before the first aid providers arrive, to the extent possible, clear the way so they can reach the injured employee in the most direct way possible.

Only trained and licensed CPR/first aid responders should respond and provide the needed assistance to an injured individual.

Per OSHA, first aid is limited to:

A. Using a non-prescription medication, such as aspirin, at non-prescription strength.

B. Cleaning, flushing or soaking wounds on the surface of the skin;

C. Using wound coverings such as bandages, Band-Aids\textsuperscript{TM}, gauze pads, etc.; or using butterfly bandages or Steri-Strips\textsuperscript{TM}.

D. Using hot or cold therapy.

E. Using any **non-rigid** means of support, such as elastic bandages, wraps, non-rigid back belts, etc..

F. Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.).

G. Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister.

H. Using eye patches.

I. Removing foreign bodies from the eye using only irrigation or a cotton swab.

J. Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.

K. Using finger guards.

L. Using massages.

M. Drinking fluids for relief of heat stress.
FIRST AID KITS

The three most important things dealing with first aid kits are:

1. They must be readily accessible.
2. They must be appropriate for the job site work involved.
3. Personnel must know how to use the contents of the first aid kits.

Pretty simple concepts, but do you know where the first aid kits are located? Do you know the contents? Do you know how to use the items in the first aid kit? Do you know your limitations?

Have you ever been on a job, needed some first aid supplied, opened the First Aid Kit and found the item you need is missing? Not only is this annoying, it could cause a minor injury to develop into something more serious. First aid kits must be replenished as items are used. Those individual items that must be sterile must be wrapped and sealed and used only once. Other items such as tape or scissors can be reused and should be kept clean.

Though OSHA does not specifically spell out the number of first-aid kits that a facility should have, OSHA does say that, “Adequate first aid supplies shall be readily available.” The employer must take into account the available medical services and the number of employees that could be injured when deciding on the number of first aid kits and what supplies to include.

Depending on the facility, first aid supplies will generally include: adhesive bandages, bandage compresses, scissors and tweezers, triangular bandages, antiseptic soap or pads, eye dressing, and other items that a consulting physician may recommend. The main purpose of a bandage, the most commonly used item in a first aid kit, is not really to stop the bleeding, but to keep the wound clean.

The supplies consumed in first aid kits can actually be used as a safety tool. For example, if a kit constantly needs replacement of bandages which have been used for minor cuts, there is an obvious problem that the cuts are happening in the first place. Actual trends can be established and corrective procedures initiated such as protective gloves or handling practices.

When dealing with any injury, stay calm and never do anything unless you know what you are doing.

Improper medical treatment can be more dangerous than no treatment at all.
FIRST AID PROVIDERS

A provision is made for prompt medical care in the case of serious injury. In the absence of an infirmary; clinic; hospital; physician or other licensed healthcare professional that is reasonably accessible in terms of time and distance to the worksite, a person who has a valid certificate in first aid training from the American Red Cross (or equivalent training) will be available to render first aid. Hospital or ambulance assistance can be summoned by anyone thru dialing 911.

Assigned first aid providers will not only provide emergency first aid, they will be the only employees who are allowed to handle any bodily fluids after an accident. Thus, if clean up of bodily fluids after an incident is necessary, assigned first aid providers will handle it.

Why? Because assigned first aid providers will have the knowledge and the equipment to place an impermeable barrier between themselves and the bodily fluids. Unfortunately, there is no way to tell if a bodily fluid contains infectious pathogens so the assumption must be that it does.

First aid is just what the name implies. It is the initial effort to stabilize and provide care, if necessary. First aid providers are not medical personnel such as physicians and nurses.

There is no point in having assigned first aid providers if their identity is not known. All persons on a job site where first aid providers are used must know who they are. The names of assigned first aid providers will be posted along with the emergency phone numbers. (Note to trainer: List or discuss who is trained in First Aid and CPR)

Of course, there are many first aid procedures that do not involve bodily fluids and most first aid requirements are not of a serious nature. In these cases, any employee may assist a co-worker following the below listed rule.

A primary rule of first aid is never provide any medical assistance for which you are not qualified. With the exception of moving an injured party from more imminent danger (example: removing an unconscious person from the hazard of fire or explosion), do not move persons with back or neck injuries. The last thing you want to do is take a mildly serious incident and turn it into a permanent paralysis or fatality!

Assigned first aid providers will ensure that adequate first aid supplies are available including appropriate PPE which will provide an impermeable barrier between themselves and bloodborne pathogens and other infectious materials.

All injuries will be reported to the designated safety person or supervisor who will fill out an accident report and inform the Safety Director.
**FLUIDS**

If you heard in advance that this safety meeting was on job site fluids, you may well have thought that the meeting would focus on the storage, use, clean-up, and possible emergency procedures involved with the liquid chemical products used at our site. You’d be wrong. While the above are important topics and questions related to them should be addressed to the competent person, this safety meeting is about your bodily fluids.

From a safety standpoint, you must not neglect your need for potable (drinkable) fluids. Water is not only the most abundant of all compounds found on the earth, it is the most abundant part of you -- actually about 65% of you is water.

Our work involves exertion and heat which dictates the need for plenty of water.

Drink fluids! From a life process standpoint, what fluid intake is doing is keeping you healthy by allowing your body to maintain its core body temperature at its appropriate level. When your brain senses that cooling action is needed, your body circulates blood to your skin to allow it to cool with the outside temperature. If the water used for sweat is not replaced, a water deficit starts to occur. The millions of chemical reactions taking place in your body at every moment can only occur in the presence of water. The fluids in your body transport nourishment, gases, and waste.

Imagine your body as a water based chemical factory that functions only within a narrow temperature range. An average, healthy person, at rest, has an oral temperature of between 98.6°F and 100.4°F. If your body temperature reaches 105.8°F, convulsions may occur. Your whole central nervous system is impaired when your body temperature rises 9°F above normal. At 106.0°F, the thermoregulatory center in your brain fails and, because of damage to your central nervous system, the sweating (cooling) mechanism cuts off when you need it most. It is a vicious circle -- the hotter you get, the more heat you generate through metabolism. In fact, at 107.6°F, cellular metabolism is 50% higher than at normal temperatures.

Without getting too graphic, here are some of the problems associated with extreme water loss: cells will shrink; the skin will lose its elasticity; skin and mucous membrane cells will dry out; eyeballs will become soft; weight loss will occur; the body temperature will rise; apprehension, restlessness, and even coma may occur; urine will become concentrated; renal shutdown will occur; red blood cells will shrink; death.

Stay healthy! Drink water!

Water is truly the stuff of life.
FOOT PROTECTION

They are light weight, flimsy, and offer little traction. They are bowling shoes! What do bowling shoes have to do with a Safety Meeting on foot protection? They are an example of a shoe designed with two (2) specific purposes in mind -- sport performance and foot safety. All athletic shoes offer foot protection and each sport requires a specific shoe.

One generally thinks of a safety shoe as a steel toed boot. While a steel toed boot does protect your toes from being crushed, they are only one of many types of safety footwear.

One would not wear golf shoes on a bowling alley or play basketball wearing ice skates. The same holds true in industry. Specific dangers require specific footwear.

You may require traction, steel protection, chemical resistance, heat and/or fire resistance, dryness, non-sparking, cushioned, or ankle-protecting footwear. You may require any combination of the above and, for every danger in the workplace, there is an appropriate type of protective footwear which must be worn.

Your foot is a remarkable piece of engineering which is composed of 26 bones, muscles, fatty tissue, nerves, tendons, skin and joints.

Safe working practices are your first line of defense in foot protection. Following company safety procedures and common sense can eliminate many foot injuries. However, accidents can and do occur. Sometimes an accident is truly the result of another person's actions and accidents can occur as a result of mechanical or design failure.

The second line of defense is the foot itself which can absorb a tremendous amount of punishment without damage.

The third line of defense is the most easily achieved. Wear the proper protective footwear! It's that simple and it is required by OSHA.

One last item about foot protection which is seldom mentioned in a Safety Meeting, but is of importance -- cleanliness! Keep your feet clean and dry your feet thoroughly after bathing. Moist areas are conducive to bacterial growth.

It would be a shame to lose a foot or part of a foot because of an accident in the workplace -- wear proper foot protection!
**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

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**GASOLINE**

Because most persons use or indirectly handle gasoline on a regular basis -- from filling up automobiles to lawn mowers -- the hazards presented by this product may have become obscure. Just because you are familiar with gasoline, like electricity, never lose sight of the lethal hazards that it may contain.

Gasoline is a flammable liquid which means it has a flash point of less than 100ºF. The actual flash point -- lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air -- of gasoline is -45ºF. The autoignition temperature -- the temperature at which, with sufficient oxygen, gasoline will ignite on its own and burn -- is 536ºF.

Gasoline has a specific gravity -- the weight of the gasoline compared to the weight of an equal volume of water -- of 0.73. Further, gasoline has a negligible solubility in water. Basically, what the above means is that if water is used to extinguish a gasoline fire, it will only spread it because the gasoline will float on the water and continue to give off a vapor and form a flammable mixture with air. Gasoline fires must be fought with an extinguisher that is rated for Class B Fires such as carbon dioxide, dry chemical, or foam. It should be noted that water spray may be used to cool containers that may be exposed to the heat of the fire to prevent an explosion.

Conditions to avoid: heat, flame, & sources of ignition. Materials to avoid: strong oxidizers.

Health hazard information: routes of entry: inhalation, skin, ingestion.

Signs & symptoms of overexposure: headache, nausea, drowsiness, breathlessness, fatigue, convulsions, loss of conscience, dermatitis.

If there is a spill, notify emergency response personnel, evacuate area, remove ignition sources, build a dike to contain flow, do not flush to sewer or open water. Pick up with inert absorbent and place in closed container for disposal.

Gasoline is a carcinogen -- a cancer causing agent.

Part of this safety meeting is to explain some facts about gasoline. But there was a hidden agenda. Almost all of the above information came directly from a Material Safety Data Sheet. Of course the MSDS has much more information than above, but this safety meeting gives an example of the types of information found and its usefulness.

General rules: Post “No Smoking” signs around gasoline storage and ensure that it is enforced. Use only approved plastic or metal containers for portable gasoline carriers. They must not contain more than 5 gallons.

Double check with your supervisor for storage requirements.
GROUND FAULT PROTECTION

If you are working with a properly insulated electrically powered hand tool that has a three prong plug attached to the power source, what is the point of a Ground Fault Circuit Interrupter GFCI? After all, proper insulation and grounding are recognized methods of preventing injury during electrical equipment operation. Furthermore, doesn't the circuit breaker trip or fuse blow before any injury can occur? The answer is no! GFCI's are required by all 120-volt, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring of a building. GFCI's provide employee safety by detecting lost current resulting from a short, overheating, and/or ground fault and “tripping” or cutting off the current. Because extension cords into which electrical devices are plugged are not part of the permanent wiring, they require GFCI’s.

A GFCI will "trip" when the amount of current amperes going to an electrical device in the hot conductor and the amount of current returning from an electrical device differs by approximately 5 milliamps. The current that is missing is being lost through a ground fault, whether it is in the actual grounding or a short in the equipment or electricity going through the worker to the ground. The GFCI can interrupt the current within as little as 1/40th of a second.

A milliampere is one thousandth of an ampere and the effects of electric current on the human body are as follows:

1 milliamp= A faint tingle.
5 milliamps= Slight shock felt; disturbing, not painful. Average individual can let go.
   Involuntary reactions can lead to injury.
6-30 milliamps= Painful shock; muscular control lost. The point where it is difficult, or impossible, to let go.
50-150 milliamps Extreme pain; respiratory arrest; severe muscular contractions; cannot let go; possible death.

A GFCI will not protect an employee who comes in contact with two hot wires or a hot wire and a neutral wire. A GFCI will provide protection against fires, overheating, damage to insulation, and, the most common form of electrical shock hazard -- the ground fault. Always test a GFCI before use.

A safety note: Ohm's law states that Amperes = Volts ÷ Ohms. If resistance is increased and the voltage remains the same, the amperes current will decrease. This relationship between "resistance" (such as rubber gloves, rubber boots, insulators, insulation on electrical cords) and the flow of current (Amperes) indicates that properly grounded electrical devices will accept the flow of current as opposed to your body. Should a fellow employee be in contact with a live electrical source, disconnect the power source, trip the fuse, or unplug the electrical cord before touching him/her.
HAND & PORTABLE POWERED TOOLS

Hand tools make your work easier. In fact, without hand tools, most jobs could not be accomplished at all. They are an extension of your body and they are absolutely vital on the job site.

However, even the most simple of hand tools, when not properly maintained or when used improperly can cause injury.

When using hand tools, select the right tool for the job and when you are finished using the tool, store it in its proper place having assured yourself it is "fit" for continued use.

Hand tools shall be used only for the purpose for which they are designed. For example, do not use a wrench as a hammer or a screwdriver as a chisel.

Hand tools should be inspected before use and damaged tools repaired, tagged out of service, or discarded. Tools should be kept clean and, where appropriate, oiled. Cutting tools will be kept sharp and will be sheathed when not in use. Proper personal protective equipment will be used when appropriate -- for example when using a striking tool such as a chisel, safety glasses or goggles will be used.

Portable electric 110V power tools should be grounded and, if appropriate, guarded. If not using permanent wiring or if using an extension cord on the job site, a ground fault circuit interrupter (GFCI) must be used.

At our facility, there is the possibility of seeing or using many types of portable power tools such as circular, saber, scroll, and jig saws, hand held drills, grinders, belt and vibrating sanders, fasteners and a variety of compressed air tools. Each tool item has its own special safety features and proper procedures for use. Each tool has the potential for causing serious injury if not properly used. It is a good idea to keep the owner’s manual with the power tool for ready reference.

Portable powered hand tools require specific personal protective equipment such as safety glasses or goggles, gloves, or ear protection.

Safety around portable powered hand tools extends beyond the operator and the specific tool. Care must be taken to avoid injury to others. By the same token, you should keep clear of persons operating these tools. Remember, a piece of debris may strike your eye, for example, even if you are not operating the tool. Stay clear.

If you are unfamiliar with the proper procedure for using, maintaining, or inspecting any tool, ask your supervisor for instruction.
HAND PROTECTION

Hold your hand up and take a good look at it. Grasp and release and move your fingers around. Do you realize that your hand is composed of 20 muscles, three (3) major nerves, 27 bones (14 of which are in your fingers) plus skin, fatty tissue, tendons, and joints. Additionally, there are 15 muscles in your forearm which provide power to your hand. Your hand is your gateway to the world. It lets you do what you think. Its function is feeling and grasping.

