Highline College Facilities Department

Accident Prevention Program

Prepared by:
Highline College Facilities Department
in association with:
U.S. Compliance Systems, Inc.

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Policy Statements

Accident Prevention Policy Statement

It is the policy of Highline College Facilities Department to provide a work environment that is inherently safe. The safety and health of our employees is of primary importance as they are our most important resource. Safety takes a commitment from all personnel within our organization.

Highline College Facilities Department has a comprehensive safety program that addresses our specific safety concerns and provides guidance for the performance of our individual job tasks within the framework of appropriate Washington Industrial Safety and Health Act (WISHA) standards as published in the Washington Administrative Code (WAC).

There also may be times when Highline College Facilities Department requires its employees to meet safety policies that are specific to our company. If we implement these additional policies, they must have more stringent safety requirements than what WISHA has developed. These policies can be found listed in the Safety Program Addendum at the end of this safety program when applicable.

Safety takes a commitment from all personnel within our organization. Training will be interactive with an opportunity for all to actively participate, ask questions, make suggestions, and refer to our written policies and procedures.

Safety training needs will be identified by continual reassessment of our work methods, equipment and job sites as well as employee and management input. Observation of unsafe acts will be addressed immediately.

Frequent and regular job site inspections will be conducted by supervisory personnel and/or other competent persons. Employees in violation of the established safety procedures of Highline College Facilities Department will be subject to our disciplinary procedures. Observation of unsafe acts will be addressed immediately.

On every job site, there will be a competent person, by virtue of training or experience, who will have the authority to stop work. Additionally, all employees have stop work authority for their immediate task if they are aware of a safety hazard that cannot be immediately corrected. If an employee stops work for an unresolved safety hazard, the supervisor will be contacted immediately.

Equipment operator/owner manuals will be readily available and the safety procedures contained therein will be followed. Equipment will be inspected prior to use and, if defective, tagged out of service. Manufacturer's warning labels on all equipment will not be removed, painted over or defaced.

Emergency medical response will be available on every job site either by an emergency rescue service within reasonable distance, by time, or an assigned emergency responder.

Safety requires not only that each person understand and perform individual tasks in a safe manner, but also that each individual is aware of his surroundings and is actively involved in the safety of others.

Each employee is encouraged to contact their supervisor immediately should a safety or health risk exist so that corrective action may be taken. All persons from senior management to the newest hire are responsible for safety both for themselves and those around them

This policy statement will be conspicuously posted on our safety and health bulletin boards.

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Jason Huff

Safety Director

New Hire Safety Orientation Policy Statement

Jason Huff, or a designated competent person, will ensure that all new hires are aware of the accessibility of our safety program and, through interactive discussion or practical demonstration, be assured that the new hire understands the safety policies and procedures that pertain to the actual work the new hire will perform.

Further, each new hire will read (or have explained) the contents of our employee handbook and **sign** the Employee Acknowledge form which states:

> I have read and understand the contents of this Employee Handbook.
>
> I will, to the best of my ability, work in a safe manner and follow established work rules and procedures.
>
> I will ask for clarification of safety procedures of which I am not sure **prior** to performing a task.
>
> I will report to the job site supervisor or competent person any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work.
>
> I understand that the complete safety program is located at:
>
> 2400 S. 240th St.
>
> Des Moines, WA 98198
>
> 206-592-3260
>
> and is available for my review.

It will be explained to all new hires that safety training and safety performance is an on-going process. Depending on circumstances, training will take the form of some or all of the following: safety meetings, on-the-job instruction, formal and informal training.

Lastly, all new hires will be informed of the importance of our inspection and enforcement policies and procedures.

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Jason Huff

Safety Director

Stop Work Authority and Workers' Right to Refuse Dangerous Work Policy Statement

As referenced in the New Hire Safety Orientation, each employee is:

a. To work in a safe manner and follow established work rules and procedures to the best of their ability.
b. To ask for clarification of safety procedures of which they are not sure prior to performing a task.
c. To report to the job site supervisor or competent person any unsafe acts or procedures and will ensure they are addressed and resolved before continuing work.

Specific procedures have been established to ensure that all employees understand the importance of **not** performing a job task if it cannot be performed safely and in accordance with appropriate standards.

Stop Work Authority Procedures training will be given during the new hire safety orientation before initial assignment to any job task. Training will be documented and include the employee's name, dates of training, and subject.

All employees not only have the authority to stop work when control of a health, safety, or environment hazard or risk is not clearly established or understood, they have an obligation to stop work.

Procedures:

a. Upon discovery or realization that control of a health, safety, or environment hazard or risk is not clearly established or understood, the employee will immediately stop work.
b. Employees with whom he/she is working will be immediately informed so a health, safety, or environment hazard or risk does not impact them or their work.
c. The supervisor/competent person will be notified as soon as possible so the situation may be addressed (corrected).
d. If the supervisor/competent person can successfully address the issue, work will resume. If it is not resolved, work will remain stopped until it is. Most stop work procedures can be resolved in a timely manner at the job site. On occasion, it may require additional investigation to determine the root cause of the problem and the proper procedures to proceed.
e. The stop work will be documented with a stop work report.

Supervisor Review:

Supervisors reviewing stop work reports can determine employee participation in the program, the quality of the interventions, trend common issues, and identify opportunities for improvement and establish new safety procedures to preclude a reoccurrence.

Follow-up:

After the stop work intervention has been initiated and closed, the supervisory review has been completed, all safety issues have been resolved in a timely manner at the job site to the satisfaction of all persons concerned prior to the resumption of work (or, if needed, after additional investigation and corrective actions required to identify and address root causes have been completed), the **importance of follow-up** can be demonstrated by:

a. providing a learning tool for developing improved training.
b. establishing new safety procedures.
c. facilitating sharing of learning.

Responsibilities:

Employee: Initiate a stop work intervention when warranted.

Supervisor/competent person: notify all affected personnel and supervision of the stop work issue, correct the issue, and resume work when safe to do so.

Management: Establish a culture where stop work authority is exercised freely.

Employees, while fulfilling their **obligation** to stop work when warranted, are reminded that under no circumstances will fulfilling this obligation result in any form of retribution or intimidation from our company or the company for whom we are working

This Policy Statement will be conspicuously posted.

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Jason Huff

Safety Director

Section I
General Policies & Procedures

Standards:

Chapter 296-155 WAC: Safety Standards for Construction Work

Safety Program Overview

This comprehensive safety & health training program has been developed to address our specific safety concerns and to provide guidance for the performance of individual job tasks within the framework of appropriate Washington Industrial Safety and Health Act (WISHA) standards as published in the Washington Administrative Code (WAC).

Safety demands a commitment from all personnel within our organization. We have an obligation to ensure that all our employees within our area of responsibility are afforded the protection of an appropriate safety & health program.

This program contains policies and procedures to deal with common work-place hazards, specific job related hazards, and potential hazards that may arise.

Hazard assessment, project pre-planning, and engineering controls, where feasible, will be the preferred method of providing a safe workplace. Hazards that remain will be minimized or eliminated through training which provides our employees the ability to recognize workplace hazards and understand the proper procedural and/or personal protective equipment requirements.

Each employee is encouraged to contact their supervisor immediately should a safety or health risk exist so that corrective action may be taken to eliminate the hazard entirely or deal with the hazard in a safe manner through modified work procedures, PPE, and/or other appropriate action.

On all job sites, at least one person will be designated a **"competent person"** by virtue of experience or training. This person will have the ability to identify work related hazards, know the corrective procedures, and have the responsibility, ability and authority to stop work if the workplace cannot be made safe.

Jason Huff, our Safety Director, or a designated competent person, will make routine and random job site inspections to both identify new hazards and to monitor the effectiveness of our safety & health program.

In the final analysis, the success of our safety effort depends on all employees from senior management to the newest hire demonstrating a commitment to safety by working in a safe manner. Safe job performance is how our safety effort is ultimately measured.

Safety Orientation

Each employee will be given a safety orientation by the Safety Program Administrator when first hired. Safety orientation training, which will be documented in the Training Information and Documentation section of our safety program, will include the below specific information about our overall safety effort, our policies, and our procedures.

Description of our accident prevention program:

Our complete written safety program is essentially divided into three sections with training information and documentation plus employee handbooks, safety meeting sheets, and a project manual.

Our written safety program contents are as follows:

Section I:	General safety items that apply to all situations.
Section II:	Specific safety items that apply to specific situations.
Section III:	Mandated safety programs such as hazard communication and fall protection.
Safety Meetings:	Safety meetings are conducted at the beginning of every job and at least weekly, thereafter. All employees are required to attend these meetings which are interactive and focus on appropriate safety topics. Because of the nature of our work, employees generally work in groups of 10 or less in diverse work settings.

It is our belief that safety meetings are the most effective method of providing on-the-job safety training, safety enhancement, safety encouragement, and meaningful safety interaction between management and employees.

Should the number of our employees reach 11 or more working at one location, a safety committee will be established with monthly meetings, a membership which includes a member of senior management and elected employees, and an elected chairman. Safety committee minutes will be maintained for one year.

Our program draws heavily from the WISHA website. It uses, and makes available to our employees, WISHA information, training, forms, as well as safety policies and procedures.

Below are core safety rules that apply in all situations:

1. Never do anything that is unsafe for any reason. If an unsafe condition is found, report it to your supervisor.
2. Do not remove or disable any safety device. Keep all guards in place at all time on operating machinery, equipment, and power tools.
3. Never operate a piece of equipment unless trained and authorized.
4. Use your personal protective equipment whenever it is required.
5. Obey all safety warning signs.
6. Working under the influence of alcohol or illegal drugs or using them at work is prohibited.
7. Do not bring firearms or explosives on to company property or on to any job site.
8. Horseplay, running, and fighting is prohibited.
9. Clean up spills immediately. Replace all tools and supplies after use. Do not allow debris to accumulate. Practice good housekeeping.
10. Walk-around safety inspections will be conducted at the beginning of each job, and at least weekly thereafter.

Accident/Injury Prevention

Our safety program is designed so that our employees do not work in conditions that are unsanitary, hazardous, or dangerous to their health or safety.

One lax moment in terms of safety may result in a lifetime of needless pain and suffering. Disregarding safety standards may even be fatal. While an accident may happen in an instant, the consequences may last for years.

Accident prevention requires a commitment from all personnel within our company to actively participate in our safety program. All personnel should be aware of job site hazards and follow procedures to eliminate these hazards by proper work methods, use of personal protective equipment, and proper use of tools and equipment. All persons are encouraged to ask questions and make positive suggestions for safety improvement.

Competent persons will be designated to provide job site expertise as well as regular inspections of equipment, materials, and procedures. Competent persons will have the authority to stop work if a safety hazard is identified and it cannot be corrected immediately.

All machinery, tools, materials and equipment deemed unsafe will be taken out of service by physically removing, tagging, or locking controls to render them inoperable.

Only persons qualified by training or experience will be allowed to operate equipment or machinery.

All tools and items of equipment will be used for the purpose for which they were designed. For example, a wrench is not a hammer; a ladder is not a horizontal plank; a fire extinguisher is not a cooler!

Never take chances or attempt any job without being aware of the proper procedures, the potential safety hazards, and the methods to reduce or eliminate risk.

Management Responsibilities

Our management responsibilities include:

1. establishing, supervising, and enforcing in a manner which is effective in practice:
   a. providing a safe and healthful working environment.
   b. preparing this accident prevention program.
   c. providing training programs to improve the skill and competency of all employees in the field of occupational safety and health.
2. ensuring that employees required to handle or use poisons, caustics, and other harmful substances are instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required.
3. ensuring that in job site areas where harmful plants or animals are present, employees who may be exposed will receive instruction regarding the potential hazards, and how to avoid injury, and the first-aid procedures to be used in the event of injury.
4. ensuring that work assignments place no employee in a position or location not within ordinary calling distance of another employee able to render assistance in case of emergency.

Employee Responsibilities

Employee responsibilities include:

1. coordinating and cooperating with all other employees in an attempt to eliminate accidents.
2. studying and observing all safety standards that govern their work.
3. applying the principles of accident prevention in their daily work and using proper safety devices and protective equipment as required.
4. properly caring for all their personal protective equipment.
5. reporting, on the day of the incident, to their immediate supervisor, of each industrial injury or occupational illness, regardless of the degree of severity.

Safety Director

The safety director at Highline College Facilities Department is Jason Huff and has overall responsibility for the implementation of our program. Jason Huff will ensure each employee has appropriate safety training for the tasks to be performed.

Additionally, Jason Huff will perform hazard assessments of job sites to determine if hazards are present, or are likely to be present, which will necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

Additionally, duties of this position include:

a. providing the safety orientation and the training of personnel.
b. maintenance of training records.
c. random inspections to verify adherence to safety rules and policies.
d. completion of specific tasks identified within our specific compliance programs found in Section III of this safety program such as hazard communication, scaffold & ladders, and personal protective equipment, for example.

While the responsibilities of Jason Huff cannot be further delegated, most of the duties can be assigned to those who are competent persons by virtue of training or experience.

Safety Bulletin Board

On every job site there will be a prominently displayed bulletin board or area for postings. Certain postings are required as a matter of law in all cases and other postings are required depending on circumstances and types of work being done.

In all cases, the following must be posted on each job site:

Note: The below highlighted items are printed in English and Spanish.

1. Job Safety and Health Law
2. Notice to Employees
3. Citation and Notice (as appropriate)

Note: If a Citation and Notice is received, it must be posted until all violations are abated.

4. Emergency Telephone Number
5. OSHA 300 Summary (required February 1 thru April 30 of each year)
6. Your Rights as a Worker in Washington State

Depending on the length of the job and other considerations, the below may be posted:

1. Safety and health posters
2. Minutes of crew/leader safety meetings
3. Date, time, and place of next safety meeting
4. Information about any recent incidents
5. Safety awards/employee recognition
6. Hazard communication information
7. Pertinent safety concerns, news clippings and other off-the-job items that may be of significant importance to employees.

Housekeeping

WAC 296-155-020 Housekeeping

Employees are to maintain a neat and orderly work area *as far as practical*. Housekeeping and general cleanliness have a direct effect on safety and health. Proper housekeeping can prevent slips and falls, allow easy egress in the event of an emergency, prevent falling object injuries, and enhance fire safety. Below listed are general housekeeping rules:

a. walking/working surfaces shall be kept clean and dry.
b. do not allow construction debris to accumulate.
c. stored materials will be neatly stacked at the job site.
d. containers, when not in use, will be sealed.
e. no objects will be left unattended on stairways.
f. entrances and exits will be properly marked and not blocked.
g. tools shall be properly cleaned and put away after use.
h. free access shall be maintained at all times to all exits, fire alarm boxes, fire extinguishing equipment, and any other emergency equipment.
i. during the course of construction we shall ensure continuous clean-up of our work areas, including removal of all rubble, scrap, boxes, crates and excess material to trash disposal areas.

Emergency Action Plan

An Emergency Action Plan, if appropriate, will be posted at the job sites along with emergency telephone numbers and an escape route diagram.

After a hazard assessment of a job site, the Safety Director may determine that conditions may develop that could possibly warrant an evacuation. In this case, an emergency action plan will be developed to address the threat. Certainly, if work is being done at a hazardous chemical plant, for example, an emergency action plan is required and coordination will be made with the facility operator.

Events may occur which dictate the evacuation of a job site such as a fire, explosion, power failure, etc. Additionally, events may occur which dictate the need for emergency medical responders. These sets of events fall under our Emergency Action Plan and a multitude of objectives must be met.

The first and foremost objective is the safety of all our personnel. To achieve this level of safety, our plan is designed to get personnel away from danger, treat injury, and provide for a thorough and accurate accounting of all employees.

There may be situations where certain employees, trained in first aid and/or firefighting procedures, may prevent a small emergency situation from becoming a major disaster. In these types of situations, specifically identified employees will remain to perform the function for which they are trained, provided they may perform these duties in a safe manner. At no time will any employee put himself/herself at risk.

To the extent possible, job sites will have clear, direct, egress.

The actual implementation of this plan must be direct and carried out without confusion. Employees must know how to alert others, how to call for assistance, the location of fire extinguishers and first aid kits, the escape route, and the rendezvous point (being accounted for so that others do not put themselves at risk looking for a person who has already reached safety).

Job Site Injury or Illness

In the event of a job site injury or illness, the senior supervisor on the job site is to immediately take charge and the following will occur in the order given:

1. Supervise and administer first aid as you wish (Good Samaritan Law applies).
2. Arrange for transportation (ambulance, helicopter, company vehicle, etc.), depending on the seriousness of the injury. Protect the injured person from further injury.
3. Notify senior management, if not already present.
4. Do not move anything unless necessary, pending investigation of the incident.
5. Accompany or take injured person(s) to doctor, hospital, home etc. (depending on the extent of injuries).
6. Remain with the injured person until relieved by other authorized persons (manager, EMT, doctor, etc.).
7. If the injury is serious, the person's immediately family should be promptly notified by the supervisor, in person, if possible.

Employee Involvement:

As a matter of policy, all work-related accidents and injuries are to be immediately reported to the competent person/supervisor on a job site who will complete an accident investigation form. This will be forwarded to the Safety Director who will extrapolate appropriate information for completion of the OSHA Form 300.

Reporting a death, hospitalization:

Call **1-800-423-7233** or visit a Labor & Industries Office, ***click here***, to report a:

- workplace death (that happens within 30 days of an incident).
- workplace injury that is possibly fatal.
- in-patient hospitalization related to the workplace (that happens within 30 days of an incident).

Employers are responsible to make sure reports are made **within 8 hours** of an incident, or **within 8 hours of learning about it**.

When reporting, you must provide:

- the name of the establishment.
- the location, time and date of the incident.
- the number of fatalities, hospitalized employees, or pesticide exposures.
- a brief description of the incident.

Injury Documentation:

Minor injuries – requiring doctor or outpatient care:

After the emergency actions, above, following an injury, an investigation of the incident will be conducted by the immediate supervisor and any witness to determine the causes. The findings must be documented on our incident investigation report form.

Near Misses:

All near misses will be investigated and documented using our Incident Investigation Report form. The findings will be discussed at the first safety meeting held after the investigation is concluded.

First Aid & First Aid Kits

Should a medical emergency occur, other than minor scrapes and bruises, and it is serious enough to call for professional medical assistance, you should call the Emergency Response Number posted on the job site bulletin board. 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.

Because a crew leader on each job site must be trained and licensed in CPR/first aid and because of the good Samaritan law, first aid may be administered as deemed necessary.

By definition, 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™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™.

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.

If an employee is injured and emergency responders have been called, stay calm and reassure the injured employee that help is coming.

Below is basic first aid for various common job site injuries. Mostly, it is what **not** to do. When dealing with any injury, stay calm and never do anything unless you know what you are doing.

Minor Burns

(Redness or blisters over a small area)

Flush with cold water; apply a sterile dressing.

Do not use butter on any burn.

Do not break open blisters.

MAJOR BURNS

(White or charred skin; blisters and redness over a large area; burns on face, hands, or genital area)

Cover with sterile dressing and seek medical attention promptly.

Do not apply salves, ointments or anything else.

Do not break blisters.

CHEMICAL BURNS

(Spilled liquid or dry chemical on skin)

Liquid - Flush with large amounts of water immediately

(keep water flow gentle).

Dry - Brush as much off as possible before flushing with water.

After flushing at least 5 minutes, cover with sterile dressing.

Seek medical attention promptly.

Do not use anything but water on burned area.

Do not break open blisters.

EYE - FOREIGN OBJECT

(Object visible; feeling of something in the eye)

Have patient pull upper eyelid over lower eyelid.

Run plain water over eye.

If object does not wash out, cover both eyes with a gauze dressing.

Seek medical attention promptly.

Do not rub the eye.

EYE - WOUNDS

(Wound on eyelid or eyeball; pain;
history of blow to eye area; discoloration)

Apply loose sterile dressing over both eyes.

Seek medical help immediately.

For bruising, cold compress or ice pack may relieve pain and reduce swelling.

Do not try to remove any embedded object.

Do not apply pressure to eye.

EYE - CHEMICAL BURN

(Chemical splashed or spilled in eye)

Flush immediately with water over open eye for at least 10 minutes (20 minutes if alkali). It may be necessary to hold patient's eyelid open.

Cover both eyes with sterile dressing.

Seek medical help immediately.

Do not put anything but water in eye.

HEAT EXHAUSTION

(Fatigue; weakness; profuse sweating; normal temperature;
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; collapse; delirium; coma and death)

Call for immediate medical assistance.

Remove victim from hot area.

Remove clothing.

Have victim lay down.

Cool the body (shower, cool wet cloths)

Do not give stimulants.

First Aid Kits:

First aid kits are worthless if not readily accessible. Therefore, they will not be locked up on job sites. They're also not very valuable if the items you need are missing. It's very important that the kits have the proper items and that they are replenished as they are used.

OSHA defers to ANSI for determining what qualifies as an acceptable first aid kit for the workplace. The ANSI standard that addresses first aid kits is ANSI/ISEA Z308.1-2015. Two important topics covered in this standard are what items are required to be included in a first aid kit: Class, and in what kind of container the kit is kept: Type.

Class

There are two classes of first aid kits: Class A and Class B. The two classes are divided based on the type of first aid items included and the number of those items available in the kit. ANSI has defined the classes as follows:

Class A first aid kits are intended to provide a basic range of products to deal with the most common types of injuries encountered in the workplace including: major wounds, minor wounds (cuts and abrasions), minor burns and eye injuries.

Class B first aid kits are intended to provide a broader range and quantity of supplies to deal with injuries encountered in more populated, complex and/or high risk work environments.

The biggest difference between the classes of first aid kits is the amount of items included in the kit. Class B kits have more of each item and are needed at a workplace that has many workers.

Keep in mind that sterile items will be individually wrapped, sealed, and used only once. Other items, such as tape or scissors, can be reused and should be kept clean.

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

Remember, improper medical treatment can be more dangerous than no treatment at all. Only provide care that you have been trained and certified to do.

Below are the required contents, items and quantities of Class A and B first aid kits:

Class A	**Class B**
16 Adhesive Bandage 1 x 3 in.	50 Adhesive Bandage 1 x 3 in.
1 Adhesive Tape 2.5 yd (total)	2 Adhesive Tape 2.5 yd (total)
10 Antibiotic Application 1/57 oz	25 Antibiotic Application 1/57 oz
10 Antiseptic 1/57 oz	50 Antiseptic 1/57 oz
1 Breathing Barrier	1 Breathing Barrier
1 Burn Dressing (gel soaked) 4 x 4 in.	2 Burn Dressing (gel soaked) 4 x 4 in.
10 Burn Treatment 1/32 oz	25 Burn Treatment1/32 oz.
1 Cold Pack 4 x 5 in.	2 Cold Pack 4 x 5 in.
2 Eye Covering w/ means of attachment 2.9 sq. in.	2 Eye Covering w/ means of attachment 2.9 sq. in.
1 Eye/Skin Wash 1 fl oz total	1 Eye/Skin Wash 4 fl. oz. total
1 First Aid Guide	1 First Aid Guide
6 Hand Sanitizer 1/32 oz	10 Hand Sanitizer 1/32 oz
2 pr Medical Exam Gloves	4 pr Medical Exam Gloves
1 Roller Bandage 2 in. x 4 yd	2 Roller Bandage 2 in. x 4 yd
1 Scissors	**1 Roller Bandage 4 in. x 4 yd**
2 Sterile pad 3 x 3 in.	1 Scissors
2 Trauma pad 5 x 9 in.	**1 Splint**
1 Triangular Bandage 40 x 40 x 56 in.	4 Sterile pad 3 x 3 in.
	1 Tourniquet
	4 Trauma pad 5 x 9 in.
	2 Triangular Bandage 40 x 40 x 56 in.

Type

As important as the contents are, the first aid kit won't be very useful if it's not properly protected from the workplace environment. It the supplies are soaked from rain or smashed from being tossed around, they just won't be able to provide any help when needed. ANSI has addressed this by providing guidelines for the containers that first aid kits can be stored in at the workplace.

They are broken down into four categories: **Type I, Type II**, **Type III**, & **Type IV.** Here are the descriptions that ANSI provides for each type.

Type I first aid kits are intended for use in stationary, indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal. Type I first aid kits shall have a means for mounting in a fixed position and are generally not intended to be portable.

Note: Typical applications for Type I first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility. First aid cabinets would generally fall into the Type I classification.

Type II first aid kits are intended for portable use in indoor settings where the potential for damage of kit supplies due to environmental factors and rough handling is minimal.

Note: Typical applications for Type II first aid kits may include, but are not limited to, the following: general indoor use, an office setting or a manufacturing facility.

Type III first aid kits are intended for portable use in mobile, indoor and/or outdoor settings where the potential for damage of kit supplies due to environmental factors is not probable. Type III kits shall have a means to be mounted in a fixed position and shall have a water resistant seal.

Note: Typical applications for Type III first aid kits may include general indoor use and sheltered outdoor use.

Type IV first aid kits are intended for portable use in the mobile industries and/or outdoor settings where the potential for damage to kit supplies due to environmental factors and rough handling is significant. Type IV kits shall have a means to be mounted in a fixed position and shall meet the performance requirements set forth by ANSI.

Note: Typical applications for Type IV first aid kits may include, but are not limited to, the following: the transportation industry, the utility industry, the construction industry, and the armed forces.

Fire Prevention Plan

Fire Prevention deals not with handling a fire emergency, but rather preventing a fire in the first place.

To reduce the likelihood of a fire, personnel are to adhere to the following rules:

1. Smoking is allowed only in designated areas and smoking materials will be totally extinguished and placed in the appropriate receptacles.
2. All chemical products will be handled and stored in accordance with the procedures noted on their individual SDS.
3. Heat producing equipment will be properly maintained and operated per the manufacturer's instructions to prevent accidental ignition of combustible materials.
4. Precautions will be taken when working with an open flame (such as welding) and those areas will be made fire safe by removing or protecting combustibles from ignition.
5. Combustible liquids must be stored in approved containers.
6. Chemical spills must be cleaned up immediately. This is particularly important for combustible and reactive liquids. Damaged chemical containers and cleanup materials must be properly disposed.
7. Information on appropriate personal protective equipment; proper disposal; proper cleanup procedures; required ventilation, etc. is found on the product's SDS.
8. Combustible liquids and trash must be segregated and kept from ignition sources.
9. Keep clear access to fire hydrants as well as portable fire extinguishers.
10. Personnel will be notified by their Supervisor or the competent person of any unusual fire hazard conditions existing on a job site.
11. Good housekeeping, good housekeeping!