How many times have we heard: "What separates man from the rest of the animal kingdom is a truly functional opposing thumb." Try to pick up something while holding your thumb still. In fact, if the nerve to the small muscles of the thumb is severed, 80% of the total hand function is lost.

Another thing that separates man from the rest of the animal kingdom is his ability to design and use hand protection. There are numerous types of hand protection (gloves) available -- each with a specific purpose. The most common are general purpose cotton work gloves which provide protection from minor skin abrasions and cold. However, there are many other types of gloves. Hands need protection from chemicals, cuts, heat, cold, germs, radiation, impact, electricity, and other dangers at the work site. Part of hazard assessment is determining what types of personal protective equipment (hand protection) is required on the job site. For each type of hazard applicable to the hand, there is an appropriate glove which will provide protection and, at the same time, allow you to accomplish your job with efficiency as well as safety.

Personal hygiene is a part of hand protection. Long fingernails can present a real, and possibly painful, problem on the job site. Allowing a hangnail to go unattended can lead to infection.

Fingers are susceptible to frostbite. Frostbite can cause cellular damage as the water in the cells freezes and the ice crystals damage the cell. Warm gloves can make your work more enjoyable and much more efficient during cold weather operations.

Safe work practices and following company safety procedures goes a long way toward hand protection.

Do not take chances with your hands. If you think you need some sort of hand protection, you probably do.
HARD HATS

There are a lot of reasons not to wear a hard hat. They don’t look as “cool” as a baseball cap; they can slip (if not properly adjusted); when you take it off, you have to keep track of it; they may be uncomfortable if not properly adjusted; etc.; etc.. All the above are absurd and stupid reasons when balanced against the possibility of head injury.

If a hazard assessment of your work site indicates that a hard hat is required, you must wear it! It is that simple. You can rationalize all you want, but you must wear your hard hat.

The OSHA standard that deals with head protection and hard hats is so short and so simple, it is reproduced in its entirety, below:

<table>
<thead>
<tr>
<th>Part Number: 1910</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Number: 1910.135</td>
</tr>
<tr>
<td>Title: Head protection.</td>
</tr>
</tbody>
</table>

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

(b) The employer shall ensure that a protective helmet designed to reduce electrical shock hazard is worn by each such affected employee when near exposed electrical conductors which could contact the head.

Helmets for the protection of employees against impact and penetration of falling and flying objects shall meet the specifications contained in American National Standards Institute, Z89.1-1969, Safety Requirements for Industrial Head Protection.

Helmets for the head protection of employees exposed to high voltage electrical shock and burns shall meet the specifications contained in American National Standards Institute, Z89.2-1971.

While some standards are lengthy and, at times, confusing, this standard leaves no doubt of its meaning. There is no room for misinterpretation. The excuse, “I didn’t know I had to wear a hard hat”, just won’t fly.

The consequences of a head injury can be extremely serious. In a real sense, who and what you are resides in your head. Severely damage your head, and brain, and you may become “another person” -- if you survive. The potential hazard of head injury is present on many job sites and this hazard may be easily addressed through proper wearing of your hard hat.
HAZARD ASSESSMENT

Determining and evaluating job site hazards that exist, or are likely to exist, is “hazard assessment” and it is the initial step in the selection process designed to protect our employees from possible eye, hand, foot, limb, or head injury through the use of appropriate personal protective equipment (PPE).

Impact; penetration; compression; chemical; heat; harmful dust; light radiation -- what do these items have in common? They are basic hazard categories which must be identified and their dangers negated through engineering controls and/or PPE selection. If feasible, engineering controls are preferable to PPE because they are passive and do not take active involvement by the affected employee.

If engineering controls are ruled out, PPE selection is made by analyzing and evaluating the type of risk, the level of risk, the potential for injury and the possible seriousness of that injury and matching those factors with PPE which is compatible with the risks and work situation.

Once hazard assessment and PPE selection have been made, all affected employees are informed of the proper PPE to be used during specific jobs on the job site.

Employees will be given training which explains:

1) When PPE is necessary
2) What PPE is necessary
3) How to properly put on, take off, adjust, and wear PPE
4) The limitations of the PPE
5) The proper care, maintenance, useful life and disposal of the PPE.

Should new hazards be introduced to the job site such as new equipment or procedures, additional PPE and training may be necessary.

Because PPE is required by virtue of an identified hazard that exists due to the physical layout of the job site, the specific work that must be accomplished on the job site, or the required method of accomplishing that job, the requirement for PPE will apply to all persons exposed to that hazard whether they be management, visitors, or employees.

The requirement for a PPE Program which would include hazard assessment and PPE selection; documented training; and the written certification of hazard assessment apply specifically to General Industry. However, there is nothing to preclude an employer whose operations are governed by the Construction standards from taking advantage of the many benefits of having a PPE Program which consolidates the various individual PPE requirements required of the Construction Industry and places them into one workable, comprehensive program.

Note to trainer: Discuss your site specific hazard assessment and PPE requirements.
HAZARDS OF NON-HAZARDOUS CHEMICALS

The title of this safety meeting appears to be an oxymoron. What possible hazards could be associated with non-hazardous chemicals? Surprising, many!

Highly corrosive, unstable, flammable, explosive chemicals -- these are hazardous. Hand cleaner, saw dust from treated wood, adhesives -- these are non-hazardous. Or are they?

The whole point of a hazard communication plan is to inform employees of the hazards associated with the chemical products used in the workplace. Most, if not all, chemical products used properly are not, in and of themselves, hazardous.

For clarification, “hazardous” refers to a physical or health hazard to the employee.

For example, all compressed gases have the potential to be a physical hazard if the container ruptures and those same gases have the potential to be a health hazard if inhaled. However, all compressed gases properly stored and used have minimal hazard associated with their use.

The label on chemical products informs you of the identity of the chemicals in the product; appropriate hazard warnings; and the name and address of the chemical manufacturer, importer, or other responsible party. The label on a chemical product container provides initial, immediate information. Detailed, and certainly more technical, information is found on the Material Safety Data Sheet (MSDS). Labels on original containers must not be removed or made illegible.

Every chemical product we use will have a readily available MSDS which, among other things, provides information on storage, use, personal protective equipment (PPE), permissible exposure limits (if any), first aid, and disposal.

It is understandable to reason that a product used every day shouldn’t have to have an MSDS readily accessible because you know the product, its characteristics, and hazards. The problem that arises is that you may need medical treatment due to inadvertent improper or overexposure and a fellow worker or a medical responder would not have a clue of how to treat you without an MSDS.

The hazards associated with chemical products use usually present themselves during improper storage, accidents, miss-use, or failure to wear proper PPE.

If you don’t know the hazards associated with the “non-hazardous” chemical products you are using, right now is a good time to find out. Knowledge about the chemical products you use is the first step in using them safely.

Know where the MSDS’s are located and how to read them.
HAZARD COMMUNICATION

Hazard Communication is basically a worker’s "right to know" program to ensure that all our employees who utilize chemicals on the job site are aware of their potential hazards. Furthermore, it is incumbent on us, as a company, to ensure that those with whom we work or with whom we come in contact be informed of chemical dangers associated with our work.

Awareness is the key to any Hazard Communication Plan. Each employee must be aware that most chemicals have a downside. While chemicals are crucial to accomplishing our jobs, there is a safety and health risk associated with improper use. There is always the possibility of spill or chemical release and knowing the proper procedure for cleanup is vital. Some chemicals are susceptible to fire and/or explosion if not properly handled or stored. Many chemicals can cause acute or chronic health problems if inhaled, sprayed in the eyes, come in contact with skin, or ingested. Practically all chemicals have a danger associated with them if improperly used.

What exactly is a hazardous chemical/chemical mixture? OSHA defines a hazardous chemical as "any chemical which is a physical hazard or a health hazard." Our Hazard Communication Plan explains in detail how to recognize and avoid chemical hazards.

All chemical products used at our site will have labels and Material Safety Data Sheets (MSDS) which provide a wealth of information concerning health hazards of the product. On an MSDS, you will also find procedures for handling emergencies such as spills, leaks, fire, etc. Information on exact chemical makeup and First Aid treatment is given. Proper storage and disposal is covered. The reactivity, if any, is noted. The list goes on and on, but the point is, a proper Hazard Communication Plan provides general and very specific information concerning chemicals and the hazards associated with them.

Furthermore, a proper Hazard Communication Plan provides some method of documenting training. For example, after initial training, employees must be given training when a new chemical hazard is introduced into the work place. This does not mean every time a chemical is introduced. There is a difference between a chemical hazard and a chemical.

A Hazard Communication Plan contains a list of all the chemicals used by the company and a compilation of all the MSDSs.

Understand the hazards associated with the chemicals you are using.

**Note to trainer:** Discuss your site specific chemical hazards
HEAD PROTECTION

When one talks about head protection, one is really talking about brain protection. Your brain, either through divine providence, evolution, or quirk of nature, is you. The brain, that soft mass of gray and white convoluted matter, is what you are all about. Destroy your brain and you no longer exist.

Your brain is naturally protected by a cranium. Your skull actually has many bones which protect your brain and support your face. Obviously, there are other parts to your head which need protecting such as your eyes, ears, nose, tongue, skin, etc., but your brain is the most important.

If you saw a race car driver without a helmet, you would question his judgment. The same goes for a football player, a firefighter, etc. Of course, they are required to wear head protection and are not allowed to compete or work without one. Not surprisingly, the same holds true for workers. Per OSHA, when there is a possibility of head injury from impact, flying or falling objects, or electrical shock and burns, head protection is required. The actual requirements for head protection (hard hats) vary depending on the danger.

Brain injury is the second most common cause of major neurological deficits and causes more death than injury to any other organ.

When the skull receives an impact, it actually can indent and deform. A fracture may occur and the fracture may be distant from the point of impact. A direct blow to the head can cause the brain to actually move within the skull. Surprisingly, there is often a reverse correlation between skull damage and brain damage.

Wearing a hard hat accomplishes two major objectives: it reduces the rate of energy transfer and spreads out the area of energy transfer. Just as your head should be checked out at a hospital after a head impact, so should your hard hat. A hard hat can absorb energy by deforming and the deformation may be unnoticeable.

It is interesting to note that the absence of external scalp injury does not preclude serious brain damage.

A head (brain) injury may occur after an impact to the skull and the following symptoms may be present: unconsciousness, disorientation, slurred speech, confusion, nausea, vomiting, and double vision.

Get medical help immediately.

NEVER provide any medical treatment in any accident or injury situation unless you are qualified by training and licensed. Call 911!
HEARING PROTECTION

When you are exposed to noise levels that are at or above 85 decibels (dB) averaged over 8 working hours, specific OSHA rules take effect which involve monitoring of noise exposure, audiometric testing, baseline audiograms, annual audiograms, audiogram evaluations, hearing protectors, training, and record keeping. Hearing protection is a serious business.

This Safety Meeting will focus on your hearing system and stress the importance of your involvement in your own hearing protection.

Your ears are the least important part of your hearing system. Should you lose your ear, you would not necessarily lose your hearing. Your outer ear, made of cartilage, includes the external auditory canal which leads to the eardrum which is only 2/5" in diameter. The eardrum separates the outer ear from the middle ear. Within the middle ear are three (3) bones commonly called the hammer, anvil, and stirrup. The stirrup (stapes) is the smallest bone in your body -- thinner than a grain of rice. Also in the middle ear is the Eustachian tube which connects the middle ear to the back of the throat to maintain equal air pressure on both sides of the ear drum.

The inner ear, where sound waves are converted to electrical impulses, actually has a function unrelated to hearing. It contains the semicircular canals which completely control your balance. Also in the inner ear is the cochlea, a small spiral coil in which you would find the basilar membrane which has over 15,000 hair cells. These hair cells are the end of the auditory nerve which goes directly to the temporal lobe of the brain.

It is interesting to note that the hardest bone in your whole body is the temporal bone which protects two thirds of the auditory canal and all of the middle and inner ear. Nature itself seems to have placed a high priority on your hearing.

Extremely loud noises or continuous noise can cause irreparable damage to the ear. It is quite possible to lose hearing at one or more frequencies and have normal hearing at other frequencies. The frequencies that would be lost are the frequencies that one might find in background noise in a work situation.

Hearing protection is one of the easiest to use and least expensive types of personal protection available. Protect your hearing. If you are issued hearing protection, use it!
HEAT EXHAUSTION/HEAT STROKE

To lessen the possibility of heat exhaustion or heat stroke, keep your body well hydrated with water; wear light clothing that allows for perspiration; reduce exertion on extremely hot, moist days, and allow for air circulation.

If the below symptoms present themselves, call for a first aid responder and follow their instructions.

HEAT EXHAUSTION:  Fatigue; weakness; profuse sweating; pale, clammy skin; headache; cramps; vomiting; fainting

Remove from hot area.
Have victim lay down and raise feet.
Apply cool wet cloths.
Loosen or remove clothing.
Allow small sips of water if victim is not vomiting.

HEAT STROKE: Dizziness; nausea; severe headache; hot, dry skin; confusion; delirium, coma

Remove victim from hot area.
Remove clothing.
Have victim lay down.
Cool the body. Cold moist applications applied to the body and air circulation to increase evaporation are recommended.
Do not give stimulants.

If working in an environment likely to product heat exhaustion or heat stroke and the above symptoms are noticed, call for a first aid responder. Unless trained and licensed in CPR/first aid and a designated first aid provider as an additional job as part of the company bloodborne pathogen program, employees will not:

A. Expose themselves to blood or other bodily fluids of other employees at any time.
B. Provide any level of care beyond first aid.
C. Fail to call an emergency responder immediately.

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

Developed by STEP, LLC P.O. Box 1402, Murray, Kentucky 42071 (270)753-6529 General Industry – TBT
HORSEPLAY

Sometimes you feel like having some good-natured fun -- rough, boisterous fun. It adds spice to life and it’s enjoyable. It can brighten up an otherwise dull day. It is not allowed on the job site! Why?

First -- the most obvious -- is that if you are engaged in horseplay, you are not working and further you are probably affecting the work of fellow employees.

Secondly, horseplay projects a negative image and an assumption that we don’t care about our work or the quality of our work. While horseplay may be fun for the participants, it is, in the final analysis, annoying and discourteous. It is childish and boorish and has no place in a work environment.

Lastly, it is dangerous. Work in an industrial setting is safe only when care is paid to work, safety procedures are followed, PPE is worn properly, and attention is paid to details. Taking your mind off your work -- or worse, taking someone else’s mind off their work can easily lead to a serious accident -- not just a bruise or scrape, but a really serious injury.

Industrial sites may have heavy tools and equipment, overhead and ground level hazards, hazardous chemicals, walking/working surfaces greater than four (4) feet above a lower level, chains, ropes, activity, movement, vehicles, foul weather, mud, snow, heat, less than optimal lighting, other contractors, time schedules, hazardous energy, hazardous noises, hazardous atmospheres, ladders, scaffolds, permit-required confined spaces -- numerous people doing numerous jobs. Into this mix of potential danger would any sane person inject horseplay? No!

Certainly, there is the other extreme in some facilities -- one or two people working alone in a quiet, secluded area with no known hazards. Again, you are being paid to perform work whether or not there is direct, visible supervision. No sane person would allow horseplay to disrupt this setting. Why inject a hazard (horseplay) when none exists? Horseplay on the job is against company policy and, by signing attendance at this safety meeting, you are acknowledging that you understand this simple, but important, policy. Not only is horseplay against company policy, it is against the law. Allowing horseplay would not be consistent with providing a safe workplace.

Some things are so obvious that it seems foolish to state them -- much like -- “Poison, do not ingest”. You would think that “Poison” would be sufficient. This, too, is obvious and it is being stated: **No Horseplay!**

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

Developed by STEP, LLC P.O. Box 1402, Murray, Kentucky 42071 (270)753-6529 General Industry – TBT 55
HOT WORK PERMITS

If you, as a worker, are ever involved with Hot Work Permits, it is a safe bet that you are skilled at your job and follow every applicable safety standard. Hot Work Permits are serious business.

Hot Work Permits are but a small part of 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals. Specifically, Hot Work operations include electric or gas welding, cutting, brazing, or similar flame or spark producing operations conducted on or near a covered process. The processes deal with certain chemicals above a specified threshold quantity, which are extremely dangerous, as well as processes that involve 10,000 lbs or more of flammable liquids or gases (with minor exceptions).

If one were to examine Appendix A to 29 CFR 1910.119, List of Highly Hazardous Chemicals, Toxins, and Reactives (Mandatory), it would look something like this:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Chemical Abstract Service # (CAS)</th>
<th>Quantity (TQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketene</td>
<td>463-51-4</td>
<td>100 Pounds</td>
</tr>
<tr>
<td>Trifluorochloroethylene</td>
<td>79-38-9</td>
<td>10,000 Pounds</td>
</tr>
</tbody>
</table>

The requirement for a Hot Work Permit kicks in when you are working around the chemicals noted on the above list at, or above, the threshold quantities.

The actual permit must document that there is adequate fire protection, the date authorized for the hot work, and the object on which the hot work is being performed. The Hot Work Permit must be kept on file until the completion of the work.

Hot Work Permits are part of safety management designed for "...preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals." Catastrophic releases -- we are talking about sudden and widespread disaster!

If you are a worker involved with hot work, you must make sure that you have been thoroughly screened for your knowledge of, and actual use of, proper safety procedures.

Notice the words used in the Safety Meeting: catastrophic; toxic; reactive; explosive; hazardous; highly hazardous; etc. Hot Work Permits -- serious business!
HOUSEKEEPING

What in the world does good housekeeping have to do with working here? Weren't you employed to accomplish certain tasks during your work shift and isn't that all that matters?

Housekeeping is not an additional duty -- it is part of your job. A clean and organized work site creates a positive image of our company. In addition to providing a more productive setting for work, housekeeping and general cleanliness have a direct effect on safety and health and therefore they are mandatory. Below listed are general housekeeping guidelines some of which, as a matter of interest, are actually required by OSHA standards:

A. All floor surfaces shall be kept clean and dry.

B. Tools shall be properly cleaned and put away after use.

C. Work areas shall be kept clean and orderly.

D. All stored materials will be neatly stacked.

E. As far as practical, all work areas shall be kept neat and orderly.

F. All containers, when not in use, will be sealed.

G. All containers shall be properly labeled.

H. No objects will be left unattended on stairways.

I. Entrances and exits will be properly marked and shall not be blocked.

J. Fire extinguishers will be readily accessible.

Housekeeping and general cleanliness are an indication of pride in yourself and your work. The results of good housekeeping and general cleanliness spill over into all areas of safety such as the reduction of fire hazards and the reduction of the likelihood of slips, trips, and falls (nationally, a major safety problem).

Everybody gains -- it is easier to find items and the possibility of accident is reduced while the work production is increased.
INCLEMENT WEATHER

One would have to have been living in a cave for the past year to not know the possible devastation of inclement weather. Year after year, hurricanes, tornadoes, and unending rain have struck parts of the United States causing death, destruction and misery.

Fortunately, for most areas of the country, with the exception of brief periods of high winds or an occasional thunderstorm, our weather is rather benign. However, what would you do if a blizzard or ice storm developed? How would you protect yourself in the event of a tornado? What about a driving rain storm? What precautions should you take in an electrical storm?

Use common sense during inclement weather. Stay indoors, if possible, stay off ladders and scaffolds. Stay away from wires and trees. Stay tuned to the radio for warnings and alerts, maintain a functioning flashlight with extra batteries, and, most of all, do not go out in inclement weather just to experience it -- that may be the worst decision of your life.

Just as a point of information, tornadoes contain the most violent winds on earth. They can exceed 200 MPH. Winds of this speed can drive a piece of straw into a tree, lift houses off their foundations, pick up automobiles, uproot trees, and tips over trucks. They certainly can lift a person up and toss him/her like a piece of paper. A tornado is very localized and can be several hundreds yards in diameter. Seek shelter in a storm cellar, basement, under a table, and away from windows. If caught outside, lay flat in a ditch. This will help prevent you from being hit by flying debris.

An ice storm occurs when the temperature is just below freezing and falling rain freezes as it hits the below freezing temperatures of the ground, trees, roads, wires, and structures. A buildup of ice occurs. The dangers are not always obvious. First, because it is not particularly cold, there may be a tendency to ignore or not even notice the problem of slippery walking/working surfaces. Your boots offer absolutely no traction on smooth ice. Secondly, there is the problem of weight. The buildup of ice on ladders, scaffolds, roofs, wires and trees can cause breakage and the resultant damage and danger as they collapse.

A blizzard involves 35 MPH winds, heavy snow, temperatures to 10°F, and visibility of less than 500'. In a severe blizzard, temperatures are less than 10°F, winds are more than 45 MPH and visibility is zero. Dangers involve being stranded, lost, cold, loss of power, and so on.

Heavy rains and lightning each have their own hazards. Lightning tends to go toward the highest point so it is important to stay away from trees and tall objects. Lightning can strike a tree, travel across the ground and strike a person. Being on a scaffold or ladder when lightning is near is just plain foolish.

**Note to trainer:** Discuss your facilities tornado and storm shelter along with their location.
JEWELRY, LONG HAIR & LOOSE CLOTHING

Jewelry, particularly rings (hard and electrically conductive), can cause injury on the work site for two primary reasons: electrical or mechanical mishaps. Accidents involving jewelry are not commonplace occurrences and the results generally would not involve a fatality. However, burns, severe lacerations, and finger loss is quite possible.

Rings are often so hard that you could easily hang by a ring caught on something without damaging the ring. In this situation, assuming your finger is not pulled off, your body will automatically initiate an inflammatory response -- a painful swelling of your finger that will make the removal of the ring impossible without a jeweler’s saw at the local hospital emergency room.

Should you inadvertently get a chemical on your hands, be sure to wash under the ring to prevent irritation and possible infection. Necklaces, if worn, on the work site should hang inside your shirt or blouse to prevent snagging and placing you in harm’s way. Because it is a good conductor, metal jewelry can be particularly dangerous around electrical current.

Loose clothing and long hair can instantly suck part of your body into machinery with devastating results. Loose clothing can get caught on switches and levers and inadvertently start or stop a machine. Loose clothing can get caught on ladders or scaffolds, for example, causing a loss of balance and resultant fall. The problem with loose clothing catching on something isn’t the force of the pull so much as the unexpected suddenness of the event -- you are caught off guard. Certainly you could easily yank your sleeve out of a machine in an effort to save your arm if you were prepared.

Long facial hair is expressly forbidden by OSHA standards when wearing a negative pressure respirator because it prevents a tight seal and thereby defeats the purpose of the respirator.

Long hair is more susceptible to fire from sparks and is a natural trap for contaminants (hazardous or not) in the air if it is not contained under a cap or hard hat. It is obviously more dangerous around open flame than shorter hair.

Sometimes it is the small details that actually prevent an accident. Anything you can do to lessen the possibility of having an accident is worth doing. Consider the risks involved with jewelry, long hair and loose clothing on the job site and take appropriate precautions.
LADDERS

How easy it is to overlook ladder safety. After all, who hasn’t used a ladder? All persons using ladders are required to receive training and understand proper procedures for ladder use before using a ladder on the job site.

All ladders will meet the applicable national consensus standards. ANSI and NIOSH approval labels should never be covered with paint or tape. Having ladders that are constructed to standard will prevent collapse and resultant falls.

Some important operational procedures for ladders are listed below:

A. Ladders will never be overloaded.

B. Ladders will not be tied or fastened together unless they are so designed.

C. Portable ladders used for gaining access to an upper level will extend at least 3 feet above the upper landing surface; or the ladder will be secured at its top.

D. Ladders must be free of oil, grease, or other slipping hazards.

E. Ladders shall only be used for the purpose for which they are designed.

F. Non-self supporting ladders will be used at an angle that the horizontal distance from the top support to the foot of the ladder is approximately ¼ of the working length of the ladder.

G. Ladders will only be used on stable and level surfaces unless secured to prevent displacement.

H. Ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement.

I. Ladders placed in any location where they can be displaced by workplace activities or traffic will be secured to prevent accidental displacement; or a barricade will be used to keep the activities or traffic away from the ladder.

J. The area around the top and bottom of the ladder shall be kept clear.

K. Portable ladders with structural defects will be immediately marked in a manner that readily identifies them as defective and removed from service until repaired.

L. When going up or down a ladder, face the ladder and use at least one hand.

M. Do not to carry any object that could cause loss of balance and a resultant fall.
**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

**LEAD**

The purpose of this Safety Meeting is merely to provide some interesting information about lead. Surprisingly, on many work sites you are around lead and don’t even think about it. Lead can be found in older paint and piping systems. Undisturbed, it is perfectly safe.

Lead, like asbestos, has been used by mankind since the earliest times. The Romans used lead in drinking cups and in their water systems. Of the common metals, only gold is heavier, yet lead is soft and can be scratched by a fingernail.

In more recent times, lead has been used (as a metal, chemical, or alloy) in pipes for water, tank linings, cable coverings, roof sheeting, storage batteries, insect poison, gasoline, glass, and paints. Lead-containing paints inhibit rusting and corrosion of iron and steel. Lead has served mankind well in all of its uses but with one major, very serious, downside -- it can kill!

Workers who deal with lead on a regular basis are familiar with the OSHA standard which deals with exposure to lead. They are aware of the exposure limits, the types of respiratory protection, the engineering controls, the need for sanitation and good hygiene practices, the blood tests, the medical surveillance programs, the decontamination procedures, the training programs, the certifications, the air monitoring, and so on. The actual knowledge of lead as it relates to health is expanding at such a rate, individual company lead programs must be updated every six (6) months.

The amount of lead that is dangerous to your health is a small quantity. The action level at which the OSHA standard kicks in, is only 30 micrograms per cubic meter averaged over an 8-hour work day. A microgram is one millionth of a gram. A cubic meter is 1.3079 cubic yards. The amount we are talking about is, approximately, .000000066138 pounds per 1.3079 cubic yard of air. That's not much!

Lead is a heavy, toxic metal which can be absorbed into your body by ingestion and by inhalation. It is a cumulative poison which can stay in your bones for decades. While your body excretes some of the lead that gets into it, some of it is stored in your various organs and tissues. Eventually, you absorb more than you excrete. Heavy metals (lead, arsenic, mercury, copper, and gold) are all toxic to living tissues. They tie up vital living tissue chemicals that must be free for normal cell function. When these substances (sulphydryl or thiol groups, carboxyls, phosphoryls and others) are bound by the metals, certain cellular enzyme systems are inactivated, cellular functions fail and the cells die.

Large doses of lead can kill in a matter of days by causing acute brain damage which in turn causes seizures, coma, and death from cardio-respiratory arrest. Chronic problems can develop after a period of years.
LIFTING, PUSHING & PULLING

How often have you heard the phrase: "Lift with your legs, not your back!"? Many injuries are caused by improper lifting, the most obvious being: putting excess strain on your lower back by lifting an object that is too heavy or lifting while bending or twisting.

Many items that need to be lifted are awkward and heavy. Proper lifting techniques are important for employee safety.

However, lifting injuries are also caused by less obvious reasons:

A. Poor physical condition
B. Poor posture
C. Poor judgment (lifting, pulling, pushing an object that is obviously too heavy or awkward without seeking assistance or a mechanical lifting device.)
D. Lack of exercise
E. Excessive body weight

Below are lifting techniques that will reduce the likelihood of injury:

A. Lift objects comfortably, not necessarily the quickest or easiest way.
B. Lift, push, and pull with your legs, not your arms or back.
C. When changing direction while moving an object, turn with your feet, not by twisting at the waist.
D. Avoid lifting higher than your shoulder height.
E. When standing and holding an object, stand straight.
F. When walking, maintain an erect posture, wear slip-resistant, supportive shoes.
G. When carrying heavy objects, carry them close to the body and avoid carrying them in one hand.
H. When heavy or bulky objects need to be moved, obtain help or use a mechanical aid such as a dolly, hand truck, forklift, etc.
I. When stepping down from a height of more than eight inches, step down backwards, not forward.
J. Avoid reaching out. Handle heavy objects close to the body.
K. Lift gradually and smoothly. Avoid jerky motions.
L. Maintain a clear line of vision.
M. Be aware of the walking/working surface conditions.
**LIGHTING**

Lighting in work sites may come from direct or indirect sunlight as well as:

A. Lights attached or plugged into permanent wiring.
B. Lights or light strings attached to temporary wiring.
C. Battery powered lights.
D. Hand held lights.
E. Lights attached to a generator.

In all circumstances, you must have plenty of light to not only do your job, but also to get to and from your actual work area, quickly egress a facility in case of emergency, locate safety equipment such as fire extinguishers, climb stairs, enter storage areas, see and clearly read warning signs, etc.. Every place you go within our facility requires adequately lighting.