Portable Fire Extinguishers

All personnel will receive instruction on the proper use of fire extinguishers.

a. Fire extinguishers will be inspected monthly for general condition and adequate charge. They will be serviced and certified by qualified personnel at least annually.

b. Portable fire extinguisher locations will be clearly identified and easily accessible.

Portable fire extinguishers will be distributed as indicated below:

Class	Distribution	Notes
A "A" on a green triangle	75 feet or less travel distance between the employee and the extinguisher	For use on wood, paper, trash, etc.
B "B" on a red square	50 feet or less travel distance between hazard area and the extinguisher	For use on flammable liquid, gas, etc.
C "C" on a blue circle	Based on the appropriate pattern for the existing Class A or Class B hazards	For use on electrical fires
D "D" on a yellow star	75 feet or less travel distance between the combustible metal working area and the extinguisher or other containers or Class D extinguishing agent	For use on combustible metals

Appropriate portable fire extinguishers will be used, as noted above. Supervisors will ensure that at least one extinguisher is on each floor of a project near the stairway.

Using the wrong fire extinguisher on some fires can actually spread the fire. Using a Type-A extinguisher on an electrical fire, for example, could cause serious injury. When a fire occurs, it is imperative to use the proper extinguisher.

Fire Protection

The phone number of the local fire department shall be posted with other emergency numbers.

If a fire should occur, all personnel and the local fire department will be notified. As in all emergency situations, per the American Trauma Society, people calling the fire department should:

a. Remain calm.
b. Speak clearly and slowly.
c. Give the exact location.
d. Describe the situation.
e. Give the phone number from where you are calling.
f. Do not hang up until told to do so.

Sanitation

Potable Water:

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.

On construction sites, exertion and heat dictate the need for plenty of water.

Potable water will be available on job sites. If portable containers are used, they will be clearly marked [Potable Water]; capable of being tightly closed; and equipped with a tap. These containers will be used for no other purpose than supplying drinking water. Non-reusable (single service) cups in a sanitary container will be provided drinking as well as a receptacle for disposing of used cups. Employees are reminded of their need for adequate amounts of water.

Non-Potable Water:

Outlets of non-potable water should be clearly identified as such, through appropriate signage, and non-potable water may never be used for drinking, washing, or cooking.

Eating and Drinking Areas:

No employee will be allowed to consume food or beverages in any area exposed to toxic material.

Toilets:

Toilets will be provided at construction sites according to the below table:

Number of Employees	Minimum Number of Facilities
10 or less	**1**
11 to 20	**2**
26 to 40	**3**
41 to 60	**4**

Toilet facilities would include, unless prohibited by local law:

a. Privies (where their use will not contaminate ground or surface water)
b. Chemical Toilets
c. Recirculating toilets
d. Combustion toilets

Washing Facilities:

Adequate washing facilities will be provided in near proximity to the worksite if employees are working with contaminants that may be harmful to their health such as paint, coatings, or other chemical products. Paper towels and cleansing agents will be provided.

Showers and change rooms will be dictated by specific standards dealing with specific toxic materials (i.e., lead; asbestos).

Lifting, Pushing & Pulling

Back injuries are often caused by the obvious -- putting excessive strain on the lower back by lifting an object that is too heavy or awkward, or by bending and/or twisting while lifting.

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

Proper lifting techniques are important for employee safety. 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 while working, 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. handle heavy objects close to the body -- avoid reaching out.
k. lift gradually and smoothly. Avoid jerky motions.
l. maintain a clear line of vision.

Slips, Trips, & Falls

Slips, trips, and falls are among the most common job site accidents and they are easily preventable. Below are some of the causes of slips, trips, and falls:

a. running on the job site.
b. engaging in horseplay.
c. working off a ladder that is not firmly positioned.
d. carrying an object that blocks line of vision.
e. work boots not laced or buckled.
f. working off a scaffold without safety rails.
g. using ladders that have oil and grease on the rungs.
h. not using a handrail on steps.
i. messy work areas with debris strewn about.
j. not paying attention to what one is doing.

This list can go on and on, but all the above are easily preventable by adherence to common safety procedures, common sense, and awareness of potential hazards on the job site.

Drugs, Alcohol, and Other Prohibited Behaviors

Drug Free Job Sites

The type of work we perform can result in serious injury if employees are not capable of focusing not only on their job task, but their surroundings and others with whom they work. It is the policy of Highline College Facilities Department to hire only persons free from any evidence of illegal use of controlled substances or other drugs including alcohol.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourage employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't have been reasonably expected to be the result of being under the influence of drugs or alcohol.

Example: A bee sting that results in an allergic reaction and leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment and thus drug testing would be considered retaliatory or discriminatory.

The use of intoxicants or debilitating drugs while on duty is prohibited. Employees under the influence of intoxicants or drugs shall not be permitted in or around worksites.

With the exception of over the counter drugs such as aspirin or drugs prescribed by a physician, there shall be no drugs or alcohol on any job site. Alcohol and drug abuse cause an unacceptable level of safety hazard not only for the offending employee, but for others in the vicinity. Those found to be under the influence of drugs and/or alcohol will be immediately removed from the job site by the competent person and further disciplinary action will be taken by the Safety Director.

Employees taking prescription medication that reduces motor skills should report this to their supervisor for appropriate work assignment.

Chemical dependency is a devastating problem for not only the employee, but also the employee's family and co-workers. For obvious safety reasons, it cannot be tolerated in the workplace. Those with such a problem should seek professional help. The Safety Director will assist any employee in finding appropriate treatment should they voluntarily come forward.

Smoking

There shall be no smoking except in designated smoking areas. Under no circumstances will there be smoking during refueling of vehicles or within 50 feet of flammable materials.

Workplace Violence

Although OSHA does not have any standards concerning workplace violence, to comply with Section 5(a)(1) of the Occupational Safety and Health Act (OSHA) of 1970, which requires us to provide our employees with a place of employment that is free from recognizable hazards that are causing or likely to cause death or serious harm to our employees, we are employing this policy regarding workplace violence.

Workplace violence can be defined as: “any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site.” Keep in mind actions such as shouting, swearing, and destroying or throwing items could be considered workplace violence if the complaining employee feels their safety is in jeopardy.

The CDC identifies 4 types of workplace violence:

a. Criminal Intent - workplace violence occurring during the process of criminal activity (e.g., robbery)
b. Customer/Client - workplace violence targeting an employee of a business by a customer/client
c. Worker-on-Worker - workplace violence occurring between two (2) employees
d. Personal Relationship - workplace violence occurring between an employee and a personal acquaintance who has no ties to the workplace.

When possible and applicable, we will implement recommended engineering and administrative controls to prevent or reduce the likelihood of all types of workplace violence. Some of these controls may include, but are not limited to:

a. Lighting controls
b. Surveillance (e.g., cameras, mirrors)
c. Establishing a good relationship with local police
d. Training on specific workplace violence events, such as responding to an active shooter
e. Performing appropriate background checks and reference verification on new hires

In the event that our employees are exposed to workplace violence instigated by acts of our employees or others, the following steps will be taken immediately:

a. Those not directly threatened or exposed to the violent acts will immediately warn others and remove themselves from the area. Call 911, or local police authorities, when you've reached a point of safety.

b. If you feel you are about to become a victim of workplace violence and you do not have the opportunity to flee, try to remain calm. Do nothing threatening. At the first opportunity, seek safety and call 911 or local police authorities.

Any employee who is a victim of any type of workplace violence, physical or verbal, is to immediately notify his or her supervisor. If an employee's direct supervisor is the offender, the employee should go to the next level of management. Violent actions that result in injury will be reported to the police without exception.

An internal investigation will begin immediately and will include interviews with involved parties, including potential witnesses. When possible, we will do our best to maintain privacy during the investigation and follow-up response. Our company expressly prohibits retaliation of any kind against any employee bringing a complaint or assisting in the investigation of a complaint. Such employees may not be adversely affected in any manner related to their employment. Retaliation is also illegal under federal law.

Any breach of workplace behavior that leads to a violent action against another employee will be treated as a serious safety violation subject to extreme corrective action, up to and including termination.

Accident Investigation

The purpose of Accident Investigation is to prevent the same type of accident from reoccurring. An accident investigation will begin immediately after the medical crisis is resolved. The competent person/supervisor on the job site will complete an Accident Investigation Form as soon as feasible. The five questions that must be answered are: Who? What? When? Where? and most importantly, Why did the accident happen?

Apparently simple accidents may actually be caused by many complex reasons. Example: a worker is using a claw hammer on a working surface more than six feet above the ground. The hammer head breaks off and strikes a worker below who is not wearing a hard hat. Why did this accident happen? How can it be prevented? With just the facts presented, the fault would seem to rest with the worker who was struck by the falling object. Accident investigation may reveal other contributing factors by answering questions like:

a. Were hard hats required on the project, were they available, and was this policy enforced by the supervisors?
b. Were precautions taken to prevent objects from falling from above, such as a controlled access zone (CAZ)?
c. Did the worker inspect his hammer before use? Was he driving nails -- the job for which a claw hammer is designed -- or pounding metal beams?

After determining the cause of the accident, steps can be taken to prevent a reoccurrence. Near-miss mishaps, events which result in no injury or damage, should be investigated because even though the outcomes are different, the causes are the same.

Recordkeeping and Reporting
OSHA Forms 300; 300A & 301

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*.

OSHA Forms 300 and 301 are used to record and classify occupational injuries and illnesses. The information on the OSHA Form 300 is related to employee health and 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.

Electronic Submission of Records

Note: Washington State has not yet adopted the new electronic reporting requirement. As an employer in the state of Washington, you do not have to provide this information to OSHA until Washington adopts the same requirement in our state.

Rulemaking activity is underway to adopt the electronic reporting requirement in Washington State in 2018. In the meantime, continue to keep your OSHA 300 log as before.

Effective on January 1st of 2017, certain employers are required to electronically submit injury and illness data on their onsite OSHA Injury and Illness forms. OSHA will analyze this data and will be able to use its enforcement and compliance assistance resources more efficiently.

Some of the data will also be posted to the OSHA website because OSHA believes that public disclosure will encourage employers to improve workplace safety.

OSHA will provide a secure website that offers three options for data submission:

First, users will be able to manually enter data into a webform.

Second, users will be able to upload a CSV file to process single or multiple establishments at the same time.

Last, users of automated recordkeeping systems will have the ability to transmit data electronically via an API (application programming interface). The site is scheduled to go live in February 2017.

Compliance Schedule

The new reporting requirements will be phased in over two years using the following guidelines:

Establishments with 250 or more employees in industries covered by the recordkeeping regulation must submit information from their 2016 Form 300A by July 1, 2017. These same employers will be required to submit information from all 2017 forms (300A, 300, and 301) by July 1, 2018. Beginning in 2019 and every year thereafter, the information must be submitted by March 2.

Establishments with 20-249 employees in certain high-risk industries must submit information from their 2016 Form 300A by July 1, 2017, and their 2017 Form 300A by July 1, 2018. Beginning in 2019 and every year thereafter, the information must be submitted by March 2.

Retention of Forms:

Old OSHA Forms 101 and 200 as well as OSHA Forms 300 and 301 will be retained for five years following the year to which they relate.

Items to be recorded on OSHA Forms 300, 300A and 301:

Work related injuries and illnesses and fatalities are to be recorded using the criteria found in Chapter 296-27 WAC, *Recordkeeping and Reporting*.

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.

Note: First aid (which is not reportable) is defined in WAC 296-27-01107(e).

Employee Involvement:

As an employee of Highline College Facilities Department, you have the right and responsibility to report all work-related injuries and illness without the fear of being retaliated against, discriminated against, or terminated from employment.

Note: OSHA has determined that drug testing after injuries or illnesses that occur at the workplace can be considered retaliatory or discriminatory, and thus discourages employees from properly reporting the injury or illness. This can be the case in situations where the injury or illness wouldn't have been reasonably expected to be the result of impairment.

Example: A bee sting that results in an allergic reaction and leads to a stay at the hospital. There is not a reasonable belief that a bee sting would be caused by impairment and thus drug testing would be considered retaliatory or discriminatory.

As a matter of policy, all employees are to report all work-related accidents and injuries immediately to the competent person/supervisor on a job site. The competent person/supervisor will complete an accident investigation form and will forward it to Jason Huff, the Safety Director.

Jason Huff will extrapolate appropriate information for completion of the OSHA Form 300 and complete a review of our policies and procedures to help ensure that there isn't a reoccurrence of the reported injury or illness.

Failure to report injuries or illnesses would be a violation of our company's reporting policy and is not acceptable.

Catastrophic Reporting Requirements:

The following events have to be reported to OSHA:

1. All work-related fatalities
2. All work-related in-patient hospitalizations of one or more employees
3. All work-related amputations
4. All work-related losses of an eye

Highline College Facilities Department must report work-related **fatalities within 8 hours of finding out about it.** For any in-patient hospitalization, amputation, or eye loss, we **must report the incident within 24 hours of learning about it.**

Only fatalities occurring within 30 days of the work-related incident must be reported to OSHA. Further, an inpatient hospitalization, amputation or loss of an eye incident must be reported to OSHA only if they occur within 24 hours of the work-related incident.

There are three options for reporting the event:

1. By telephone to the department's toll-free telephone number, 1-800-4BE-SAFE (1-800-423-7233) or in person to the Labor and Industries' Division of Occupational Safety and Health (DOSH) office located nearest to the site of the incident.
2. By telephone to the 24-hour OSHA hotline (**1-800-321-OSHA or 1-800-321-6742**).
3. To DOSH by any other means.

Information to Be Reported:

When reporting a fatality, in-patient hospitalization, amputation or loss of an eye to OSHA, following information must be reported:

1. Establishment name
2. Location of the work-related incident
3. Time of the work-related incident
4. Type of reportable event (i.e., fatality, in-patient hospitalization, amputation or loss of an eye)
5. Number of employees who suffered the event
6. Names of the employees who suffered the event
7. Contact person and his or her phone number
8. Brief description of the work-related incident

Note: An event does not have to be reported if it:

1. Resulted from a motor vehicle accident on a public street or highway, except in a construction work zone; employers must report the event if it happened in a construction work zone.

2. **Occurred on a commercial or public transportation system (airplane, subway, bus, ferry, street car, light rail, train).**

3. **Occurred more than 30 days after the work-related incident in the case of a fatality or more than 24 hours after the work-related incident in the case of an in-patient hospitalization, amputation, or loss of an eye.**

Note: A report must be made for an in-patient hospitalization due to a heart attack, if the heart attack resulted from a work-related incident.

Location of OSHA Forms 300 and 301:

As a general rule, the OSHA Forms 300 and 301 will be maintained in the main office. However, in the event that a project is to last more than one year, that job site will be considered a fixed establishment and maintain its own OSHA Forms 300 and 301.

Incident Rate:

One indication of the success of the safety effort put forth by Highline College Facilities Department is our "incidence rate". When bidding a job, our incidence rate could be a determining factor in a successful bid. The incidence rate is determined by the following formula:

N/EH X 200,000 where:

N = number of injuries and/or illnesses

EH = total hours worked by all employees during the calendar year.

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

To find the "Lost Workday Injury Rate" (LWDI), the following formula is used:

WDI Rate = (# LWDI's X 200,000)/# employee hours worked

LWDI = sum of LWDI's in reference years

employee hours worked = sum of employee hours in reference years

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year)

When accidents and injuries occur, they have an immediate detrimental impact on those employees involved. Additionally, they have a potential lingering negative impact on our c

Safety Meetings

Scheduled safety meetings provide an opportunity for reinforcing the importance of general safety as well as specific work related procedures applicable to the work at hand. Properly prepared safety meetings will focus on one or two topics and be direct and to the point. All safety questions will be addressed and interactive participation is encouraged.

Safety meetings are conducted by the crew leader at the beginning of every job and at least weekly, thereafter. The subjects discussed and attendance will be documented and remain on file for a period of one year.

Crew leader safety meetings will, at a minimum, address the following:

a. A review of any walk-around safety inspection conducted since the last safety meeting.
b. A review of any citation to assist in correction of hazards.
c. An evaluation of any accident investigations conducted since the last meeting to determine if the cause of the unsafe acts or unsafe conditions involved were properly identified and corrected.

All employees are required to attend these meetings which are interactive and focus on appropriate safety topics.

It is our belief that safety meetings are the most effective method of providing on-the-job safety training, safety enhancement, safety encouragement, and meaningful safety interaction between management and employees.

Enforcement

It is expected that all employees will abide by our safety rules and guidelines not only to protect themselves, but also to protect their fellow workers from harm. Should a safety violation occur, the following steps will be taken by the employee's immediate supervisor:

Minor Safety Violations: Violations which would **not** reasonably be expected to result in serious injury.

1. The hazardous situation will be corrected.
2. The employee will be informed of the correct procedures to follow and the supervisor will ensure that these procedures are understood.
3. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to the Safety Director for a retention period of one year.
4. A repeat occurrence of the same minor safety violation is considered substantially more serious than the first.

Major Safety Violations: Violations which would reasonably be expected to result in serious injury or death.

1. The hazardous situation will be corrected.
2. The employee will be informed of the correct procedures to follow and will impress upon the individual the severity of the violation and the likely consequences should this type of violation be repeated. The supervisor will ensure that the individual understands the correct procedures and will be cautioned that a reoccurrence could result in disciplinary action up to and including discharge.
3. The supervisor will make a written report of the occurrence using our Enforcement Documentation Form and inform the employee that this documentation will be forwarded to the Safety Director for a retention period of one year.

Willful Major Safety Violations: Intentional violation of a safety rule which would reasonably be expected to result in serious injury to the employee or a fellow worker.

1. The hazardous situation will be corrected.
2. The employee will be removed from the job site, the event will be documented and forwarded to the Safety Director, and the employee will be discharged.

Employees are to understand that the primary purpose of documenting safety violations is to ensure that the important business of employee safety is taken seriously and that the potential for injury is reduced to the lowest possible level.

Schedule of Enforcement

Actions for Violations within a 1 Year Period

Minor Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	1 Day Off
2nd	Written Notice	2nd	3 Days Off
3rd	1 Day Off	3rd	Dismissal
4th	2 Days Off		
5th	3 Days Off		
6th	Dismissal		

Major Violation

Offense	Action	Repeat of Same Offense	Action
1st	Written Notice	1st	4 Days Off
2nd	2 Days Off	2nd	Dismissal
3rd	4 Days Off		
4th	Dismissal		

Section II
Site/Job Specific Policies and Procedures

Abrasive Wheels

WAC 296-155-365 Abrasive wheels and tools

An abrasive wheel is defined as a cutting tool consisting of abrasive grains held together by organic (resin, rubber, shellac or similar bonding agent) or inorganic bonds. Hazards that present themselves during abrasive wheel operations include physical contact with the rotating wheel; destruction of the wheel, itself; inhalation of the bonding particles; being struck by flying fragments. All these hazards can be eliminated through adherence to appropriate machine guarding principles, appropriate PPE, and/or respiratory protection.

Immediately before mounting, wheels must be inspected and sounded (ring test) to ensure they have not been damaged. Ensure the spindle speed does not exceed the maximum operating speed noted on the wheel.

Ring Test

Wheel to be tested must be dry and free from sawdust. Wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver, or a wooden mallet for heavier wheels. If they sound cracked (dead), they may not be used. It should be noted that organic bonded wheels do not emit the same clear metallic ring as do vitrified and silicate wheels. Tap the wheels about 45° each side of the vertical centerline and about one or two inches from the periphery. Rotate the wheel about 45° and repeat the test. A sound, undamaged, wheel will give a clear metallic tone.

Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place.

All employees using abrasive wheels shall be protected by eye protection equipment

Guarding

Grinding machines shall be equipped with safety guards in conformance with the requirements of American National Standards Institute, B7.1-1978, Safety Code for the Use, Care and Protection of Abrasive Wheels.

Aerial Lifts

WAC 296-45-375

The critical safety components of mechanical elevating and rotating equipment shall receive a thorough visual inspection and operational test before use on each shift.

Note Critical safety components of mechanical elevating and rotating equipment are components whose failure would result in a free fall or free rotation of the boom

Aerial lifts acquired for use which were manufactured on or after January 22, 1973 will have a placard or label affixed which indicates that the lift is designed and constructed in accordance with ANSI standard A92.2-1969. Aerial lifts acquired for use prior to January 22, 1973 may not be used unless modified to meet this standard. Aerial lifts may be modified to perform other than originally designed tasks provided the modifications are certified by the manufacturer or a nationally recognized testing laboratory that the aerial lift conforms with ANSI standard A92.2-1969 and is as safe as before modifications.

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

a. extensible 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 and equipment must be inspected and tested each day prior to use to determine they are in a safe working condition.

When working from an aerial lift, you must stand firmly on the floor of the basket or cage and **use (wear) and an approved fall restraint system**. The fall restraint system must be attached to the boom or basket – it may not be attached to any adjacent pole, structure, or other equipment. You may not sit or climb on the edge of the basket; use planks, ladders, or other devices for a work position.

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 must 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 and 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.

It is required that the vehicle have a “reverse signal alarm” audible above the surrounding noise level **or** a ground-guide (spotter), using standard hand signals, when backing up. The vehicle will be backed up only when the spotter signals that it is safe to do so. Using a ground-guide provides a substantially higher level of safety than a “reverse signal alarm” because the vehicle can be guided to an exact location with assurance that there is sufficient clearance from objects, and, most importantly, no person is in harm’s way. Special attention will be given to electrical lines.

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

WAC 296-155-270

Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids. Approved metal safety cans or Department of Transportation approved containers will be used for handling and use of flammable liquids in quantities of 5 gallons or less.

Note: The above does not apply to flammable liquid materials which are highly viscid (extremely hard to pour) which may be used and handled in their original shipping containers.

Note: For quantities of one gallon or less, the original container may be used for storage, use and handling.

Flammable or combustible liquids may not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

Indoor storage of flammable liquids.

1. No more than 25 gallons of flammable liquids shall be stored in a room outside of an approved storage cabinet.
2. Quantities of flammable liquid in excess of 25 gallons shall be stored in an acceptable or approved cabinet meeting the following requirements:

GASOLINE:

General Information

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, 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 100º F. The actual flash point -- lowest temperature at which a liquid gives off enough vapor to form a flammable mixture with air -- of gasoline is -45º F. The auto ignition temperature -- the temperature at which, with sufficient oxygen, gasoline will ignite on its own and burn -- is 536º F.

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.

Post “No Smoking” signs around gasoline storage.

Gasoline may never be used as a cleaning agent

Double check with local ordinances for storage requirements.

Combustible Gas Indicators

The below information is extracted from OSHA Hazard Information Bulletin, dated, January 18, 1990, subject: *The Use of Combination Oxygen and Combustible Gas Detectors*.

In tank removal operations, it is common practice to purge a tank containing flammable vapors with either carbon dioxide or an inert gas, such as nitrogen. When the oxygen content falls to about 10% or below, a false combustible gas indicator reading can occur.

The combination oxygen and combustible gas meter is used to test atmospheres for sufficient oxygen content for life support and/or the presence of combustible gases or vapors posing a potential flammability/ explosion hazard. Common examples of locations where this instrument is used include storage tanks, confined spaces, manholes, tank cars, ships and shipyards, tunneling, pumping stations and hazardous waste sites.

The combustible gas indicator is designed to measure combustible gas or vapor content in air. This instrument is capable of detecting the presence of any gas or vapor which, when combined with oxygen in free air, presents a potential hazard due to flammability/explosion. The combustible gas indicator will not indicate the combustible gas content in atmospheres containing less than 10% oxygen.

Each instrument has its own set of operating procedures and instructions, however:

a. The instrument should not be used where the oxygen concentration exceeds that of fresh air (oxygen enriched atmosphere) when sampling for gases like acetylene and hydrogen.

b. Certain materials such as silicon, silicates (such as in certain hydraulic fluids) and organic lead (such as in leaded gasoline) will poison the combustible gas sensor thereby giving erroneously low readings.

c. Combustible gas readings, either negative or greater than 100% LEL, may indicate an explosive concentration of gas beyond the accurate response range of the combustible gas sensor.

d. Pressurized or low pressure samples will give erroneous oxygen percent readings.

e. Acid gases, such as carbon dioxide, will shorten the service life of the oxygen sensor.

f. The instrument will not indicate the presence of combustible airborne mists or dusts such as lubricating oils, coal dust or grain dust.

The safe and effective performance of any oxygen/combustible gas detector requires that the operator know the correct use of the instrument to detect explosive concentrations of combustibles. It is important that the instrument response be appraised in light of the limitations and guidelines given in the instrument manual. The instrument should be operated only after the instructions, labels, cautions and warnings, and any other literature accompanying the instrument are carefully read and understood.

Company Vehicles

Only authorized employees may operate, in the course of their work, any company-owned motor vehicle.

Prior to authorization, the employee must possess a valid and current license to operate the vehicle. The Safety Director, or authorized representative, will ensure that the employee has demonstrated his/her ability to operate the motor vehicle in a safe and competent manner.

Under no circumstances may any motor vehicle be operated under the influence of alcohol, illegal drugs, or prescription or over-the-counter drugs medications that may impair their driving skills.

When driving over the road vehicles, employees will ensure that the vehicle registration and proof of insurance is within the vehicle. In the event of an accident, the Safety Director will be notified **immediately** after all potential injuries are addressed and a police report is filled out. Employees must report all traffic violations to the Safety Director and they are responsible for paying all penalties imposed by law.

Loads in vans and trucks will be properly secured [strapped or blocked] to preclude any shift or movement and care will be taken to not exceed the vehicles weight limits.

All company motor vehicles will be maintained in safe operating condition and in accordance with the manufacturer's recommended maintenance schedule. A log book will be maintained for each vehicle and receipts will be kept for all maintenance and repairs performed.

Before use, a walk around inspection will be performed by the operator checking tires (tread depth and pressure), glass (chips and cracks), horn and lights, and general vehicle condition. Discrepancies will be noted in the log book. No vehicle will be operated that is not in safe mechanical condition.

It is expected that the below safe vehicle operation/driving procedures will be followed at all times:

1. Seat belts will be worn by all occupants at all times while the vehicle is in motion.
2. Safe distance [one vehicle length per 10 MPH] will be maintained.
3. Posted speed limits will not be exceeded.
4. During fuel stops, all fluids will be checked and the windows, headlights and taillights will be cleaned.
5. Constant attention will be maintained by always being aware of road conditions and surrounding vehicles. Unnecessary distractions will not be permitted such as using hands to dial or receive cell phone calls or changing radio stations while the vehicle is in motion. Hands free cell phone use is allowed.
6. Before backing up any vehicle, check behind and blow horn for the safety of others.