Hazards associated with lighting essentially deal with electricity, heat, and broken lamps or bulbs.

A few of the safety measures to deal with these hazards are listed below:

**Electricity:**

Portable electric lighting used in wet and/or other conductive locations must be operated at 12 volts or less [120-volt lights may be used if protected by a ground fault circuit interrupter]. Temporary lights may not be suspended form their cords unless they are so designed. Flexible cords used with temporary and portable lights must be designed for hard or extra-hard use. Lamp holders, rosettes, and lamps can have no exposed parts [exception: cleat-type lamp holders & rosettes located 8 feet above the floor may have exposed parts].

**Heat:**

Do not touch lamps (or their guards) when lit or immediately after they are turned off. Take care in the placement of lighting devices to prevent the ignition of combustible or flammable materials. Metal shell, paper-lined lamp holders may not be used.

**Broken Lamps or Bulbs:**

All lamps for illumination must be protected from accidental contact or breakage. This can be accomplished by placing the lights at least 7 feet above the normal working surface or by providing the fixture or lamp holder with a guard. Hand held lamps must have a substantial guard.
LP-GAS STORAGE & TEMPORARY HEATING

Liquefied petroleum gas (LP-Gas) is sometimes used on site to provide fuel for temporary heating devices.

All LP-Gas systems must have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. All cylinders must be DOT approved.

Rules for inside storage (under construction standards) are simple -- it is not allowed!

Note: Under industry standards, up to 300 pounds or LP-Gas may be stored, with adherence to specific safety procedures.

Rules for outside storage requires that containers be in a suitable ventilated enclosure or otherwise protected against tampering. At least one approved portable fire extinguisher having a rating of not less than 20-B:C must be readily available.

The distance from buildings or groups of buildings that containers must be stored in are as follows:

Quantify of LP-Gas Stored Distance in Feet

500 lbs or less = 0ft
501 to 25,00 lbs = 0ft
2,501 to 6,000 lbs = 10ft
6,001 to 10,000 lbs = 20ft
>10,000 lbs = 25ft

Of course, storage must not be near building openings or vehicular traffic.

When LP-Gas is used for temporary heating on units that provide over 7,500 BTU per hour or use containers greater than 2.5 pounds maximum water capacity [nominal 1 pound LP-Gas capacity], the following will apply:

A. Containers valves, connectors, regulators, manifolds, piping and tubing must not be used as structural supports for the heaters.

B. The LP-Gas containers and all associated equipment including hoses must be located so as to minimize exposure to high temperatures or physical damage.

C. The maximum water capacity of individual containers must be 245 pounds [nominal 100 pound LP-Gas capacity].
MATERIAL SAFETY DATA SHEETS (MSDS) & LABELS

Of all the safety materials on our site, one of the most important is the Material Safety Data Sheet (MSDS). Chemical products that are used every day can be very dangerous should an accident occur such as a fire, spill, puncture, splash to the eye, etc. An accurate, readily available MSDS could stop a minor problem from becoming a major catastrophe.

MSDS’s are maintained at our site for all chemical products we use and are readily available for: all our employees; other contractors with whom we are working; Emergency First Aid Responders; and doctors and hospitals in the event of a serious problem.

If a chemical is found to not have an MSDS, it will not be used. The supervisor will be notified and appropriate steps will be taken to correct the situation.

The MSDS will include, among other things, such items as:

A. A list of hazardous ingredients.
B. Physical data.
C. First aid procedures.
D. Special precautions and/or personal protective equipment requirements.
E. Procedures to follow in case of spills.

All employees must know the location of our MSDS and become familiar with the potential hazards of the chemical products used on the job site. It is conceivable that knowing where to find an MSDS and the types of information found on an MSDS could actually save a life.

Labels, while not as detailed as MSDS, are your first line of information about a chemical product and its proper use, the hazardous ingredients, emergency first aid, temperature requirements for storage, and special precautions such as, "Use with adequate ventilation" or "Avoid breathing vapors".

All containers containing chemical products or mixtures used will be labeled using the manufacturer's labeling system with the allowable exception that a product may be transferred into an unmarked container for immediate use during the work shift by the person making the transfer. Example: transferring paint from a gallon pail into a paint tray. Labels will not be removed, marred or defaced.

The label will remain on a container even when it is empty because the disposal instructions are listed thereon.

You must know of the existence of labels and the types of information found thereon. Labels provide a wealth of information about the product you are using.

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**
MENTAL FITNESS

Most people who work in General Industry are a special breed of people. They have to have specialized knowledge; general knowledge; the ability to assess a constantly changing work environment; make quick and accurate decisions; solve problems “on-the-go”; and, actually implement their solutions. An industrial setting is no “Ivory Tower”. It is the real world with real problems and real solutions.

As opposed to an office where a bit of absentmindedness may result in having to do a report over, temporarily misplacing a file, or on the accident side, possibly a paper cut – In an industrial facility, faulty judgment may result in a fire, explosion, collapse, fall, or a major -- possibly fatal -- injury.

Just as professional persons such as doctors and engineers must keep current in their profession through continuing education, industry workers must continually keep abreast in their field of expertise.

There is no such thing as “just a” laborer, carpenter, electrician, heavy equipment operator, etc... Every job requires mental alertness.

Mental fitness is required to learn your trade, improve your skills, and adapt to changing work situations. Mental fitness allows you to keep abreast of developments in procedures, personal protective equipment, and safety.

Know what you don’t know! This may sound convoluted, but if you are not absolutely sure how to perform a specific function or procedure, have the good sense -- the mental judgment -- to ask! Never perform any task on any job site unless you clearly understand the correct procedures, including, and most importantly, the safety procedures.

Keeping mentally active will make the job more rewarding. Think of ways to improve your work, reduce hazards, and enhance safety.

Learning must never end. Fortunately, we live in an age where raw knowledge is readily available to everyone -- but it takes mental fitness to synthesize that knowledge and make it useful in your daily life.

Don’t let your brain “go to sleep” by accepting everything as it is. Question, create, develop! Keep mentally fit.
MINOR INJURIES

Why should anyone care if you get a minor injury while at work -- a minor injury such as a superficial scrape or burn that requires, at most, one-time first aid treatment? Minor injuries of this type are not even reportable, so what’s the big deal? Consider this. Have you ever been in a traffic jam that delayed you 5 minutes? Of course you have and it is no big deal. However, if you take all the people in all the cars that are also delayed 5 minutes, you are talking about many hours of wasted time and aggravation. The same principle applies to your “minor injury”…

A. Work is disrupted in your general work area and the total time wasted becomes substantial.

B. The first aid provider is a person who generally is authorized to provide first aid as an additional duty. Because of this, the first aid provider must be pulled from his/her primary job and spend time tending to your injury. Of course, first aid kit items that are used must be replaced or accounted for in some fashion so that appropriate supplies are available for future use -- possibly a more serious injury. More time wasted.

C. Common sense dictates that the cause for even minor injuries should be determined. Injuries don’t just happen -- there is a reason. Was the injury the result of: incorrect job procedure (lack of training); improperly worn, faulty, or non-use of PPE; faulty equipment; employee carelessness; etc.? This determination, which takes time, is needed to prevent a reoccurrence and, possibly, to determine additional training needs, improved equipment, or redesigned job procedures.

D. If the accident was a direct result of your carelessness, the slight pain you experience is your just reward for disregard of safety principles and the time and effort that others had to expend because of your actions.

E. If the accident was a direct result of faulty equipment or procedures, the slight pain you experience is a small, and admittedly unjust, price you had to pay to prevent a similar occurrence from happening to one of your co-workers.

Minor injuries aren’t as minor as you would think.
NEAR MISS INCIDENTS

Almost all accidents that result in personal injury start with a cause and end with an effect -- the injury, itself. Near miss incidents also start with a cause, but, because of lucky chance, they end with no injury. No harm, no foul. No need to pursue the issue any further. Wrong!

A near miss incident does not result in personal injury only by chance. If you had been located a foot this way or that, if the projectile had been a fraction of an inch this way or that, if you hadn’t been able to grab something stable at the last moment, if the power hadn’t shut off at that instant, if something hadn’t caught your attention at the last moment, if, if, if! If any of these, and other “if’s”, hadn’t happened, you would have been injured.

It is important to learn from near miss incidents -- learn what you did wrong and learn how to ensure those behaviors are not repeated. How many times have you heard from your fellow workers: “One more second, and I’d have been a goner.” or “It came that close -- it just missed me.” or “Boy was I lucky, one more inch and I’d be toast.”? If a near miss incident is the result of something you did, and you know you did it, and it was a violation of an obvious safety rule or procedure, consider yourself lucky, learn from your mistake, and be more careful in the future. If the near miss incident was totally unexpected and really should not have happened, you should definitely report it to your supervisor so the mishap may be investigated and a plan of action developed to prevent a reoccurrence. Either you, or others, were not taught the proper method to perform that particular task or a set of safety procedures must be researched, developed and, more importantly, conveyed to all employees to prevent a reoccurrence.

You should be open about near miss incidents -- they provide a great teaching tool to prevent injury to others. They drive home the importance of safety without having to suffer the immediate consequences of a real personal injury accident. In a way, they are a blessing because they point out hazards of construction work in a meaningful way that is easily understood by all.

A note of caution: Some injuries are actually caused by an employee showing another employee what he did to initiate a near miss incident and the second time around he is actually injured. Treat near miss incidents as if they were accidents. Determine the cause and ensure that it can’t happen a second time.
NUISANCE DUST

For all practical purposes, the only time you may wear a dust mask is when you don’t need it. Obviously, the foregoing statement needs a little clarification.

True respiratory protection is required when employees are working in atmospheres that are deemed hazardous to their health. True respiratory protection requires compliance with a respiratory protection program which requires, (prior to using a negative pressure respirator), medical approval for respirator wear by a licensed health care professional as well as a fit test following established protocols.

A dust mask, is nothing but a filtering facepiece -- a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Because a dust mask does not provide a true seal between itself and the face and because there are no protocols to ensure that it is working properly, it may not be used where permissible exposure limits (PEL) are exceeded without its use. While a dust mask may be worn at any time, it may not be worn in situations where true respiratory health hazard exists, per OSHA standards. In other words, it can be worn only when you don’t technically need it.

So, why would anybody wear a dust mask? Dust masks are useful for those employees who work in atmospheres that contain annoying, nuisance particles, that are bothersome, but not truly a health hazard.

Employees are cautioned that while wearing a dust mask does provide some respiratory protection, it is not measurable protection.

What about wearing ½ face respirators for the elimination of annoying or nuisance dust? Because ½ face respirators are true negative pressure respirators, they may be worn only after medical approval for respirator wear has been obtained.

Additionally, an employee wearing a ½ face respirator must:

A. Read and heed all manufacturer’s instructions on use, maintenance, cleaning and care as well as warnings regarding the respirator’s limitations.

B. Choose a respirator certified for use to protect against the contaminant of concern. The respirator must be NIOSH approved.

C. Not wear the respirator into atmospheres containing contaminants for which the respirator is not designed to protect against. A respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

D. Not mistakenly use someone else's respirator.
OFF THE JOB SAFETY

It's a cold, crisp, winter Saturday morning and you decide to work on your car. You're going to check for an exhaust leak and change the oil. You go into your unheated, messy garage wearing a loose coat and tennis shoes. You immediately trip on some trash and skin your knees. Because the motor oil is thick from the cold, you decide to run the engine awhile to loosen up the oil and, to save time, you jack up the car to check the exhaust. You find there are exhaust fumes coming out of a small leak as well as a broken clamp. Not having the right tools, you use the wrong sized wrench to loosen a rusty bolt. Flakes of rust fall into your unprotected eyes just as your wrench slips and you skin your knuckles. Groping for the wrench which is now just out of reach, you kick the jack and the car falls on you -- fortunately the impact is ever so slightly lessened by the collapsing of the hot muffler on your back. The car starts to roll on the sloped floor out of the garage being slowed only by your coat which it has snagged; your bloody body caught in the coat; and the garage door which is destroyed as the car rolls through it. Actually, being dragged out of the garage is a blessing because you were about to pass out from carbon monoxide poisoning.

Returning from the hospital, you go after that car one more time. You drain the oil into a pan which you throw out behind the garage and refill the crankcase. Noticing an accumulation of white residue on the battery, you run your fingers over it to determine what it is. As your fingers start to tingle from the acid, you decide to loosen the battery cable connections. The metal wrench inadvertently touches both poles of the battery and it explodes. The burst of heat from the blast, for a brief second, relieves the pain of frostbite which is setting in on your unprotected, numbing, ears.

This has been such a bad day, you decide to have a cigarette, clean up your tools and call it a day. The best cleaning agent in your garage is gasoline.

Resting comfortably in your hospital bed, again, you reflect on what you may have done wrong. You certainly did not violate any OSHA standards because they do not apply to you at home. Legally, they do not apply, but, from a practical standpoint, the safety guidelines from work (lockout/tagout; protective clothing; improper use of chemicals; improper selection and use of tools; machine guarding; hazard chemical awareness; inappropriate footwear and clothing; job knowledge; and general safety methods) apply all the time.

As an aside, EPA regulations concerning improper disposal of hazardous waste (oil) do apply.

There is a point to this cartoon caricature of stupidity. Safety awareness and practice should not stop -- ever! At home, vacation, or at work your safety is important. Real life is not a cartoon. Real, often tragic, accidents do happen. Know what you are doing and how to do it safely. Make safety a habit for yourself and your family.
As a matter of law, all employers with 11 or more employees at any one time in the previous year must maintain OSHA Form 300, Log of Work-Related Injuries and Illnesses, OSHA Form 301, Injury and Illness Incident Report, and OSHA Form 300A, Summary of Work-Related Injuries and Illnesses. Injuries and illnesses must be recorded if they result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or if the injury or illness involves a significant injury diagnosed by a physician or licensed health care professional even if it does not meet the forgoing conditions.

During the period from 1 February through to April 30, the Summary of Work-Related Injuries and Illnesses must be posted for work-related injuries and illnesses which have occurred during the previous year.

OSHA Forms 300 and 301 are used to record and classify occupational injuries and illnesses. The information on the OSHA Form 300 related to employee health must be used in a manner that protects the confidentiality of the employees to the extent possible. Recordable injuries and illnesses must be entered on OSHA Forms 300 and 301 within seven (7) days of receiving information that a recordable injury or illness has occurred.

Catastrophic Reporting Requirements:

Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three (3) or more employees as a result of a work-related incident, either in person or by telephone, the OSHA Area Office nearest to the site of the incident will be notified. Federal OSHA may be contacted for this purpose using a toll free telephone number: 1-800-321-6742. As of 2007, KY OSHA requires reporting if one person is hospitalized. Contact your state operated OSHA for further details.

It is a safe bet you have seen OSHA Form 2203 Job Safety & Health Protection, (or its replacement: Form 3165, an untitled workplace poster) many times. Either one of these forms must be "posted in a conspicuous place where notices to employees are customarily posted."

The first three (3) portions of OSHA Form 2203 are of the utmost importance.

First, there is a statement identifying the OSH Act of 1970 and its purpose -- the promotion of job safety and health protection.

Secondly, there is a general duty clause applicable to employers stating the need for a place of employment free from recognized hazards and the requirement to comply with all OSHA standards.

Thirdly, there is a statement in which employees are admonished to comply with all applicable occupational safety and health standards, rules, regulations, and orders as they apply to their actions on the job.

Additionally, information is provided on OSHA inspections, the right to file complaints and the protection provided workers who take this option, OSHA citation procedures, proposed penalties, voluntary activity (efforts by labor and management to reduce workplace hazards), consultation and posting instructions.
PARACHUTING & WORK SAFETY

Make the following assumptions:

A. You want to learn how to parachute.

B. You are not suicidal.

What would you do?

Probably, with just a touch of fear, you would go to a parachute training class and strive to learn all you could about parachuting before even getting near an airplane.

Without a doubt, more than anything else, your personal safety would be foremost on your mind. You would want to know how to put the chute on, the reason for every strap, buckle, chord, and gage, how to exit the plane, how the chute actually opens, how to communicate, how to steer, how to land (gently), every possible thing that could go wrong and the corrective action, the mechanics of the safety chute, and, of course, what safety equipment is needed such as goggles and helmet.

As you are flying up to your jump point, you’d probably be thinking about all the training you had received and hoping that the person who packed your parachute was having an exceptionally good day.

Just as you are about to jump, you may be hoping that you have not forgotten anything and all you really want to do is safety get down to the ground. Style is not important, safety is!

When confronted with a new work situation, the same general thought process should occur. You should learn all about the procedure and/or equipment -- with a major emphasis on your personal safety -- before actually performing the work. You should understand what PPE is necessary and why. You should know emergency procedures and the availability of backup systems. You should put your safety first!

At work, it is possible to forget how dangerous and unforgiving some situations can be until its too late. Do you think for a moment that a piece of machinery is going to be slowed down by your finger or other body part? Do you think that a fall from 7 or 8 feet is going to leave you uninjured? Do you think it is impossible to lose your eyesight because the odds are slim you’ll ever get a projectile in your eye. Of course not, yet how may times is it “convenient” to omit a safety step to save time. A few seconds saved here or there will never compare to the possible pain, suffering, and lost time a serious accident may cost you.
PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipment includes such items as: a hard hat, protective glasses, hearing protection, appropriate foot and hand protection, chemical resistant clothing, fall arrest systems, and other protective items as designated by this facility.

You should not rely on personal protective equipment (PPE) alone to protect you from job site hazards. Exercising care and safe work practices while performing your job tasks is always your first line of defense from hazards.

The word “personal” in the phrase “personal protective equipment” correctly implies that the equipment is for a specific person. As such, sizing and fitting are important for a variety of reasons.

a. Function: an improperly fitted piece of PPE may not do its job. For example, eye protection against dust must have an excellent face seal.

b. Comfort: the likelihood of continued use is increased if the PPE selected is comfortably fitted. Example: gloves that fit poorly and, over time, make your hands hot and clammy are likely to be removed exposing you to the hazard for which the gloves were required in the first place.

c. Safety: ill-fitting PPE may actually cause an accident. Example: loose hard hat may slip and block one’s vision.

Most PPE come in a variety of sizes and within those size groups adjustments may be made to affect a perfect fit. It is important to understand the procedures for donning, adjusting, using, and removing PPE. If you are required to use any type of PPE, you will be taught, before initial issue, the specific procedures for properly donning, adjusting, using, and removing the specific PPE. When available, the manufacturer’s instructions will be issued with the PPE.

In addition to sizing and fitting, you must understand:

a. When to use your equipment.

b. How to inspect it.

c. How to clean it.

d. The PPE limitations.

e. How, if necessary, to dispose of it.

You will be informed of the PPE requirements at our facility. The actual PPE required is determined after data from a complete hazard assessment of the work area and work methods are analyzed.

It is absolutely vital that PPE identified as necessary is used because it may well prevent injury to your various body parts such as eyes, head, hands, feet, or limbs.

Note to trainer: Discuss your site specific PPE requirements.
PHYSICAL FITNESS

While physical fitness is not covered in OSHA standards, there is no question that there is a relationship between physical fitness and safety -- particularly in the general industry trades.

Industry workers, on any given day, are lifting, climbing, pushing, pulling, squatting, crawling, dragging, twisting, dangling, and contorting to accomplished their assigned tasks.

Work is often in conditions that are not ideal -- hot, cold, wet, windy, icy, slippery, sloped, high above the ground or deep within the earth.

Just getting to the actual job site may require a lengthy walk or climb through muck, mire, or slop.

The equipment used may be heavy, vibrating, noisy, and awkward. The personal protective equipment requirements may put additional stresses on a worker’s body systems -- the most common being the additional effort required to breath with a negative pressure respirator.

Industry workers may find themselves working irregular hours with bursts of activity followed by periods of calm.

All of the above conditions require physical stamina. Industry workers must be strong and agile and adaptable to ever changing conditions -- they must be physically fit.

Industry workers cannot let themselves become fatigued on the job because that could lead to:

A. Sloppy work.

B. Bad judgments.

C. Accidents.

Finally, industry workers who become totally out of shape just cannot meet the demands of the job, plain and simple! Your livelihood, in a real sense, depends on being physically fit.

Regular exercise, good diet, plenty of sleep, proper fluid intake, routine physical examinations -- all the obvious things -- go a long way to making your job easier and more rewarding.
POSTINGS

Postings are an effective method of informing employees of matters pertaining to safety. Generally, when one talks about required postings, that person is referring to OSHA Form 2203, *Job Safety & Health Protection*, emergency phone numbers, and OSHA Form 300A, *Summary of Work-Related Injuries and Illnesses*.

General information on the above forms follows:

**OSHA Form 2203**: Must be posted where employees normally report to work each day. If employees report to different job sites directly from home, this must be posted where the work activities take place.

**OSHA Form 300A**: Only posted during the period February 1 through April 30 for the previous year where employees normally report to work each day. If employees report to different job sites directly from home, this form must be posted where the work activities take place with the following provisions:

A. The address and phone number where these records may be found must be available at the job site.

B. Someone must be available at the above location during normal business hours to provide information from the records.

Note: Employers with no more than 10 full or part time employees at any one time in the previous calendar year are exempt from this requirement.

Emergency Phone Numbers: OSHA is currently considering dropping the need for posting emergency phone numbers if all responders are accessible by dialing “911”. Regardless of the outcome of OSHA rule making, it would be advisable to continue this posting because a well composed emergency phone sheet would also have site location and company/job site personnel listed. In all cases, this additional information would be of great value during an emergency.

Of course there are other required postings depending on specific circumstances.

A. OSHA citations.

B. Notice of informal hearing conference.

C. Names and location of assigned first aid providers.

D. Air or wipe sampling results.

E. Emergency action plan.

F. Hand signals for cranes

G. Safe load limits for floors where appropriate.

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

*Developed by STEP, LLC  P.O. Box 1402, Murray, Kentucky 42071 (270)753-6529 General Industry – TBT 75*
POWDERT-ACUTATED TOOLS

A powder-actuated fastening tool propels a nail, pin, or fastener through an object to fasten it to another object. These tools, if misused, are extremely dangerous because essentially, they are similar to a pistol or rifle.

The speed of the projectile may range from 300 ft/second to 1290 ft/second.

Only trained and authorized persons may operate a powder actuated tool and, for safety, these tools should be kept secured when not in use.

Prior to use, the tool must be inspected and tested according to the manufacturer’s instruction manual which should be kept with the tool. Defective tools must not be used and they must be taken out of service. Use of appropriate personal protective equipment - including, at least, eye/face and ear protection -- is required not only for the operator, but also those employees in the vicinity.

Each tool should be accompanied by: 1) its container; 2.) the operator’s instruction & service manuals; 3) the tool inspection record; and 4) service tools & accessories.

Tools must not be loaded until just before firing and, under no circumstances, are they to be pointed at any person. Hands must be kept clear of the open barrel end. A powder activated tool must never be left unattended -- loaded or empty -- for safety and security reasons.

Fasteners must not be driven into very hard or brittle materials such as cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick or hollow tile; easily penetrated materials unless these materials are backed by a substance; nor a damaged area caused by an unsatisfactory fastening. Of course, these tools must never be used in an explosive or flammable atmosphere.

Before fastening questionable material, the operator can determine its suitability by using a fastener as a center punch. If the fastener point does not easily penetrate, is not blunted, and does not fracture the material, initial test fastenings will be made in accordance with the manufacturer’s instructions.

The tool must be held perpendicular to the work surface and in the event of a misfire, the operator must hold the tool firmly against the work surface and follow the manufacturer’s instructions.

Tools must be used with the correct shield, guard, or attachments recommended by the manufacturer.

Because the case and load are color coded, it is imperative that the operator can distinguish the colors of brass and nickel as well as gray, brown, green, yellow and red and purple.
POWERED INDUSTRIAL TRUCKS

Powered industrial trucks come in all shapes and sizes and are called by a variety of names: forklifts, tow-motors, mules, motorized hand trucks, platform lift trucks, to name a few. They are powered by battery, propane, gasoline, or diesel fuel.

The one thing they all have in common is they are very dangerous when care is not exercised with their use. While accidents are not common occurrences, when they do occur, they are generally serious because of the power and weight of the machine and the weight and height of the load.

Persons who operate a powered industrial truck already know the basic safety rules dealing with their use because they have been trained and they are authorized to operate the vehicle. They know, for example, to:

A. Ensure the vehicle is inspected and well maintained.

B. Ensure the vehicle has appropriate safety equipment such as a horn, adequate lighting, rollover cage, seat belt, etc.

C. Ensure the surface on which the truck travels is capable of supporting the vehicle, driver, and load; offers enough traction; and is level enough for safe operation.

D. Keep their arms and legs within the protection of the driver's compartment.

E. Allow no riders and keep people away from the load - particularly underneath it. In fact, no person is allowed to stand or pass under any elevated portion of the vehicle, empty or loaded.

F. Travel with the load in a low position and always look in the direction of travel. If a load blocks forward view, the operator must travel in reverse.

G. Use the safety equipment that is an integral part of the truck -- specifically seat belts.

If powered industrial truck operators know this and more, what is the reason for a safety meeting? One reason is all people anywhere near a powered industrial truck must be aware of the dangers of its operation, the operator’s limited visibility, the potential to tip over or drop off an edge, and the possibility of falling loads.

The main reason, however, is that the person most likely to be injured in a powered industrial truck accident is not the operator but rather a bystander who is struck or pushed by the machine.
POWERED INDUSTRIAL TRUCK TRAINING – 1

On most work sites, there are many types of powered industrial trucks. What exactly is a powered industrial truck? What standards govern training of operators? Who can conduct the training? What special hazards face operators in an industrial setting? Essentially, with the exception of earth moving (scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment), industrial trucks are driven or controlled by a walking operator and are used to carry, push, pull, stack or tier materials. This would include rough terrain straight-mast and extended-reach forklift trucks. Training requirements for this type of equipment is found in 29 CFR 1910.178, Operator Training, paragraph (l). Operator training must be certified meaning that the employer certifies that the operator has received the required training and demonstrated an ability to operate a powered industrial truck in the type of working conditions found on the job site.

The introduction of different equipment or different types of working conditions dictates additional training. The actual training can be given by any person with the necessary knowledge, training and experience to train operators and evaluate their competency. An operator evaluation must be done. Different portions of the training may be performed by different persons as long as all portions of the required training are given. A new employee who has had training does not have to necessarily repeat all his training, but the operator must successfully pass an evaluation before authorization to operate a powered industrial truck. Refresher training, again followed by an evaluation, is required if an operator is observed driving unsafely, has been involved in an accident or near-miss, has received an evaluation that indicates unsafe operation, is assigned a different type truck, or if a workplace condition affecting safe operation changes.

Training is required at least every three years.

Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized. If authorized personnel are being lifted by the lifting carriage or forks, the following additional precautions shall be taken for the protection of personnel being elevated.

A. Use of a safety platform firmly secured to the lifting carriage and/or forks.

B. Means shall be provided whereby personnel on the platform can shut off power to the truck.

C. Necessary protection from falling objects will be used.
POWERED INDUSTRIAL TRUCK TRAINING – 2

Powered industrial truck operators shall receive initial training in the following topics if applicable to our circumstances:

A. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.
B. Differences between the truck and the automobile.
C. Truck controls and instrumentation: where they are located, what they do, and how they work.
D. Engine or motor operation.
E. Steering and maneuvering.
F. Visibility (including restrictions due to loading).
G. Fork and attachment adaptation, operation, and use limitations.
H. Vehicle capacity.
I. Vehicle stability.
J. Any vehicle inspection and maintenance that the operator will be required to perform.
K. Refueling and/or charging and recharging of batteries.
L. Operating limitations.
M. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
N. Surface conditions where the vehicle will be operated.
O. Composition of loads to be carried and load stability.
P. Load manipulation, stacking, and unstacking.
Q. Pedestrian traffic in areas where the vehicle will be operated.
R. Narrow aisles and other restricted places where the vehicle will be operated.
S. Hazardous (classified) locations where the vehicle will be operated.
T. Ramps and other sloped surfaces that could affect the vehicle's stability.
U. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
V. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program.**

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PROTECTIVE CLOTHING

Protective clothing must be worn when there is an exposure, or potential exposure, to hazardous conditions. The most important lesson one could learn about protective clothing is it must be appropriate for the hazard. Hazardous conditions generally would be chemical or mechanical; however temperature extremes too are hazardous conditions. This is particularly true where you are exposed directly to the elements or limited weather protection is available.

Another consideration in the selection of protective clothing is whether the actual job may be accomplished in a comfortable and suitable manner. For example, does the clothing offer protection without being bulky, hot, or unmanageable? You cannot wear bulky gloves to do delicate work. The actual hazard protection needs, job needs, and personal needs must be matched.

A well prepared Material Safety Data Sheet will indicate the appropriate clothing (and other personal protection equipment) required. These guidelines must be followed and if there is any question, your supervisor must be asked. Never take chances with your own personal safety.