Compressed Gas Cylinders

WAC 296-155-400

Compressed Gas Cylinders Use:

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

Failure to follow basic safety procedures could result in serious injuries 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.

All employees who use compressed gas cylinders will be trained in their proper storage, handling, and use.

Specific requirements for compressed gas cylinder use include:

1. Compressed gas cylinders will be clearly marked to identify the gas contained therein. Gas identification must be stamped or stenciled on the gas cylinder or a label affixed. No gas cylinder will be accepted for use that does not legibly identify its content by name.
2. Visual or other inspections will be performed by the competent person on site to ensure the compressed gas cylinders are in a safe condition.
3. Compressed gas cylinders will be inspected to ensure they are equipped with the correct regulator. Before use, regulators and cylinder valves will be inspected to ensure they are free from oil, dirt, and solvents.
4. Compressed gas cylinders will have valve protectors in place when not in use or connected for use.
    a. When a cylinder cap cannot be removed by hand, the cylinder will be tagged “Do Not Use” and returned to the designated storage area for return to the vendor.
5. The user of the compressed gas cylinders will use only the tools supplied by the provider to open and close cylinder valves.
6. Valves will be closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.

7. Leaking cylinders will be moved to an isolated, well ventilated area, away from ignitions sources.

   Note: Soapy water will be used to detect the exact location of the leak. If the leak is at the junction of the cylinder valve and cylinder, do not attempt to repair it. The supplier will be contacted and asked for proper response instructions.

8. Gasses may never be mixed in a cylinder. Only professionals may refill gas cylinders.
9. Hoses and connections will be inspected regularly for damage. Hoses should be stored in cool areas and protected from damage.

Compressed Gas Cylinders Storage

1. Cylinders must be secured at all times in such a way as to avoid them being knocked over or damaged. They should be stored in a vertical position. They must be segregated based on contents. 20 feet should be maintained between oxidizers and flammables or firewalls erected at least 5 feet high with a fire rating of 30 minutes.
2. Cylinders must be protected from damage, corrosion, sunlight.
3. Cylinders must be stored in well protected, well ventilated, dry locations away from sunlight. Cylinders will never be kept in unventilated enclosures such as lockers or cupboards.
4. Cylinders must be stored away from stairs, elevators, and gangways.
5. Clearly designated and labeled separate storage area will be provided for full and empty cylinders.
6. Empty cylinders that are no longer needed must be marked as “MT” and dated when empty. Empty cylinders must be handled as carefully as full cylinders.
7. Cylinders will be capped when they are not being used

Transportation of Compressed Gas Cylinders

1. Compressed gas cylinders must be transported in a vertical secured position using a cylinder basket or cart.
2. Regulators should be removed and cylinders capped before movement.
3. Cylinders may never be rolled. Cylinders should not be dropped or permitted to strike violently.
4. Protective caps are not to be used to lift cylinders.

Chapter 296-155 - Part O

Special Note: Reference our Fall Protection Plan in Section III. As a general rule, when employees are exposed to a hazard of falling from a location 10 feet or more in height, a fall restraint, fall arrest system, or positioning device system will be utilized.

During concrete and masonry operations no employee shall be permitted to place or tie reinforcing steel more than six (6) feet above any adjacent working surface unless that employee is protected by personal fall arrest systems, safety net systems, or positioning device systems.

During concrete and masonry operations each employee on the face of formwork or reinforcing steel shall be protected from fall six (6) feet or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

Concrete and masonry construction, more so than most trades, are highly skilled activities that require numerous specialized abilities including, but not limited to, an understanding of chemistry, building techniques, specialized tools, and a unique language. The definitions below are extracted from OSHA standards; however, they barely scratch the surface. Words and phrases such as: Adiabatic Curing, Hand Float, and Water-Cement Ratio are peculiar to these trades.

DEFINITIONS

Listed below are terms which must be understood when dealing with concrete and masonry construction:

Bull float: a tool used to spread out and smooth concrete.

Note: Bull float handles that might contact energized electrical conductors must be constructed of nonconductive materials or insulated with a nonconductive sheath.]

Formwork: the total system of support for freshly placed or partially cured concrete, including the mold or sheeting (form) that is in contact with the concrete as well as all supporting members including shores, reshores, hardware, braces, and related hardware.

Note: Formwork must be designed, fabricated, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to the formwork.]

Note: Drawings with all revisions for the jack layout, formwork (including shoring equipment), working decks, and scaffolds must be available at the job site.]

Lift slab: a method of concrete construction in which floor and roof slabs are cast on or at ground level and, using jacks, lifted into position.

Limited access zone: an area alongside a masonry wall, which is under construction, and which is clearly demarcated to limit access by employees.

Precast concrete: concrete members (such as walls, panels, slabs, columns, and beams) which have been formed, cast, and cured prior to final placement in a structure.

Reshoring: the construction operation in which shoring equipment (also called reshores or reshoring equipment) is placed, as the original forms and shores are removed, in order to support partially cured concrete and construction loads.

Note: All Shoring equipment must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.]

Note: Shoring equipment found to be damaged such that it is not capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to them must not be used.]

Note: Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.]

Note: Shoring equipment that is found to be damaged or weakened after erection, such that its strength is reduced to the point where it is not capable of supporting without failure all vertical and lateral loads that may reasonably anticipated to be applied to them will be immediately reinforced.

Note: The sills for shoring must be sound, rigid, and capable of carrying the maximum intended load.]

Note: All base plates, shore heads, extension devices, and adjustment screws must be in firm contact, and secured when necessary, with the foundation and the form.]

Note: Eccentric loads on shore heads and similar members shall be prohibited unless these members have been designed for such loading.]

Note: Whenever single post shores are used one on top of another (tiered), the below will apply:

a. The design of the shoring shall be prepared by a qualified designer and the erected shoring shall be inspected by an engineer qualified in structural design.

b. The single post shores shall be vertically aligned.

c. The single post shores shall be spliced to prevent misalignment.

d. The single post shores shall be a adequately braced in two mutually perpendicular directions at the splice level. Each tier shall also be diagonally braced in the same two directions.]

Note: Adjustment of single post shores to raise formwork will not be made after the placement of concrete.

Note: Reshoring shall be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

Shore: a supporting member that resists a compressive force imposed by a load.

Tremie: a pipe through which concrete may be deposited under water.

Note: Sections of tremies and similar concrete conveyances must be secured with wire rope (or equivalent materials) in addition to the regular couplings or connections.]

Vertical slip forms: forms which are jacked vertically during the placement of concrete.

Jacking operation: the task of lifting a slab (or group of slabs) vertically from one location to another (e.g., from the casting location to a temporary location, or to its final location in the structure), during the construction of a building/ structure where the lift-slab process is being used.

MAJOR HAZARDS

Both concrete and masonry construction require skilled, trained personnel to produce quality work performed in a safe manner. Serious accidents, including wall collapse, can happen in an instant due to premature removal or actual failure of the formwork. Additionally, failure to brace masonry walls, failure to support precast panels, overloading, etc., can cause serious mishaps.

No construction loads will be placed on a concrete structure unless our competent person determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

MASONRY CONSTRUCTION

1. A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:
2. The limited access zone shall be established prior to the start of construction of the wall.
3. The limited access zone shall be equal to the height of the wall to be constructed plus four feet, and shall run the entire length of the wall.
4. The limited access zone shall be established on the side of the wall which will be unscaffolded.
5. The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employees shall be permitted to enter the zone.

6. The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the requirements of subsection (7) of this section have been met.
7. All masonry walls over eight feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place.
8. Employees engaged in cutting or chipping shall wear suitable eye protection.
9. Persons charged with operation of derricks used for stone setting shall be qualified in that type of work.
10. Stone shall be set directly on the wall by the derrick.
11. Breast derricks when used in setting stone shall be secured against a slip or kick back and guyed with wire cables. Provide hold down line to prevent derrick from falling back.
12. Stone cutters shall wear goggles while trimming stone or cutting holes.
13. Pins shall be tested for security before stone is hoisted.
14. Hoisting cables shall be protected from chafing and wearing over corners.
15. Mason's mortar mixers shall have a bar-type grill installed over the mixer opening. The guard shall be installed with an automatic disconnect switch to stop the mixer tub rotation and prevent the mixer from starting whenever the guard is not in place.

Concrete and masonry work are performed in such a variety of circumstances and conditions -- underground, over ground, on sides of structures, on top of structures, inside confined spaces, precast and cast in-place concrete, etc. Each circumstance presents specific hazards which must be addressed. The competent person on site will point out unusual, specific hazards and means to deal with them.

SAFETY PROCEDURES

The competent person will ensure that all equipment is inspected as required and defective equipment is removed from service.

The competent person will ensure the drawing or plans, with revisions, for all equipment and procedures to be used in concrete or masonry construction are available at the job site.

For the safety of all employees, the following safety rules are established:

a. Limited or controlled access zones will be restricted to employees who have actual job responsibilities within the established zones.

b. Employees will not work under concrete buckets while they are being elevated or lowered into position.

c. Employees, except those required for the job, are not allowed under precast concrete members while they are being lifted or tilted into position.

d. Personal protective equipment, determined by the competent person on the job site, will be used without fail. It should be noted that when cement is mixed with water, a highly alkaline solution is produced by the dissolution of calcium, sodium, and potassium hydroxides. Gloves should be worn to protect the skin. Hands should be washed after contact. Head and face protection is required for employees applying a cement, sand, and water mixture through a pneumatic hose.

e. Employees will not be allowed to perform maintenance on any equip-ment where the unexpected activation of that equipment could cause harm without following the procedures in our Control of Hazardous Energy Program.

f. When fastening other materials to a concrete surface (such as a wooden 2” X 4”), only a fastener of 7/32-inch shank diameter or less will be driven in and it may be no closer than 2 inches from the unsupported edge or corner of the work surface.

g. Fasteners will not be driven directly into brick or concrete closer than 3” from the unsupported edge of corner unless a special guard, fixture, or jig is used.

   Note: Exception to the above: Low-velocity tools may drive no closer than 2” from an edge in concrete.

h. Concrete mixers with one cubic yard or larger loading skips will be equipped with a mechanical device to clear the skip of materials and guardrail installed on each side of the skip.

   Note: Regardless of the size of the skip, point of operation guarding must be utilized.

REBAR PROTECTION

All protruding reinforcing steel onto and into which employees could fall will be guarded to eliminate the hazard of impalement. Protection from impalement on protruding rebar is primarily a function of fall protection when employees are working above rebar or other impalement hazards.

When working at the same grade as rebar protruding 4 to 6 feet, there is not, for all practical purposes, an impalement hazard. In these instances, acceptable rebar caps are appropriate to prevent cuts, abrasions or other minor injuries.

At grade, the lower the rebar sticks up, the greater the impalement hazard due to tripping. If there is any chance for impalement, acceptable rebar caps are mandatory.

CONCRETE/MASONRY SAWS

WAC 296-155-367

Only trained and authorized personnel will operate concrete tile cutting equipment. The following guidelines will be used during all concrete cutting operations.

a. follow the manufacturer's recommendations for the safe use of the equipment.
b. use the correct blade (size, type, speed) for the job, properly tightened. Inspect the blade and all equipment before use.
c. ensure all safety guards are functioning properly.
d. never operated a hand held saw above shoulder height.
e. wear proper safety equipment including eye, hand and skin protection. Depending on the job, respiratory protection or dust masks may be required.
f. establish a control zone and keep others out who are not directly involved with the work at hand.
g. ensure there is adequate coolant/water when appropriate.
h. never operate an internal combustion saw in a confined space.

Demolition

Chapter 296-155 WAC - Part S

The provisions of our Control of Hazardous Energy [Lockout/Tagout] Program apply to all demolition operations. There is potential for the release of hazardous energy during demolition operations and our Energy Source Evaluation Form and Control Procedures Form [for lockout/tagout] are at the end of this section will be used on all demolition projects.

The competent person for demolition activities is

General Requirements:

1. Proper Permits shall be obtained, prior to the commencement of any demolition activities for the type of demolition to take place, ie; hand or mechanical.
2. Demolition Permits are to be readily available on site for review.
3. Protection of Adjacent structures, property, and sidewalks is to be accomplished prior to commencement of demolition activities.
4. Proper personal protective equipment is to be worn throughout demolition process including but not limited to hard hats, work boots, glasses, fall protection.
5. Dust control is to be implemented to eliminate hazards where dust presents a health hazard, environmental hazard, damage to property.
6. Any entry point or gate openings are to be closed and secured during all demolition activities.
7. Demolition debris is not to remain on any portion of a roof top or sidewalk bridge structure. These areas are to be cleaned daily.

Preparatory Operations:

Note: A copy of the survey report and of the plans and/or methods of operations shall be maintained at the job site for the duration of the demolition operation.

1. Prior to permitting employees to start demolition operations, **an engineering survey shall be made by a competent person**, of the structure to determine the condition of the framing, floor, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed.
2. When employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion or other cause, the walls or floor shall be shored or braced.
3. All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company, which is involved, shall be notified in advance.
    a. If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.
    b. It shall also be determined if any type of hazardous chemicals, gases, explosive, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.
4. Where a hazard exists from fragmentation of glass, such hazards shall be removed.
5. Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches.