Do not use the wearing of protective clothing as an excuse for sloppy work. Just because clothing, for example is acid resistant, does not mean acid can be thrown around (an exaggeration) or because a disposable suit is used that good housekeeping is not required -- it is!

One should exercise care in the cleaning and/or disposal of contaminated protective clothing. Contaminated disposable clothing should be treated as contaminated waste and properly disposed of.

Some types of protective clothing can be re-used. Protective clothing that has not been exposed to hazardous materials should be cleaned and properly stored after use.

Protective clothing to prevent mechanical injury (protection from flying pieces of metal, for example) should be inspected to insure its integrity.

Know under what conditions protective clothing should be worn, where to find it, how to dispose of it, and/or how to clean and store it.

The whole idea of protective clothing is to protect your body from injury, both internal and external, to protect those around you, and to provide a means of not taking hazards in the workplace out of the workplace.
PERSONAL SAFETY CHECKLIST

In addition to specific training you may have received that pertains to workplace safety such as fall protection, respiratory protection, permit-required confined space entry, etc., there are certain safety related items you should know on practically every job site. The following is a very basic personal safety checklist. Can you answer, “Yes”, to each applicable question?

Do you know:
A. The location of the Material Safety Data Sheets (MSDS) that apply to the chemical products you use?
   - the importance of MSDS and labels?

B. The location of fire extinguishers?
   - what types of fire they are for and how to use them?

C. The appropriate personal protective equipment (PPE) you are to be using?
   - how to wear, store, and maintain it?

D. How to access emergency medical help?
   - the location of emergency phone numbers?

E. The location of the first aid kits?
   - what items are in the kits and how to properly use them?

F. What items of equipment must be inspected before use?
   - what defects you are looking for and what to do if a defective item is found?

G. What to do in the event of a general emergency?
   - means of notification, exit route, meeting place?

H. When and to whom you are to report an injury?
   - why prompt notification is important? If there is any question above that you do not know the answer to, ask! Right now is the time to clarify any basic safety issues. If you do know the answer to the above questions, you should be proud of yourself because you have obviously given thought to your personal safety and the safety of those with whom you work.
RESPIRATORY PROTECTION

The primary purpose of respiratory protection is ensuring that the air you breathe contains enough oxygen for life support and that it is free of harmful contaminants.

If, after a hazard assessment, it is determined that a clean, breathable atmosphere cannot be maintained by engineering controls such as containment or forced ventilation, then respirator use will be required.

The type of respirator selected will depend on the atmospheric hazard, the type of work to be done, and the conditions in which the work will be done.

The most common respirator is a negative pressure respirator. These respirators draw contaminated air through by the negative pressure created when one inhales. Types of negative pressure respirators include half-face, full face, and even disposable face masks. In the case of the disposable mask, the mask itself is the filter. There are specific filters for specific contaminants such as dust, asbestos, ammonia, etc.

Negative pressure respirators require a fit test to ensure a proper seal between the face and the seal of the respirator. Prior to fit testing, medical approval for respirator wear must be obtained from a licensed health care professional.

Contaminants may also be filtered from the air using a battery operated powered air purifying respirator (PAPR) in which positive pressure forces contaminated air through a filter.

The above air purifying respirators DO NOT supply oxygen and may never be used in oxygen deficient atmospheres or atmospheres that are immediately dangerous to life or health (IDLH).

Atmosphere supplying respirators are always positive pressure devices as they supply breathable air from an uncontaminated outside source. The outside source may be a tank carried on one’s back—a self-contained breathing apparatus (SCBA) or a Type “C” system where a compressor forces breathable air through hoses to a face mask. Because clean air is supplied by atmosphere supplying respirators, filters for particular contaminants are not required.

Persons who use respirators will fall under a Respiratory Protection Program which includes training, fit testing, medical surveillance, respirator selection, storage, cleaning, inspection, maintenance, work area surveillance, air monitoring procedures, and an understanding of the posted results of the air monitoring.

A brief note about dust masks. Under no circumstances are dust masks appropriate for true respiratory protection and they will never be used in that capacity. However, personnel may use dust masks, at their discretion, to reduce annoying particles in the air that are not a true health hazard.
RESTRICTED AREAS

Often, in facilities, there are areas into which only select persons are allowed. There are two basic reasons for the restrictions.

1. Within these areas are operations that require, prior to entry, specific safety training.

2. Within these areas unacceptable risks exist. Risks could include falling objects; electrical current; vehicular traffic; respiratory hazards, including: oxygen deficient atmosphere, gases; and microscopic particles such as asbestos, lead or arsenic; hazardous energy; loud noises; confined spaces; fall hazards; etc..

As a rule, no employee will be exposed to any hazard for which training has not been received and for which appropriate personal protective equipment (PPE) has not been provided. With training and PPE, the hazard(s) can be effectively eliminated.

Further, employees will not be exposed to occupational hazards, regardless of training, unless that exposure is required by the job at hand. For example, employees would not go on ladders unless their work dictated they be on ladders in the first place.

How are these areas identified? The most common method is yellow “Caution” or red “Danger” tape. Never enter into these defined areas unless you are authorized and there is actual work to be done within these areas.

Sealed rooms or enclosures often have a sign that reads, among other things, “Authorized Personnel Only”.

Additionally, certain areas actually have a guard posted to monitor entry into a restricted area. In permit-required confined spaces, the hazard is so great that it is vital that a complete accounting of who is in a space, and the length of time they are in that space, must be maintained by an entry supervisor.

Some restricted areas are protected by locked panels or doors; fences and/or locks. Obviously, only qualified persons are allowed in these areas -- these areas may contain dangerous electrical energy, hazardous chemicals, etc. -- and no employee shall attempt to defeat the purpose of these protective devices.

Even without signs, barricades, locks or fences; persons should stay only in their immediate work/assigned area. This not only reduces the possibility of accident and injury, it makes work easier for others.

Industrial sites often have a variety of activities going on at once with different trades performing their specialties. Danger can come from any direction including above. Constant vigilance not only for your own safety, but the safety of those around you, is a never ending process.

Stay alert!
SAFETY CHECKLISTS

Few people would suggest that airplane pilots are forgetful. They are highly trained to perform essentially one job (fly a plane) over and over and over. Yet these professionals use a check list before entering, starting, taking off, landing, shutting down, and departing the plane. Why? Because failure to complete one item on a checklist could result in tragedy. Checklists are used in practically every facet of human endeavor from medicine to manufacturing. Certain items must be completed, often in a certain order, to achieve a desired result. Miss one step and all work could be for naught.

How about having to shut down a job because some item of safety equipment was not available? How about needing a Material Safety Data Sheet in a hurry and they are back at the office? How about trying to put out a fire and finding that the fire extinguisher does not work?

Failure to use a check list can result in minor irritations and delays to deadly tragedies.

Good checklists are developed over time using prior planning and experience. As circumstances change, checklists change. A good checklist does not have to be long -- it has to be appropriate!

A properly prepared checklist assures that all essential safety items are available and functioning as designed.

Can there be problems with checklists? Absolutely! The main problem is checking off an item that is not checked. This is quite common. It is easy to assume that an item on a checklist is not important because: 1) it is always O.K., and 2) it appears O.K. and actually, physically checking it, is inconvenient.

Two quick examples of the above. You check your body harness and lanyard and hook to an anchorage point. You fall and crash to the ground -- you forgot to check the anchorage point to ensure it could sustain the impact of a fall! You are using a negative pressure respirator which you have checked for cleanliness, fit, and seal to face contact. It seems to be working, but you are using the wrong filter cartridge and receiving no protection for the particulate hazard at hand.

How often do you think others (not you, of course) would check off all items on a check list without actually checking them.

Items on a safety checklist exist for only one reason -- the prevention of accidents.

Take checklists seriously.
Did the Titanic sink because of careless seamanship, brittle metal in the hull, or a twist of fate? Did so many persons drown because the ship sank or because there were not enough life boats available? There are two separate issues -- the sinking and the drowning.

There are often two parts to an accident. The actual accident: falling, slipping, tripping, being hit by a flying object, getting caught, etc. -- and the results: bruising a muscle, breaking a bone, puncturing the skin, receiving a burn. Just as a ship can sink and people can avoid drowning because of life jackets and life boats, it is very possible -- even likely -- to have an accident and not get hurt at all if appropriate safety equipment is being properly used. A projectile zooming toward your eye poses no danger if you are wearing eye protection. A fall off a 50 foot vertical wall poses no danger if you are properly harnessed in a personal fall protection device. A fall from a bridge is safe if you land in a safety net. Sharp metal will not cut your hand if you are wearing appropriate gloves.

It is easy to see where this is going. Use proper safety gear and your odds of getting hurt during a mishap are greatly reduced. How many countless times has something as simple as work gloves protected your hands from minor scrapes? How many times has your hard hat protected your head from injury either because you banged into a low object or an object fell from above? Take any group of workers and ask them if they have been protected from injury by safety equipment and see the response you’ll get. It would be a rare group of workers who could not relate many instances where injury -- both major and minor -- has not been averted by the use of this type of equipment. The Titanic was built to code. The builders were sure that its life boats would never be needed. There was no need to have enough life boats if there was no hazard to justify their use. The ship hit an iceberg and sank. People drowned. You don’t know and you’ll never know at what instant you’ll need safety gear.

Be safe -- use it.
SAFETY IS PART OF YOUR JOB

When you are assigned to perform a task, the assumption is that the task will be accomplished in a professional manner. There is no expectation that somebody else will have to finish your job because you are off seeking medical attention for an injury received by virtue of sloppy safety practices. Many of the tasks that you perform could be classified as “art” in the sense that you mold, shape, build, create and make things. But while you are doing these things, you must flat out follow certain safety rules.

There is no vagueness -- no real weighing of the issues -- no serious judgment involved. Rules and procedures are in place and you must follow them -- it’s part of your job. While you are being paid to “ply your trade”, you are also being paid to ply your trade safely. In addition to being company policy, it’s the law! Normally, when you get caught breaking the law, you go through some sort of court process and are fined or, if really serious, incarcerated. Seldom is a law breaker caught the first time out.

It is the same with safety. You skimp on this safety rule or you avoid that safety procedure or fail to use a certain required item of PPE and nothing happens -- at first. But as you develop these unsafe habits and flaunt your invulnerability, slowly, but surely, the odds of getting injured start turning against you. You’ll get caught -- you’ll get injured. Just like in the old West where they caught’em and hung’em, your penalty will be swift and sure. At the least, you’ll receive a minor injury. At the worst, you’ll be severely burnt, paralyzed or dead. The point is that needless accidents are just that -- needless. There is no justification for not following basic safety rules. If you don’t know what they are -- ask.

When it comes to safety, there are no foolish questions. One way to minimize the possibility of needless accidents is to remove a person from the job who is likely to be harmed -- or harm others -- through negligent behaviors. The company provides safety training and does what it can to ensure that all employees perform their tasks in a safe manner. An employee who disregards safety is not fulfilling his obligations just as much as a worker who doesn’t do his regular work. Neither can be tolerated. Safety can be as simple or as complicated as you want it to be -- make it simple. Understand what type of safety precautions are appropriate for your job and follow them religiously.

Supervisors will not allow unsafe acts to go unchallenged.

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SAFETY MEETINGS

As a matter of policy, our company will not permit its employees to work in conditions that are unsanitary, hazardous, or dangerous to their health and safety.

As part of our safety effort, applicable safety programs are established that comply with 29 CFR 1910, frequent and regular inspections of our job sites are made by competent persons; machines, tools, material, & equipment which, upon inspection, is found to be defective or unsafe will be physically removed from the job site or clearly tagged (or locked out) to prevent its inadvertent or unauthorized use; and only those employees qualified by training or experience will be allowed to operate equipment and machinery.

All the documentation, logs, records, policies, standards, regulations and so on are worthless unless there is a commitment to safety by all personnel from senior management to the newest hire.

One successful method of demonstrating commitment to safety is by having regularly scheduled safety meetings. The meetings themselves are successful only if there is an interactive dialogue and interest expressed among the participants.

Safety meetings provide an opportunity to “remind” employees of standard, recurring safety practices; allow for employees to make suggestions and ask questions; provide a vehicle for addressing immediate safety concerns on the current job; and, most importantly, keep safety foremost on the minds of all persons from the supervisors and competent persons to employees.

A successful safety meeting does not have to be a long, drawn out affair. Preferably, one topic is covered, employee input is sought, a dialogue is established, questions are answered, and the meeting is over. An important factor is the regularity of the meetings. Safety becomes “second nature”. Each task is automatically approached with the understanding that it will be performed safely.

Of course, not every meeting will cover a topic that applies directly to you or your specific tasks. However, they are important because you probably, over time, will be confronted with various hazard exposures.

While you, as an individual, effectively deal with job site hazards through training, PPE and safety work practices, there is no guarantee that other co-worker are as responsible -- they may be carelessly exposing you to hazards they have created. Safety meetings will help you identify those hazards.
When you were a child, you were probably told things like: “Comb your hair.”; “Brush your teeth.”; “Take a bath.”; “Behave!”; “Do this.”; Do that.”; “Don’t do this!”; Don’t do that!” Over and over -- the same thing -- until finally you internalized proper behavior. Things repeated enough times eventually sink in. How many times have you seen the same advertisement for a product -- over and over? Statistically, if and when you decide to buy that product, you will probably buy the one that has been drummed into your brain by constant advertising. The very fact that you buy the product at all is probably a conscience or subconscious response to the advertising. It is annoying to be told what to do and what to think. Eat right, don’t smoke, lose weight, exercise. As a child, you were told what to do for your own good. Somebody actually cared about your welfare.

Do you ever wonder why other people try to alter your behavior? Do you really think some generous person or company would spend millions of dollars on advertising to spread the message, “Drive Safely”, because they care about you? Hello! Grow up! Insurance companies want you to drive safely so they don’t have to pay even more millions of dollars in claims. It is reasonable to assume that most attempts to influence your thinking and behaviors are perpetrated by those who stand to gain by your changed behaviors.

Some of these influences are good. Certainly, not demolishing your car in a high speed, fiery accident that leaves you on life support is a good thing. These safety meetings are an attempt to establish good safety behaviors. There is no question that our company materially gains by your working in a safe manner. But, equally important, there is no question that you materially gain by working in a safe manner. It’s the same thing, over and over. Think safety! Act safely! There is nothing subtle about these meetings -- they are a blatant attempt through factual data, through humor, through example, and through repetition to encourage you to think about safety. You gain by not experiencing the pain and suffering (both physical and financial) that invariably is associated with an occupational injury -- we (the company) gain by not losing a valuable employee.