6. When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
7. All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load, which may be imposed. Such material shall be properly secured to prevent its accidental movement. ALL COVERS SHALL BE MARKED “FLOOR HOLE DO NOT REMOVE COVER.”
8. Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.
9. Employee entrances to multi- story structures being demolished shall be completely protected by a sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof) and shall be capable of sustaining a load of 150 pounds per square foot.

Stairs, Passageways and Ladders:

1. Only those stairways, passageways and ladders, designated as means of access to the structure of a building, shall be used. Other access ways shall be entirely closed at all times.
2. All stairs, passageways, ladders and incidental equipment thereto, which are covered by this section, shall be periodically inspected and maintained in a clean, safe condition.
3. In a multistory building, when a stairwell is being used, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed, and access to the floor where the work is in progress shall be through a properly lighted, protected and separate passageway

Chutes:

1. No material shall be dropped to any point lying outside the exterior walls of the structure.
2. All materials chutes or sections thereof, at an angle of more than 45 degrees from the horizontal, shall be entirely enclosed except for the openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.
3. A substantial gate shall be installed in each chute at or near the discharge end. A competent employee shall be assigned to control the operation of the gate, and the backing and loading of trucks.
4. When operations are not in progress, the area surrounding the discharge end of a chute shall be securely closed off.
5. Any chute opening, into which workmen dump debris shall be protected by a substantial guardrail approximately 42 inches above the floor or other surface on which the men stand to dump the material. Any space between the chute and the edge of openings in the floors through which it passes shall be solidly covered over.
6. Where the material is dumped from mechanical equipment or wheel barrows, a securely attached toeboard or bumper, not less than four inches (4”) thick and six inches (6”) high, shall be provided at each chute opening.
7. Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.
8. Every chute used to convey material from a building shall be rigidly supported at its top and braced midway in its height.
9. All chutes constructed of combustible material shall be covered on the exterior with corrugate steel sheeting having a minimum thickness of 24 gauge through the entire height. Alternatively, chutes shall be constructed of non-combustible material: Chutes exceeding 75 feet in height.
10. All structural supports of material chutes shall be of noncombustible material.

Removal of Debris Through Floor Openings:

Any openings cut in a floor for the disposal of materials shall be no larger in size than 25 percent of the aggregate of the total floor area. Floors weakened or otherwise made unsafe by demolition operations shall be shored or braced to carry safely the intended imposed load from demolition operations.

Removal of Walls, Masonry Section and Chimneys:

1. Masonry walls, or other sections of masonry, shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.
2. No wall section, which is more than one story in height shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.
3. Employees shall not be permitted to work on the top of a wall when weather conditions constitute a hazard.
4. Structural or load supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed. This provision shall not prohibit the cutting of floor beams for the disposal of materials or for the installation of equipment provided the terms addressed under manual Removal of Floors (below) is followed.
5. Floor openings within 10 feet of any wall being demolished shall be planked solid, except when employees are kept out of the area below.
6. In building of “skeleton-steel” construction, the steel framing may be left in place during the demolition of masonry. Where this is done, all steel beams, girders, and similar structural supports shall be cleared of all loose material as the masonry demolition progresses downward.
7. Walkways or ladders shall be provided to enable employees to safely reach or leave any scaffold or wall.
8. Walls, which serve, as retaining walls to support earth or adjoining structures, shall not be demolished until such earth has been properly braced or adjoining structures have been properly underpinned.

Manual Removal of Floors:

1. Openings cut in a floor shall extend the full span of the arch between supports.
2. Before demolishing any floor arch, debris and other material shall be removed from such arch and other adjacent floor area. Planks not less than two inches (2”) by ten inches (10”) in cross section, full size undressed, shall be provided for, and shall be used by employees to stand on while breaking down floor arches between beams. Such planks shall be so located as to provide a safe support for the workmen should the arch between the beams collapse. The open space between planks shall not exceed sixteen inches (16”).
3. Safe walkways, not less than eighteen inches (18”) wide, formed of planks not less than two inches (2”) thick if wood or of equivalent strength if metal, shall be provided and used by workmen when necessary to enable them to reach any point without walking upon exposed beams.
4. Stringer of ample strength shall be installed to support the flooring planks and the ends of such stringers shall be supported by floor beams or girders, and not by floor arches alone.
5. Planks shall be laid together over solid bearings with the ends overlapping at least one foot (1’).
6. When floor arches are being removed, employees shall not be allowed in the area directly underneath, and such an area shall be barricaded to prevent access to it.
7. Demolition of floor arches shall not be started until the, and the surrounding floor area for a distance of twenty feet (20’), have been cleared of debris and any other unnecessary materials.

Removal of Walls, Floor and Material with Equipment:

1. Mechanical equipment shall not be used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.
2. Floor openings shall have curbs or stop logs to prevent equipment from running over the edge.

Storage:

1. The storage of waste material and debris on any floor shall not exceed the allowable floor loads.
2. In buildings having wooden floor construction, the flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger the stability of the structure.
3. When wood floor beams serve to brace interior walls or free standing exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.
4. Floor arches, with an elevation of not more than twenty-five feet (25') above grade, may be removed to provide storage area for debris; *provided, that such removal does not endanger the stability of the structure.*
5. Storage space into which material is dumped shall be locked off; except for openings necessary for the removal of material. Such openings shall be kept closed at all times when material is not being removed.
6. Storage spaces shall not interfere with access to any stairway or passageway.

Chapter 296-45 WAC

We will follow the guidelines contained in Chapter 296-45 WAC. All persons are encouraged to read this standard and resolve any questions regarding safety with Jason Huff, our safety program administrator.

This section covers the operation, maintenance, and construction of electric power generation, control, transformation, transmission, and distribution lines and equipment as described in WAC 296-45-015 (1). This section does not apply to electrical installations, electrical safety-related work practices, or electrical maintenance considerations covered by Part L of chapter 296-24 WAC and WAC 296-800-280.

The competent person will ensure that all persons are aware of the major hazards that present themselves on any job site. The two most common hazards involve:

a. Electrical shock/electrocution
b. Falls

Below are guidelines to eliminate the above hazards. No person is to perform any task involving electric and distribution lines unless they are absolutely sure of the safety procedures to follow. If in doubt, get clarification from the competent person. All employees are encouraged to review the safety standards that apply to electric & distribution lines.

Working On or Near Exposed Energized Parts

Only qualified electrical employees may work on or with exposed energized lines or parts of equipment. In addition, only qualified electrical employees may work in areas containing unguarded, uninsulated energized lines or parts of equipment operation to 50 volts or more. Electrical equipment and lines must be assumed to be energized until proven to be de-energized.

Except as provided in subsection (3) of WAC 296-45-325, at least two (2) qualified electrical employees will be present while the following types of work are being performed:

a. Installation, removal, or repair of lines that are energized at more than 600 volts;

b. Installation, removal, or repair of deenergized lines if an employee is exposed to contact with other parts energized at more than 600 volts;

c. Installation, removal, or repair of equipment, such as transformers, capacitors, and regulators if an employee is exposed to contact with parts energized at more than 600 volts;

d. Work involving the use of mechanical equipment, other than insulated aerial lifts, near parts energized at more than 600 volts;

e. Other work that exposes an employee to electrical hazards greater than or equal to those posed by operations listed above.

Note: One qualified electrical employee will serve primarily as a standby person who must be located so that he/she can physically reach the other qualified electrical employee either with his/her hand or a hot stick (12 feet or less in length) in the event of an accident. The standby person will be located so as to observe the other employee, their bodily movements, and verbally warn of any impending dangers. In no case when working in pairs will qualified electrical employees work simultaneously on energized wires or parts of different phases or polarity.

When installing or removing a hot line clamp connection on a multiphase system, it is permissible for the standby person to be located at the lower controls of the aerial lift provided the connection or disconnection does not interrupt or pick up the load. The hot line clamp and connecting jumper must be constructed so it cannot make contact with any other energized parts. Work must not be performed above lines or apparatus energized at more than 600 volts.

In cases of necessity, the standby person may temporarily assist the other qualified electrical employee provided they both work on wires or parts of the same phase or polarity. Both qualified electrical employees shall position themselves so that the presence of the second person does not increase the hazard.

The requirement for two (2) qualified electrical employees to be present does not apply below. In addition to abiding by the minimum approach distances outlined in this section, a qualified electrical employee working under the following circumstances must position themselves so that they are neither within reach of nor otherwise exposed to contact with energized parts:

a. When re-fusing circuits or equipment with a hot stick.
b. When operating switches by means of operating handle or switch sticks.
c. When installing or removing a hot line clamp connection with an approved hot stick on a single-phase line or apparatus, providing that the connection or disconnection does not interrupt or pick up a load.

   Note: The hot line clamp and connecting jumper must be constructed so that it cannot make contact with any other energized parts. On a multiphase feed this applies only when one single-phase line or apparatus is present on the load side.

d. When installing or removing by hot stick simple load metering devices provided the connection does not interrupt or pickup load.
e. Emergency repairs to the extent necessary to safeguard the general public.

Minimum Approach Distances

No employee is permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown below unless:

a. The employee is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved shall be considered insulation of the employee from the energized part), **or**
b. The energized part is insulated or guarded from the employee and any other conductive object at a different potential.

Table 2 AC Live Work Minimum Approach Distance							
Distance to Employee							
Voltage in Kilovolts Phase to Phase*		**Phase to Ground**		**Phase to Phase**			
(m)	**(ft-1/10)**	**(ft-in)**		**(m)**	**(ft-1/10)**	**(ft-in)**	
Table 2-A For Voltages of 72.5 KV and Less (1,2,3,4)							
0		to 0.050		not specified		not specified	
0.051		to 0.300		avoid contact		avoid contact	
0.301	to 0.750	0.33	1.09	(1'-2")	0.33	1.09	(1'-2")
0.751	to 5	0.63	2.07	(2'-1")	0.63	2.07	(2'-1")
5.1	to 15.0	0.65	2.14	(2'-2")	0.68	2.24	(2'-3")
15.1	to 36	0.77	2.53	(2'-7")	0.89	2.92	(3'-0")
36.1	to 46.0	0.84	2.76	(2'-10")	0.98	3.22	(3'-3")
46.1	to 72.5	1.00**	3.29**	(3'-3")	1.20	3.94	(4'-0")
[1]Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table 3 below. A corresponding to the altitude of the work.							
[2]For single-phase systems, use voltage-to-ground.							
[3]For single-phase lines off three phase systems, use the phase-to-phase voltage of the system.							
[4]The 46.1 to 72.5 kV phase-to-ground 3-3 distance contains a 1-3 electrical component and a 2-0 inadvertent movement component.							
Table 2-B For Voltages of 72.6 KV (1,2,3)							
72.6	to 121	1.13**	3.71**	(3'-9")	1.42	4.66	(4'-8")
121.1	to 145.0	1.30	4.27	(4'-4")	1.64	5.38	(5'-5")
145.1	to 169.0	1.46	4.79	(4'-10")	1.94	6.36	(6'-5")
169.1	to 242.0	2.01	6.59	(6'-8")	3.08	10.10	(10'-2")
242.1	to 362.0	3.41	11.19	(11'-3")	5.52	18.11	(18'-2")
362.1	to 420.0	4.25	13.94	(14'-0")	6.81	22.34	(22'-5")
420.1	to 550.0	5.07	16.63	(16'-8")	8.24	27.03	(27'-1")
550.1	to 800.0	6.88	22.57	(22'-7")	11.38	37.34	(37'-5")
[1]Employers may use the minimum approach distances in this table provided the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table 3 below. A corresponding to the altitude of the work.							
[2]Employers may use the phase-to-phase minimum approach distances in this table provided that no insulated tool spans the gap and no large conductive object is in the gap.							
[3]The 72.6 to 121 kV phase-to-ground 3-2 distance contains a 2-2 electrical component and a 1-0 inadvertent movement component.							
Note: The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.							

Table 3 Altitude Correction Factors	
Altitude above sea level (m)	
	A
0 to 900	1.00
901 to 1,200	1.02
1,201 to 1,500	1.05
1,501 to 1,800	1.08
1,801 to 2,100	1.11
2,101 to 2,400	1.14
2,401 to 2,700	1.17
2,701 to 3,000	1.20
3,001 to 3,600	1.25
3,601 to 4,200	1.30
4,201 to 4,800	1.35
4,801 to 5,400	1.39
5,401 to 6,000	1.44

Note: WAC 296-45-475 (5)(a) and 296-45-48525(1) contain requirements for the guarding and isolation of live parts. Parts of electric circuits that meet these two provisions are not considered as "exposed" unless a guard is removed or an employee enters the space intended to provide isolation from live parts.

When an employee is required to work on or within reach of any unprotected conductors that are or may become energized at more than 50 volts and less than 600 volts between phases, they will take the following precautions:

They will wear approved insulating gloves or insulating gloves and sleeves during the time they are working on the conductor; or

They will use approved devices to cover any adjacent unprotected conductor that could be touched by any part of their body, as well as use insulated tools.

Cables which are properly insulated for the voltages to which they are energized will be considered as an effective barrier to protect the employees and Table 2 does not apply.

Appendix A of Chapter 296-45 WAC contains additional information relating to working on exposed energized parts.

Before any work is performed, the location of energized lines and their condition, the location and condition of energized equipment, the condition of the poles, the location of circuits and equipment including power communication lines, CATV and fire alarm circuits, will be determined. In addition, any hazards particular to a work site will be determined. No work will be performed on energized lines or parts until the voltage of those equipment and lines has been determined.