We will try to emphasize safety over and over again, and, hopefully, the concepts of safety will become second nature to you.

And by the way—we really do care!
SAFETY PROGRAMS

In theory and actual practice, the manner in which safety is handled should be consistent from one day to the next. Most important in any safety program is its effectiveness. Are physical hazards eliminated to the greatest extent possible? Are procedural hazards eliminated by proper work methods? Is there an appreciation of the importance of safety by all personnel, including management and workers? Are personnel trained to recognize unsafe situations, and either properly deal with them, or ask for guidance from a supervisor?

A safety program is more than just a list of rules. A safety program requires active employee involvement and management commitment.

Safety programs are not static. They change as new technologies are brought on line; as new hazards are introduced or discovered; as new directions are taken; as new procedures are developed; and as individual job assignments change and grow. Worksite analysis and hazard assessment point the way to what types of training are needed, what types of personal protective equipment are required, and what types of engineering controls can be implemented to limit occupational hazards.

The primary purpose of a safety program is to reduce and/or eliminate health risk and injuries.

In our organization, as in all organizations, our people are our most valuable asset. Your skills are needed and we certainly do not want you to suffer pain from injury or loss of income from disability. However, as a business, we can not be completely altruistic. A good safety program saves money, increases productivity, and improves quality of work.

The benefit to the individual who follows good safety practices is immediate -- no injuries. Unfortunately, there is no real way to tell what specific accident did not happen. However, accident rates do go down. The advantage to our organization is costs go down and profits go up. Increased profits benefit all of us in many ways, not the least of which is job security.

No reasonable person would expect anyone to know every safety rule or practice for every situation. However, it is reasonable, and expected, that you know the proper safety procedures for your specific job and that, if, thrust into a new situation; you know the need to learn the appropriate safety procedures before proceeding. If you don't know how to accomplish a task safely -- ask! It's that simple.

There is a safe way to accomplish every task. Do it the safe way!

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SANITATION - I

Sanitation in the work environment is much more than clean wash rooms. Sanitation deals with cleanliness throughout the workplace. Specific sanitation requirements are intrinsic to certain OSHA standards. Others are good common sense. In the workplace, sanitation deals with the promotion of cleanliness, taking precautions against disease, and protecting health. It does not require, as a general rule, sterilization, which involves making the workplace germ free [an occupation exception would be clean-up after an injury or potential exposure to bloodborne pathogens].

One of the main advantages of proper sanitation procedures is the immediate results and benefits to you. Aside from a more pleasant environment in which to work, the possibility of illness (and even injury) is reduced immediately as areas are cleaned up and put in order. Good housekeeping practices are a fundamental part of workplace sanitation. The immediate cleaning up of spills, the removal of trash, and keeping all items as neat and orderly as possible are just a few good housekeeping rules.

Personal hygiene is a basic part of sanitation. The removal of workplace contaminants (even dirt) from your exposed skin, hair, and clothing keeps them out of your automobile and your home and away from your family. Of course, the immediate and proper cleaning up of chemical spills, per the directions listed on the chemical labels and Material Safety Data Sheets, is vital. Furthermore, removing and cleansing accidental body (skin and eyes) exposures will reduce the likelihood of illness and/or injury. In a real sense, the use of proper personal protective clothing and equipment is part of sanitation.

The availability of clean wash rooms and potable (drinkable) water is required by all sanitation standards. A clean wash room and cleanliness inhibits the spread of germs and bacteria.

The prompt removal and proper disposal of waste are major components of any sanitation program as they prevent insect infestation and the nesting of rodents in the workplace.

Proper food storage and designated eating areas are important. It is especially vital to wash your hands before eating, especially if you have had any contact with any chemicals, to prevent ingestion of contaminated foodstuffs.

Engineering controls to prevent standing water and to provide for the ventilation of healthy air are part of proper sanitation just as much as the prompt removal of trash (with its inherent dangers such as fire and tripping) is.

The whole thrust of every OSHA standard is worker health and safety. Sanitation is a major component of any health and safety program.
SANITATION - II

Potable water:
It is absolutely imperative that an adequate supply of potable (drinkable) water be available on all work sites. In fact, by standard, all places of employment must have drinking water available. On industrial sites, particularly, it is important that employees drink plenty of fluids to replace those lost through perspiration.

Potable water, if it is not available from a tap or fountain connected to an approved water supply, must meet the US Public Health Service Drinking Water standards or the state or local authority having jurisdiction and be dispensed from a container that can be tightly closed and equipped with a tap. The container must be clearly marked to identify its contents. The container used for potable water must be used for no other purpose. It should be regularly cleaned.

The use of a ladle (to dip out water) or a common drinking cup is not allowed! Disposable, single service, paper cups may be used as long as they are dispensed from a sanitary container and there is a sanitary container available for used cups.

If non-potable water is available, it must be clearly identified as being unsafe for drinking or washing purposes and there must be no real or potential cross-over connection between potable and non-potable water systems to avoid the possibility of mixing the two.

Washing facilities:
When employees are engaged in operations where contaminants may be harmful, washing facilities will be provided as near as possible to the job site so these substances may be removed. Of course, washing facilities will have appropriate products for removal of the contaminants (gritty soap, solvent, brushes, etc.) and towels or paper towels.

Toilets:
At least one toilet must be available on all job sites and persons must be allowed to use it. For 20 or more employees, the following is required: one toilet + 1 urinal per 40 workers; for 200 or more employees, 1 toilet + 1 urinal per 50 workers.

If sewers are not available, unless prohibited by local code, a portable toilet(s) (chemical toilet, privy, etc.) designed so that their use will not contaminate ground or surface water will be used.

Vermin:
As part of general sanitation, efforts should be made to control the harboring of rodents, insects, and other vermin on all job sites as far as practicable. Good housekeeping and closed trash and garbage containers will help in this effort. If the presence of these pests is noticed, an effective extermination program will be instituted.
SCAFFOLDING

Scaffolding, by definition, is a temporary structure. Because scaffolding must support people and equipment at a raised elevation, certain precautions must be taken to protect the persons actually using the scaffold as well as those erecting and dismantling the scaffold and those on the ground near the scaffold. Failure to follow basic safety rules can lead to serious injury and/or death.

Properly used, scaffolding provides an enormous benefit to job accomplishment. Improperly used, scaffolding can be deadly. All scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent (by training or experience) person. Before using scaffolds, you must receive training that addresses the hazards associated with scaffold use, specifically:

A. Electrical hazards.
B. Fall hazards.
C. Falling object hazards.

Additionally, prior to any scaffold use, you must receive training that explains:

A. The correct procedures for dealing with the above hazards.
B. The proper use of scaffolds and the proper handling of materials on the scaffold.
C. The maximum intended load and the load-carrying capacities of the individual scaffolds being used.
D. The availability of OSHA standards pertaining to scaffold use.

When working under a scaffold, hard hats are required, and, when working on a scaffold more than ten (10) feet above a lower level, fall protection must be provided. Guardrails and/or a personal fall arrest system are the most common types of fall protection; however, certain special types of scaffolds may require a unique type of fall protection such as a grabline. Fall prevention is equally important as fall protection. Accumulated debris, ice, high winds, overloading, improper erection, extending one’s reach by standing on boxes or loose ladders, etc., all contribute to the strong possibility of falling.

Within the broad categories of suspended and supported scaffolds, there are many specific types of scaffolds -- each with its own limitations and special characteristics. Further, each job site has its own unique ground composition on which a supported scaffold is erected or unique attachment points for suspended scaffolds. Prior to using any scaffold, you will be instructed on any unusual or unique item of instruction that must be known about a specific circumstance. Of course, you are encouraged to ask your supervisor or the safety director if you have any questions or concerns about the scaffold systems used at this facility.
SCISSOR-LIFT FALL PROTECTION

What type of fall protection is required for scissor-lifts? This apparently simple question has a relatively simple answer. However, how it is derived is somewhat complicated because OSHA does not have a standard to deal with this issue.

Clearly, there is a hazard -- falling from height -- however, neither fall protection while using a scissor-lift is not covered in the fall protection, scaffold and ladder fall protection, nor aerial lift fall protection standards.

Section 5(a) (1) of the Occupational Safety and Health Act, commonly referred to as the General Duty Clause is a “catch all clause” which states: "Each employer shall furnish to each of its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

In the absence of a specific standard relating to a safety or health risk, the above is the reference OSHA will cite.

When assessing compliance efforts, OSHA considers the requirements of pertinent national consensus standards. In the case of scissor-lifts, ANSI/SIA A92.6-1990, Self-propelled Elevated Work Platforms, and ANSI/SIA A92.3, Manually Propelled Elevating Aerial Platforms, are used.

Fall protection is provided by employees maintaining firm footing on the lift and using guardrails. Under no circumstances are employees to place ladders or other items on the lift to extend their reach. Per ANSI/SIA standards, with which OSHA concurs, Use of planks, ladders, or any other device on the aerial platform for achieving additional height or reach shall be prohibited. Use of these items negates the value of the guardrail system and may possibly exceed the scissor-lift’s design limits for stability.

Further, personnel are not to tie off to items adjacent to the lift -- the most obvious reasons are: the anchorage point may not be sufficient and movement of the lift would pull the employee out of and off of the lift.

If, for some reason, guardrails are not being provided for specific operational reasons, then a personal fall protection system may be used which would include an anchorage point, lanyard and safety harness. However, this option is severely limited because its design would have to be approved by a registered engineer or the scissor-lift manufacturer would have to approve the use of the lift as an anchorage.

Under ideal conditions, rarely found on industrial sites, scissor-lifts may be moved with the lift extended. However, should obstacles, debris, drop-offs, holes, depressions, ramps or other hazards be present, the lift must be lowered prior to movement.

Finally, if the employee leaves the safety of the scissor-lift platform while working at height, some sort of approved fall protection system must be employed.
SEAT BELTS

Here is a safety rule that is easy to remember. If a company vehicle has a safety belt, it must be used. It's that simple. Seat belts and safety go beyond the confines of the job site. Seat belts should be worn while driving any vehicle -- its common sense.

Who has not seen an Indianapolis type racing car involved in a high speed accident? It is spectacular as the car literally disintegrates as it slides down the track! Pieces and parts are flying everywhere and, when it finally stops, the driver is unhurt. Why? Partly because much of the energy is dissipated through the disintegration of the vehicle and partly because the driver was safety harnessed in the vehicle.

On a smaller scale, the same thing happens in your automobile. During a crash, energy is dissipated through the crumbling of the sheet metal, the collapsing of the steering column, the deforming of the bumpers. The seat belt keeps you in the relative safety of the driver's compartment.

You are a safe driver. You don't speed and you don't drive far from home. You haven't had an accident. Why should you wear a seat belt? Three out of four traffic accidents happen within 25 miles of home and 80% of serious injuries or deaths occur at around-town speeds. According to the Ohio Department of Highway Safety, in a 35 MPH crash, your body is subjected to forces similar to those from jumping head-first off a three story building. Your chances of staying alive are 25 times greater if you are restrained in the passenger compartment of your vehicle as opposed to being thrown out. Furthermore, while you may be a safe driver, what about the "other guy"? Innocent victims are involved in serious motor vehicle accidents every minute of every day.

What about industrial vehicles such as tow motors, bulldozers, and crawlers? There is little speed involved so why are seat belts necessary? One reason, the least important, is that it is the law! Another more important reason is, should the vehicle tip over, you would be far better off protected by the vehicle's cage than falling out and having the vehicle crush you. Develop a positive occupational habit. Soon, without thinking, you will automatically buckle up for safety.

When you get into, or onto, any vehicle equipped with a seat belt, buckle up before even turning the ignition key. It is basic physics -- if the vehicle you are in is going 55 MPH and it suddenly stops, without a seat belt or restraining device, your body continues going 55 MPH and impales itself on, or goes through, the first object it comes in contact with.

Be safe! Buckle up!
SIGN & TAGS

When appropriate, signs and tags are used to warn of specific hazards. Types of signs are classified according to their use, and their design is regulated by OSHA standards. There is a requirement that all personnel be instructed in the meaning of the various types of signs. The various uses include:

A. Danger Signs (Red, Black & White): indicates immediate danger and denotes that special precautions are necessary.

B. Caution Signs (Yellow Background): warns of a potential hazard or cautions against an unsafe practice.

C. Safety Instruction Signs (White Background): used to provide general instructions and suggestions relative to safety measures.

The wording on signs should be positive, clear, concise, and easy to understand.

Accident prevention tags are to warn of hazardous or potentially hazardous conditions that are out of the ordinary, unexpected, or not readily apparent. They are not used where signs, guarding or other positive means of protection are used.

All tags must have a signal word and a major message.

Signal words are: “Danger”; “Caution”; “Warning”; BIOHAZARD (or its symbol).

The major messages would indicate the specific hazardous condition such as: “High Voltage” or “Do not start”.

The color scheme is basically the same as for signs: red = danger; yellow = caution; orange = warning; fluorescent orange = biological hazard.

Danger Tags: indicate an immediate hazard that presents a threat of death or serious injury.

Caution Tags: indicate a non-immediate hazard or unsafe practice that presents a lesser threat of injury.

Warning Tags: indicate a hazard between “Danger” and “Caution”.

BIOHAZARD Tags: indicate the actual or potential presence of a biological hazard and identify equipment, rooms, containers, etc. that may be contaminated.

The important thing to remember is to pay attention to signs and tags and realize that they are in place for only one reason -- your safety.
**Tool Box Talks are a reference tool and should only be used to supplement a well established, comprehensive safety program**

**STEPing toward safety compliance!**

## SLIPS, TRIPS, AND FALLS

This Safety Meeting deals not with falling from height which is covered in the Fall Protection Safety Meeting. Here we are talking about plain, ordinary, run of the mill, it happens all the time, it’s a fact of life, no big deal slips, trips, and falls. Not!

All slips, trips, and falls are potentially very serious and all slips, trips and falls are preventable through adherence to company safety policies, common sense, and awareness of potential dangers on the job site. The most common work site accident is actually the easiest to prevent.

On the work site:

Walk, don’t run.

Maintain a clear line of vision particularly when carrying a large object.

Use hand rails.

Keep your work area clean of debris.

Wear the proper work shoes/boots and make sure they are laced or buckled.

Pay attention to what you are doing and be aware of what is going on around you.

Clean up spills -- liquids are slippery.

Firmly set your ladder and ensure the rungs are clean.