If an employee is to be insulated from energized parts by the use of insulating gloves, insulating sleeves will be used also. However, insulating sleeves need not be used under the following conditions:

a. If exposed energized parts on which work is not being performed are insulated from the employee; and
b. If such insulation is placed from a position not exposing the employee's upper arm to contact with other energized parts.

Each employee, to the extent possible, will work in a position from which a slip or shock will not bring the employee's body into contact with exposed, uninsulated parts energized at a potential different from the employee.

Connections will be made as follows:

a. In connecting deenergized equipment or lines to an energized circuit by means of a conducting wire or device, an employee will first attach the wire to the deenergized part;
b. When disconnecting equipment or lines from an energized circuit by means of a conducting wire or device, an employee will remove the source end first; and
c. When lines or equipment are connected to or disconnected from energized circuits, loose conductors shall be kept away from exposed energized parts.

Rubber gloves can only be used on 5,000 volts or less between phases.

It is not permissible to consider one part of a high voltage switch or disconnect as deenergized for the purpose of doing work on it if the remainder of the switch or disconnect remains energized unless approved barriers are erected which will prevent employees who are doing the work on such equipment from coming in direct contact with the energized parts.

Conductor support tools such as link sticks, strain carriers, and insulator cradles may be used provided that the clear insulation is at least as long as the insulator string or the minimum distance specified in Table 2 for the operating voltage.

When work is performed within reaching distance of exposed energized parts of equipment, each employee will remove all exposed conductive articles, such as key or watch chains, rings, or wrist watches or bands, unless such articles do not increase the hazards associated with contacting energized parts. Employees will wear appropriate clothing for the season and the work to be performed. Shirts or jumpers must have full length sleeves that are rolled down. Protective hard hats and eye protection will be worn when working on or near live parts or while climbing poles.

The competent person will assess the workplace to identify employees exposed to hazards from flames or electric arcs. For each employee exposed to hazards from electric arcs, we will make a reasonable estimate of the incident heat energy to which the employee will be exposed.

Note: Appendix D of Chapter 296-45 WAC provides guidance on estimating available heat energy. It is not required that we estimate the incident heat energy exposure for every job task performed by each employee. Broad estimates covering multiple system areas are allowed provided we use reasonable assumptions about the energy exposure distribution throughout the system and the estimates represent the maximum employee exposure for those areas.

Each employee exposed to hazards from flames or electric arcs are not permitted to wear clothing that could melt onto their skin or that could ignite and continue to burn when exposed to flames or estimated heat energy.

Note: Clothing made from acetate, nylon, polyester, rayon and polypropylene, either alone or in blends, are prohibited unless it can be demonstrated that 1) the fabric has been treated to withstand the conditions to be encountered by the employee or 2) the employee wears the clothing in such a manner as to eliminate the involved hazard.

The outer layer of clothing worn by an employee, except for clothing that is not required to be arc rated, must be flame resistant under any of the following conditions:

a. The employee is exposed to contact with energized circuit parts operating at more than 600 volts;

b. An electric arc could ignite flammable material in the work area that, in turn, could ignite the employee's clothing;

c. Molten metal or electric arcs from faulted conductors in the work area could ignite the employees clothing; or

   Note: This does not apply to conductors that are capable of carrying, without failure, the maximum available fault current for the time the circuit protective devices take to interrupt the fault.

d. The estimated incident heat energy exceeds 2.0 cal/cm^2.

Each employee exposed to hazards from electric arcs will wear protective clothing and other protective equipment with an arc rating greater than or equal to the estimated heat energy whenever that estimate exceeds 2.0 cal/cm^2. This protective equipment will cover the entire body except as follows:

a. Arc-rated protection is not necessary for the employee's hands when the employee is wearing rubber insulating gloves with protectors or, if the estimated incident energy is not more than 14 cal/cm^2, heavy-duty leather work gloves with a weight of at least 407 gm/m^2 (12 oz/yd^2);
b. Arc-rated protection is not necessary for the employee's feet when the employee is wearing heavy-duty work shoes or boots;
c. Arc-rated protection is not necessary for the employee's head when the employee is wearing head protection meeting WAC 296-800-16055 if the estimated incident energy is less than 9 cal/cm^2 for exposures involving single-phase arcs in open air or 5 cal/cm^2 for other exposures;
d. The protection for the employee's head may consist of head protection meeting WAC 296-800-16055 and a faceshield with a minimum arc rating of 8 cal/cm^2 if the estimated incident energy exposure is less than 13 cal/cm^2 for exposures involving single-phase arcs in open air or 9 cal/cm^2 for other exposures; and
e. For exposures involving single-phase arcs in open air, the arc rating for the employee's head and face protection may be 4 cal/cm^2 less than the estimated incident energy.

When fuses must be installed or removed with one or both terminals energized at more than 300 volts or with exposed parts energized at more than 50 volts, tools or gloves used will be rated for the appropriate voltage. When expulsion-type fuses are installed with one or both terminals energized at more than 300 volts, each employee will wear eye protection meeting the requirements of WAC 296-45-25505(1), use a tool rated for the voltage, and is clear of the exhaust path of the fuse barrel.

The requirements of this section which pertain to the hazards of exposed live parts also apply when work is performed in the proximity of covered (noninsulated) wires.

Noncurrent-carrying metal parts of equipment or devices, such as transformer cases and circuit breaker housings, will be treated as energized at the highest voltage to which they are exposed, unless an inspection of the installation shows that these parts are grounded before work is performed.

Devices used to open circuits under load conditions will be designed to interrupt the current involved.

Deenergizing Lines and Equipment for Employee Protection

This section applies to the deenergizing of transmission and distribution lines and equipment for the purpose of protecting employees. Control of hazardous energy sources used in the generation of electric energy is covered in WAC 296-45-175. Conductors and parts of electric equipment that have been deenergized under procedures other than those required by WAC 296-45-175 or 296-45-335, as applicable, will be treated as energized.

If a system operator is in charge of the lines or equipment and their means of disconnection, all of the requirements in this section will be observed in the order given.

If no system operator is in charge of the lines or equipment and their means of disconnection, one employee in the crew will be designated as being in charge of the clearance. The employee in charge of the clearance will take the place of the system operator and follow the requirements in the order given.

Any disconnecting means that are accessible to persons outside our control (for example, the general public) will be rendered inoperable while they are open for the purpose of protecting employees.

Procedures for deenergizing lines and equipment:

a. In all cases, switching orders must be given directly to the employees in charge of operating the switches by the system operator who has jurisdiction and such communications must be repeated back word for word to the speaker. When requesting clearance on lines under the control of the system operator, a person requesting the clearance will obtain the name of the system operator to whom the request was made and the system operator shall obtain the name of the person requesting the clearance and assure that the person is qualified to receive such a clearance. A qualified electrical employee will make a request of the system operator to have the particular section of line or equipment deenergized. The qualified electrical employee becomes the employee in charge and is responsible for the clearance. In giving a clearance, the system operator will make certain that the person to whom the clearance is given is fully aware of the extent or limits of the clearance.

   Note: If only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to and under the sole control of the employee in charge of the clearance, this does not apply.

b. All switches, disconnectors, jumpers, taps, and other means through which known sources of electric energy may be supplied to the particular lines and equipment to be deenergized will be opened. Such means will be rendered inoperable, unless its design doesn't permit, and tagged to indicate that employees are at work.

c. Automatically and remotely controlled switches that could cause the opened disconnecting means to close will also be tagged at the point of control. The automatic or remote-control feature will be rendered inoperable unless its design does not permit.

   Note: if only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to and under the sole control of the employee in charge of the clearance, this does not apply.

d. Tags will prohibit operation of the disconnecting means and will indicate that employees are at work.

   Note: If only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to and under the sole control of the employee in charge of the clearance, this does not apply.

e. After the procedures listed above have been followed and the employee in charge of the work has been given a clearance by the system operator, the lines and equipment to be worked will be tested to make sure they are deenergized.

If two or more independent crews will be working on the same lines or equipment, each crew will independently comply with the requirements a-e listed above.

The system operator will order clearance tags printed on red cardboard, or equivalent, not less than 2 ¼" by 4 ½", attached to all switches opened or checked open to provide clearance on any line or equipment for employees to work.

Clearance tags attached to substation control devices and to line switches beyond the switchyard of any substation indicating the limits of the clearance involved will state the designation of the switch opened or checked open and tagged, the name of the person to whom the clearance is to be issued, the date and time the switch was opened or checked open, the name of the dispatcher ordering the switching and tagging, and the name of the person doing the switching and tagging.

Note: if only one crew will be working on the lines or equipment and if the means of disconnection is accessible and visible to and under the sole control of the employee in charge of the clearance, tags need not be used.

Protective grounds will be installed as required by WAC 296-45-345.

To transfer the clearance, the employee in charge (or, if the employee in charge is forced to leave the worksite for any reason, the employee's supervisor) will inform the system operator; employees in the crew will be informed of the transfer; and the new employee in charge will be responsible for the clearance.

To release a clearance, the employee in charge will:

a. Notify employees under his/her direction that the clearance is to be released;
b. Determine that all employees in the crew are clear of the lines and equipment;
c. Determine that all protective grounds installed by the crew have been removed; and
d. Report this information to the system operator and release the clearance.

The person releasing a clearance will be the same person that requested the clearance unless the responsibility has been transferred. Tags may not be removed unless the associated clearance has been released according to the requirements listed above.

Action may be initiated to reenergize the lines or equipment at the point of disconnection as long as:

a. All protective grounds have been removed.
b. All crews working on the lines or equipment have released their clearances.
c. All employees are clear of the lines and equipment.
d. All protective tags have been removed from the point of disconnection.

To meet unforeseen conditions, it will be permissible to tag isolated switches for the system operator and issue clearances against this tag. In tagging out inter-utility tie lines, the open switches on the foreign end of the line will be tagged for the foreign system operator requesting the outage who will issue clearances to individuals of the organization against this tag.

Tags, as mentioned above, need not be used on a network protector for work on the primary feeder for the network protector's associated network transformer when the following can be demonstrated:

a. Every network protector is maintained so that it will immediately trip open if closed when a primary conductor is deenergized;
b. Employees cannot manually place any network protector in a closed position without the use of tools, and any manual override position is blocked, locked, or otherwise disabled; and
c. We have procedures for manually overriding any network protector that incorporates provisions for determining, before anyone places a network protector in a closed position, that:
    1. The line connected to the network protector is not deenergized for the protection of any employee working on the line; and
    2. The primary conductors for the network protector are energized.

Metal-clad, draw-out switchgear of over 600 volts in which the physical separation of the disconnecting parts is not visible may be used to clear a line or equipment, provided the switchgear is equipped with:

a. A positive positioning means to insure that the disconnecting contacts are separated;
b. An isolating shutter which moves into place between the separated contact for circuit isolation; and
c. A mechanically connected indicating means to show that the shutter is in place.

In all other cases, only a visible break of all phases will be regarded as clearing a line or equipment.

No person will make contact with a circuit or equipment that has not been taken out of service to be worked on until they have the circuit or equipment cleared and tagged for themselves or is working directly under the supervision of one who has the circuit or equipment cleared and tagged for themselves.

Live Line Tools

All live-line tools shall be visually inspected before use each day. Prior to use, tools must be wiped clean. Tools with apparent hazardous defects must be tagged and removed from service until tested with portable or laboratory testing equipment.

Live-line tools used for primary employee protection will be removed from service every two (2) years and whenever required for examination, cleaning, repair and testing according to procedures listed in WAC 296-45-305 (c).

Live-line tools and rope will be stored, maintained, and used in such a manner as to prevent damage. Live-line tools and ropes will not be used for purposes other than line work.

Personal Protective Equipment

All rubber insulating equipment will be visually inspected prior to use and an “air test” will be performed on rubber gloves prior to use.

Personal protective equipment (PPE) will meet the requirements of WAC 296-24, Part L and PPE requirements in WAC 296-800. PPE required by these chapters or a hazard assessment will be provided at no cost to the employee.

Hard hats for those who have possible exposure to electrical shock or burns must be manufactured in accordance with the provisions of ANSI Z89.1-2014, Industrial Head Protection Type II, Class E.

Goggles, hearing protection, respirators, rubber gloves, and other PPE will not be interchanged among employees unless they have been sanitized.

Mechanical Equipment

Aerial lift trucks, when working near energized lines or equipment, must be grounded or barricaded and be considered as energized equipment, or the aerial lift truck must be insulated for the work being performed.

Equipment or material shall not be passed between a pole or structure and an aerial lift while an employee working from the basket is within reaching distance of energized conductors or equipment that are not covered with insulating protective equipment.

Mechanical equipment, including derrick trucks, cranes, and other lifting equipment, unless certified for work on the proper voltage, must not operate any closer to energized line or equipment as stated in the Table 2, WAC 296-45-325. However, the insulated upper portion excluding the basket/bucket of an aerial lift operated by a qualified electrical employee in the lift is exempt from this requirement.

A designated employee other than the equipment operator will observe the approach distance to exposed lines and equipment and give timely warnings before the minimum approach distance is reached, unless the operator can accurately determine that the minimum approach distance is being maintained.