Never engage in horseplay.

Ensure you have adequate lighting.

The list can go on and on, but in the final analysis, it is up to you to prevent slips, trips, and falls.

If you reflect on the last time you tripped, slipped, or fell, you would probably conclude that it was preventable.
SMOKING

Even the most adamant of smokers would be hard pressed to put forth a valid argument for smoking. Few smokers would encourage their children to smoke. There is no question that smoking presents a serious health risk.

OSHA has rules about smoking on work sites and they generally relate to the immediate (acute) health risk of fire or explosion. Other times they relate to certain procedures such as asbestos or lead abatement (where smoking is prohibited).

The smoke from cigarettes has three (3) major hazardous ingredients: nicotine, tar, and carbon monoxide. In addition to these elements, there are thousands of other chemicals which are delivered in trace amounts. Tar, produced by the burning of organic matter in combination with air and water, can produce cancer and emphysema by filling the alveoli in the lungs. Carbon monoxide, bound with one's hemoglobin, can starve your body for oxygen. Nicotine reaches the brain within ten seconds of inhalation. Nicotine, which provides a temporary lift, is not as medically dangerous as tar and carbon monoxide, but it is habit forming.

Diseases and medical problems caused or aggravated by smoking include: cancer of the lungs, lips, tongue, palate, larynx, esophagus, kidney and bladder; arteriosclerosis (constricting of the arteries); heart problems; bronchitis; and asthma. For women, smoking affects the unborn child and there is a possibility of increased chance of cancer of the womb.

Due to our current social environment of activism and legalism, smoking restrictions are more and more commonplace. From government buildings, public places, work places, and on and on, smoking is not being tolerated. Most buildings in which we work will have smoking prohibitions. If you must smoke, only smoke in authorized smoking areas. Of course, there will be no smoking in the vicinity of flammable liquids or gases.

All employees are encouraged to not start smoking, reduce their smoking habits, and, preferably, quit smoking altogether. This is much harder than it sounds. It has been said that nicotine is one of the most addictive drugs known to man and it is no easy task to quit. Be encouraged! The more times you try to quit, the greater your chances of success.

Use caution when smoking on the job sites.

Note to trainer: Discuss your facility designated smoking areas
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**STEP**

**STAIRWAYS**

The requirement for stairways is more common than you would imagine, and the lack of stairways is an easy violation to spot. Stairways are often needed as part of the overall fall protection safety.

Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails. On stairways less than 44” wide having both sides enclosed, at least one handrail, preferably on the right side descending shall be provided. On stairways less than 44” wide having one side open, at least one stair railing on open side must be provided. On stairways less than 44” wide having both sides open at least one railing must be provided on the open side. On stairways less than 44” wide having both sides open, one stair railing on both sides must be provided.

Stairways must be of sturdy construction and the riser height and tread depth must be uniform within each flight of stairs. Temporary stairways must have a landing of at least 30 inches in the direction of travel and extend at least 22 inches in width for every 12 feet of vertical rise. Where doors or gates open directly on a stairway, a platform must be provided and the swing of the door or gate must not reduce the effective width of the platform to less than 20 inches. Stairways and platforms must be level and should have a non-slippery surface.

There must be no hazardous projections such as nails or splinters which could snag a person’s hands or clothing.

The most common violation dealing with stairways has to do with the lack of handrails. A standard railing shall consist of a top rail, intermediate rail, and posts, and shall have a vertical height of 42” nominal from upper surface of top rail to floor, platform, runway, or ramp level. Handrails must be capable of supporting without failure a downward and outward force of 200 pounds. Stairrails shall be at least 36 inches from the upper surface of the stairrail system to the surface of the tread, and in line with the face of the riser at the forward edge of the tread. Stairways having four or more risers or rising more than 30 inches must have at least one handrail. If there is a fall hazard of 6 feet or more along an exposed side of the stairway, then a guardrail system must be provided. This could include a handrail as the top of the guardrail system with midrails added.

The top and bottom of stairways, as well as platforms, must be kept clear of unattended objects.

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STEEL TOED WORK BOOTS

There are many types of foot protection -- each addressing a particular job site hazard. Foot hazards that may be present range from heat and cold to dangerous chemicals to slippery surfaces. But the one hazard that is present on almost all work sites is foot compression.

Your foot may literally be crushed from having something fall on it; having a projectile driven through it; having something run over it; having an item of equipment smash it.

Think about it! On most work sites, your feet are in imminent danger of being harmed. Your feet need protection just as your eyes, hands, lungs, hearing, skin, and head. While there are items of specialized foot protection, the most common, and most useful, is the steel toed work boot.

Safety footwear is not a place to cut corners. A cheap, non-approved, set of boots may offer no real protection or, equally as bad, under compression, the metal may cave in and not rebound leaving your foot trapped within the boot. In this situation, a trip to the medical emergency room will be required to allow a physician, with special tools, to free your foot from your boot.

When selecting steel toed work boots, ensure that they meet the American National Standard for Men’s Safety-Toe Footwear, ANSI Z41.1-1967.

While you may remove some items of personal protective equipment (PPE) during the work day, more than likely, your boots will be on from sun up to sun down. It makes sense to select a pair of boots that are comfortable, have an appropriate tread, and are water/oil resistant.

While discussing feet and boots, there are a few other items of safety that should be addressed.

Boot cleanliness. Before everybody says something like, “There no way I’m going to clean my boots before I go onto the work site!” a clarification is needed. You should clean your boots after exposure to job site hazards (such as chemical products) before going home. Keep job site hazards at the job site.

Steel toed boots will protect your foot from the many typical job site materials that may impact you -- brick, block, miscellaneous work materials. These boots will serve you well if an piece of equipment falls or runs over your foot.
STORAGE OF HAZARDOUS CHEMICALS

Improperly stored hazardous chemicals in the work site could have catastrophic results including fire and/or explosion. Common hazardous chemicals include gasoline, kerosene, compressed oxygen and compressed acetylene. However, there are an infinite number of possible combinations of chemicals that need to be stored properly.

Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard and a sign reading: “No Smoking or Open Flame” must be conspicuously posted.

At least one fire extinguisher having a rating of not less than 12-B units shall be located not less than 10 feet, or more than 25 feet, from any Class I or Class II liquid storage area located outside of a storage room but inside a building.

At least one portable fire extinguisher, having a rating of not less than 12-B units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of flammable or combustible liquids.

Chemicals, as noted on labels and on Material Safety Data Sheets, often have specific storage requirements which may include such items as heat, cold, humidity, light, motion, and reactivity. The MSDS for gasoline, for example, contains reactivity data which includes conditions to avoid such as high temperature and strong oxidizers.

The fuels and flammables must be segregated from oxidizers. On a job site, oxygen cylinders shall not be stored near highly combustible materials, especially oil and grease and other fuel-gas cylinders.

Chemical containers which have been damaged present a special problem because contamination may result. The entry of a foreign substance into the original chemical can change the chemical properties and the results can be very dangerous.

Flammable or combustible toxics or oxidizing agents not compatible with water should be individually separated and certainly not under the fire protection of a sprinkling system.

Of course, only approved containers and portable tanks are allowed for the storage and handling of flammable and combustible liquids.

Flammable or combustible liquids may never be stored in areas used for exits, stairways, or areas normally used for the safe passage of people.

If you don’t know the storage requirements of a particular chemical, ask.
SUBSTANCE ABUSE

For all practical purposes, when you are talking about substance abuse, you are actually referring to drug abuse. Drug abuse is not limited to marijuana, heroine, LSD, and other common street drugs. It includes laxatives, aspirin, sleeping pills, alcohol, cigarettes, etc... Any drug that is not used in the prescribed manner is being abused. Substance abuse would even include non-drugs such as glue which could cause irreparable damage to your brain.

Addiction, habituation, dependence, both psychological and physical, and abuse are adjectives which are applicable to personal mismanagement of drugs.

Those who smoke cigarettes are aware of the dangerous side effects of smoking and have made a conscientious choice to continue. The pleasure they derive from smoking, in their judgment, outweighs the social stigma, cost, and health risks. This is a personal decision. Before all you non-smokers start snickering, remember that caffeine, which is found in coffee, tea, and soda pop, is also a habit forming drug. Though more sociably acceptable, it is a drug nonetheless. Having a mild psychic dependency would characterize the users of these drugs. The same is true for moderate use of alcoholic beverages.

It is not the purpose of this safety meeting to be judgmental. Substance abuse is a serious problem for those who are involved with it. When desire for a drug becomes so powerful that it outweighs all normal drives and concerns, one could be considered addicted to that drug. This is dangerous to the person involved and to fellow workers. Because of the adverse health effects to the individual and devotion of time and energy spent seeking and staying under the influence of the drug, it leaves little time or energy to be a productive member on the job.

Generally, one would need professional support to "kick" a substance addiction. Fortunately, there are many medical and social groups that can help. The first step on the road to recovery is an admission that help is needed and go from there. For the safety of yourself and others, substance abuse absolutely cannot be tolerated on the job site. The dangers are too great for not only the abuser but also those with whom he/she works.

It is much easier to not start taking illegal substances than it is to stop taking them. Of course, this holds true for legal, but possibly addictive and dangerous, substances such as tobacco and alcohol.

Substance abuse will not be tolerated!

Note to trainer: Discuss your facility specific substance abuse policy.
TOO MUCH OF A GOOD THING

As a general rule you can’t get too much of a good thing. Who has had too much money? Too much good health? Too much enjoyment in life? Nobody!

Without a doubt personal protective equipment (PPE) is a good thing. Regular PPE, properly used, can prevent personal injury from the basic hazard categories: impact; penetration; compression; chemical; heat; harmful dust; and light radiation. Specialized PPE (it’s use determined by objective measurements) such as respirators and hearing protectors can prevent both chronic (long term) and acute (short term) injury and illness from respiratory hazards and noise. PPE must be a good thing -- and it is!

However, too much may be harmful.

Below are some examples:

Too much light radiation protection: essentially you would be “blinding” yourself and hamper your ability to see what you are working on.

Too much respiratory protection: if the results of a hazard assessment indicate that respiratory protection is not needed, and you decide, for example, you want to wear a dust mask, that is O.K.. However, if you figure that if a dust mask is good, then a ½ face respirator is better, you’d be wrong! A negative pressure respirator, such as a ½ face, puts a strain on your system and, because of this, they may be worn only after medical approval for respirator wear has been received from a licensed healthcare professional. Further, without fit testing, training, cartridge selection, and full compliance with a respiratory training program, the ½ face probably would be of little value.

Too much hand protection: if cotton work gloves are appropriate for your work, then it follows that heavy leather gloves would provide that extra measure of safety. Not necessarily so. Gloves used for safety have to not only protect your hands; they must allow you to do your work safely. Thick leather gloves may not permit you to properly grasp items or allow full use of your fingers.

Too much hearing protection: if you could eliminate all sounds on the job site, wouldn’t that be a good thing? It certainly would protect your hearing, but the downside is -- it could cost you your life. Without hearing, how could you be aware of approaching vehicles? How could you hear alarms? How could you hear, “Watch out!”?

Use the PPE you are supposed to use and, of course, use it properly. Exercise caution if you decide that, if assigned PPE is good, more would be better. Consider the possible ramifications.
UNLABELED PIPES & PIPE TIE-INS

Unlabeled Pipes

Through your work area run a series of pipes, none of which are labeled. It is obvious that the black PVC pipe is a drain pipe and, to complete your job, you are going to reroute it. You tap on the pipe and it explodes! Not a common experience, but this type of accident really does occur. The black pipe, by the way, contained compressed air.

All personnel should be made aware of the contents of unlabeled pipes.

Should work activities be performed in areas where chemicals are transferred through unlabeled pipes, the competent person will inform the employee of:

A. The contents of the pipes.
B. The potential hazards.
C. The safety precautions to be taken.

You have probably heard the phrase, “You can’t judge a book by its cover.” The same holds true for pipes. You can’t determine the contents of a pipe by its looks.

Unlabeled pipes may contain physical hazards such as steam or high pressure or health hazards such as poisonous gases or fluids.

Pipe Tie-ins

Prior to pipe tie-in, the flow of gas, steam, vapor, and/or liquid must be halted. It is absolutely vital to know the ramifications of halting the flow within the pipe particularly in hazardous facilities such as chemical plants, refineries, and other facilities which have a high degree of hazards. Failure to follow specific rules could result in a major catastrophe.

Before actual tie-in is attempted, the original pipe that has been taken out of service (by positive means such as valve, block, tag) will be purged of contaminants, and gas tested, if appropriate.

At the completion of the tie-in, the appropriate individual or individuals will be notified before flow is restored to the pipe.

It is vital to know the chemical and physical properties of the material within the pipe so a hazard assessment may be made and appropriate PPE (and safety equipment such as a particular type of fire extinguisher) can be selected and be made available.
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**WHAT WENT WRONG?**

How in the world did you get into the hospital bed? Things are a little fuzzy, but you know it had something to do with work. You rack your brain and try to remember.

Was it that cigarette you were smoking by the gasoline storage area?

Was it that ladder you used as a scaffold plank?

Was it that baseball cap you were wearing instead of a hard hat?

Was it that clever idea you had about removing the machine guard on the electric saw?

Was it the body belt you used instead of a harness as part of your fall protection system?

No, you’re sure you used a harness; maybe it was the clothesline you used as a lanyard.

Maybe it was that unmarked hole you fell through.

Possibly you merely fell 15 or 20 feet down from an unprotected walking/working surface because you tripped on your untied boots laces. No, you had on your favorite tennis shoes. Maybe something fell on your foot.

If you just hadn’t taken a double dose of that prescribed medication before work -- the medication that says, “Do not drive or operate heavy equipment. Judgment may be impaired.” Maybe your judgment was impaired when you entered the permit-required confined space without authorization.

It probably wasn’t a good idea to splice that 220 volt electrical cord with Scotch Tape -- particularly since you bypassed the fuses, and were trying to arc weld pipe together in a ten foot trench with 6” inches of water, no shoring, and a gaseous, explosive atmosphere. Were you electrocuted, blown up, or just crushed by the trench caving in? Maybe a combination of all three? Maybe not.

Possibly it was that game of “double-dare” you made up where you do something really stupid like stick an electric drill in your mouth and double dare a buddy to do the same. He does and you have to top him by running the drill in your mouth while hoping on one foot.

Wait a minute! You’re not in a hospital bed. You’re at home just having a nightmare. Thank goodness. The dream was all make believe -- nothing like the above has ever happened at any work site. You and everybody you know constantly strive to do their job well and do their job safely. Right?