If, during the operation of the mechanical equipment, the equipment could become energized, the operation will comply with at least one of the following:

a. The energized liens exposed to contact will be covered with insulating protective material that will withstand the type of contact that might be made during the operation.

b. The equipment will be insulated for the voltage involved. The equipment will be positioned so that its uninsulated portions cannot approach the lines or equipment any closer than the minimum approach distances specified in Table 2, WAC 296-45-325.

c. Each employee will be protected from hazards that might arise from equipment contact with the energized lines. The measures used will ensure that employees will not be exposed to hazardous differences in potential. Unless we can demonstrate that the methods in use protect each employee from the hazards from equipment contacting energized lines, measures must include all of the following techniques:

    1. Using the best available ground to minimize the time the lines remain energized;

    2. Bonding mechanical equipment together to minimize potential differences;

    3. Providing ground mats to extend areas of equipotential; and

    4. Employing insulating protective equipment or barricades to guard against any remaining hazardous potential differences.

        Note: Appendix B of WAC 296-45 contains information on hazardous step and touch potentials and on methods of protecting employees from hazards resulting from such potentials.

Overhead Lines

Prior to climbing poles, ladders, scaffolds, or other elevated structures, an inspection shall be made to determine that the structures are capable of sustaining the additional or unbalanced stresses to which they will be subjected. Where poles or structures may be unsafe for climbing, they shall not be climbed until made safe by guying, bracing, or other adequate means.

Note: Appendix C of WAC 296-45 contains test methods that can be used to determine whether a wood pole is capable of sustaining forces to be imposed by an employee climbing the pole and by any other work to be performed.

When poles are set, moved, or removed near exposed energized overhead conductors, the pole may not contact the conductors. In addition, each employee must wear electrical protective equipment or use insulated devices when handling the pole. No employee contacts the pole with uninsulated parts of their body.

To protect employees from falling into holes into which poles will be placed, the holes will be attended by employees or physically guarded whenever anyone is working nearby.

We will abide by the following guidelines when installing or removing overhead conductors or cable:

a. We will use the tension stringing method, barriers, or other equivalent measures to minimize the possibility that conductors and cables being installed or removed will contact energized power lines or equipment.

b. When conductors are being strung in or removed, they will be kept under positive control to prevent accidental contact with energized circuit.

c. The protective measures required by WAC 296-45-375(10)(c) for mechanical equipment will also be provided for conductors, cables, and pulling and tensioning equipment when the conductor or cable is being installed or removed close enough to energized conductors that any of the following failures could energize the pulling or tensioning equipment or the wire or cable being installed or removed:

    1. Failure of the pulling or tensioning equipment;

    2. Failure of the wire or cable being pulled; or

    3. Failure of the previously installed lines or equipment.

d. When conductors being installed or removed cross over energized conductors in excess of 600 volts, rope net or guard structures must be installed unless a provision is made to isolate or insulate the worker or the energized conductor. Where the design of the circuit-interrupting devices protecting the line so permits, the automatic-reclosing feature of these devices must be made inoperative. In addition, the line being strung must be grounded on either side of the cross over or considered and worked as energized.

e. Before lines are installed parallel to existing energized lines, we will determine the approximate voltage to be induced in the new lines, or work shall proceed on the assumption that the induced voltage is hazardous. Unless we can demonstrate that the lines being installed are not subject to the induction of a hazardous voltage or the lines are treated as energized, temporary protective grounds will be placed at such locations and arranged in a manner that we can demonstrate will prevent exposure of each employee to hazardous differences in electric potential.

f. Reel handling equipment, including pulling and tensioning devices, will be in safe operating condition and will be leveled and aligned.

g. Load ratings of stringing lines, pulling lines, conductor grips, load-bearing hardware and accessories, rigging, and hoists may not be exceeded.

h. Each pull must be snubbed or dead ended at both ends before subsequent pulls.

Pulling lines and accessories will be inspected prior to each use and replaced or repaired when damaged or when there is a reasonable basis to doubt the dependability of such lines or accessories.

Conductor grips may not be used on wire rope, unless the grip is specifically designed for this application.

Reliable communications, through two-way radios or other equivalent means, will be maintained between the reel tender and the pulling rig operator.

The pulling rig may only be operated when it is safe to do so.

Note: Examples of unsafe conditions include employees in prohibited locations, conductor and pulling line hang-ups, and slipping of the conductor grip.

While the conductor or pulling line is being pulled (in motion) with a power-driven device, employees are not permitted directly under overhead operations or on the cross arm, except as necessary to guide the stringing sock or board over or through the stringing sheave.

Live-live bare-hand work is prohibited.

When winches, trucks, or tractors are being used to raise poles, materials, to pull in wires, to pull slack or in any other operation, there will be an operator at the controls unless the machinery or process is stopped.

Leadworkers shall designate an employee to give signals when required.

Raising poles, towers or fixtures in the close proximity of high voltage conductors will be done under the supervision of a qualified electrical employee.

Employees will not crawl over insulator strings. Instead, they will use a platform or other approved device to work from when making dead ends or doing other work beyond strings of insulators, at such distance that they cannot reach the work from the pole or fixture. While working on the platform or other device, they will be secured with safety straps or a rope to prevent falling. The provision of this subsection does not apply to extra high voltage bundle conductors when the use of such equipment may produce additional hazard. Climbing over dead-end assemblies is permissible only after they have been completed and pinned in the final position.

We will abide by the following when working on towers or other structures supporting overhead lines:

a. No employee will be under the tower or structure while work is in progress, except when the position is necessary for assisting those working above.
b. Tag lines or other similar devices will be used to maintain control of tower sections being raised or positioned, unless the use of such devices presents a greater hazard.
c. The loadline may not be detached from a member or section until the load is safely secured.
d. No one will be permitted to remain in the footing while equipment is being spotted for placement.
e. A designated employee must be utilized to determine that required clearance is maintained in moving equipment under or near energized lines.

All conductors, subconductors, and overhead ground conductors must be bonded to the tower at any isolated tower where it may be necessary to complete work on the transmission line.

A transmission clipping crew will have a minimum of two structures clipped in between the crew and the conductor being sagged.

While on patrol at night and operating a motor vehicle on public roadways, there will be two (2) employees, at least one of whom shall be a qualified electrical employee. If repair to line or equipment is found to required two (2) qualified electrical employees, work will not proceed until additional help has arrived provided that in cases of emergency where delay would increase the danger to life, limb, or substantial property, one employee may clear the hazard without assistance.

Except during emergency restoration procedures, work will be discontinued when adverse weather conditions would make the work hazardous in spite of the work practices required in this section.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make this work too hazardous to perform, except under emergency conditions.

Grounding for the Protection of Employees

For the employee to work lines or equipment as deenergized, the lines or equipment will be deenergized as listed previously in this section and grounded as specified below. However, if installation of a ground is impracticable or conditions resulting from the ground installation result in greater hazards than working without grounds, lines and equipment will be treated as deenergized provided the following are met:

A. The lines and equipment have been deenergized under the provisions of WAC 296-45-335.

b. There is no possibility of contact with another energized source.

c. The hazard of induced voltage is not present.

Equipotential Zone:

Temporary protective grounds and bonding jumpers will be placed at locations and arranged in a manner to prevent each employee from being exposed to hazardous differences in electrical potential.

Protective Grounding Equipment:

Protective grounding equipment will be capable of conducting the maximum fault current that could flow at the point of grounding for the time necessary to clear the fault. This equipment will have an ampacity greater than or equal to that of No. 2 AWG copper.

Grounding jumpers will have approved ferrules and grounding clamps that provide mechanical support for jumper cables independent of the electrical connection.

Note: Guidelines for protective grounding equipment are contained in American Society for Testing and Materials Standard Specifications for Temporary Grounding Systems to be Used on Deenergized Electric Power Lines and Equipment, ASTM F855-2015.

Protective grounds will have an impedance low enough to cause immediate operation of protective devices in case of accidental energizing of the lines or equipment.

Testing:

Before any ground is installed, lines and equipment will be tested and found absent of nominal voltage, unless a previously installed ground is present.

Grounding equipment will be visually inspected and all mechanical connections checked for tightness before each use.

The surface to which the ground is to be attached will be clean before the grounding clamp is installed; otherwise, a self-cleaning clamp will be used.

Order of Connection:

When an employee attaches a ground to a line or to equipment, the ground-end connection must be attached first and then attachment to the other end by means of a live-line tool can occur. For lines or equipment operating at 600 volts or less, an employee may use insulating equipment other than a live-line tool if we know the line or equipment is not energized at the time the ground is connected or if that employee is properly protected from hazards that could develop from energized lines or equipment.

Order of Removal:

When a ground is removed, the grounding device will be removed from the line or equipment with a live-line tool before the ground-end connection is removed.

Additional Precautions:

When work is performed on a cable at a location remote from the cable terminal, the cable may not be grounded at the cable terminal if there is a possibility of hazardous transfer of potential should a fault occur.

Removal of Grounds for Test:

Grounds may be removed temporarily during tests. During the test procedure, each employee will use insulating equipment and will be isolated from any hazards involved. If additional measures are necessary to protect exposed employees from previously grounded lines and equipment that becomes energized, we will ensure they are in place.

Conductor Separation:

In cases where the conductor separation at any pole or structure is so great as to make it impractical to apply shorts on all conductors, and where only one conductor is to be worked on, only that conductor which is to be worked on needs to be grounded.

Ground Personnel

In cases where ground rods or pole grounds are used for personal protective grounding, employees working on the ground should maintain sufficient distance from such equipment or use other approved procedures designed to prevent “touch-and-step potential” hazards.

Note: Protection from step and touch potentials are covered in Appendix B of WAC 296-45.

Underground Grounding

A capacitance charge can remain in the high voltage cables after it has been disconnected from the circuit and a static-type arc can occur when grounds are applied to such cables.

When work is to be done on cables or equipment of a high-voltage underground system, precautions to prevent back-feed will be taken. This will include either isolating or grounding of the secondary conductors.

After grounding the cable, if the employee is to work on cable between terminations, they must first spike the cable or use other approved methods of testing. If the cable is to be cut, it will be cut only with approved hot cutters.

When work is performed on a cable at a location remote from the cable terminal, the cable may not be grounded at the cable terminal if there is a possibility of hazardous transfer of potential should a fault occur.

Fall Protection

Personal fall arrest systems will meet the requirements of WAC 296-155, Part C-1, Fall protection requirements for construction. Personal fall arrest systems used by employees exposed to hazards from flames and electric arcs will be capable of passing a drop test after exposure to an electric arc with a heat energy of 40 ± 5 cal/cm^2. Body bels and positioning straps will meet the requirements outlined in WAC 296-45-25510.

Work-positioning equipment will be inspected before use each day. If any equipment is found to be not safe, it will not be used.

When using fall protection systems:

a. Each employee working from an aerial lift will use a fall restraint system or a personal fall arrest system.
b. Except as listed in c, each employee in elevated locations more than 4 feet (1.2 m) above the ground on poles, towers, or similar structures will use a personal fall arrest system, work-positioning equipment or fall restraint system, as appropriate, if other fall protection hasn't been provided.
c. Each qualified electrical employee climbing or changing location on poles, towers, or similar structures must use fall protection equipment unless climbing or changing location with fall protection is infeasible or creates a greater hazard than climbing or changing location without it.

Note: These apply to structures that support overhead electric power transmission and distribution lines and equipment. An employee is not considered a "qualified electrical employee" until they are proficient in climbing and using fall protection under WAC 296-45-065(8). Unqualified employees (including trainees) must use fall protection any time they are more than 4 feet (1.2 m) above the ground.

Work-positioning systems will be rigged so that an employee can free fall no more than 2 feet (0.6 m). Anchorages for work-positioning equipment will be capable of supporting at least twice the potential impact load of an employee's fall, or 3,000 pounds-force (13.3 kilonewtons), whichever is greater.

Unless the snaphook is a locking type and designed specifically for the following connections, snaphooks on work-positioning equipment may not be engaged:

a. Directly to webbing, rope, or wire rope;
b. To each other;
c. To a D-ring to which another snaphook or other connector is attached.
d. To a horizontal lifeline; or
e. To any object that is incompatibly shaped or dimensioned in relation to the snaphook such that accidental disengagement could occur should the connected object sufficiently depress the snaphook keeper to allow release of the object.

Employees will not wear climbers while doing work where they are not required. Climbers will not be worn while the employee is working on the ground except for momentary or short periods of time on the ground.

When working from a hook ladder, employees must either belt themselves securely to the ladder, attach themselves to the structures with a safety line, or belt themselves to ladder safety equipment, which will consist of a safety rope or belting threaded through the rungs or secured to the ladder at intervals no more than three (3) feet.

Before an employee throws their weight on a belt, the employee will determine that the snaps or fasteners are properly engaged.

Safety straps will not be placed around poles above the cross-arm except where it is not possible for the strap to slide or be slipped over the top of the pole by inadvertence of the employee. Neither end of the strap will be allowed to hang loose or dangle while the employee is ascending or descending poles or other structures.

Body belts and safety straps will not be stored with sharp-edged tools or near sharp objects. When a body belt, safety strap and climbers are kept in the same container, they will be stored to avoid cutting or puncturing the material of the body belt or safety strap with the gaffs or climbers.

Employees will not attach metal hooks or other metal devices to body belts. Leather straps or rawhide thongs will have hardwood or fiber crossbars on them.

Lifelines will be protected against being cut or abraded.

Gaffs on climbers must be kept within safe length limits (1/8”, minimum), properly shaped, and sharp.

Safety straps must be secured to both D-rings on the body belt before weight is placed. Never attach one safety strap to the D-ring and the other to another object for support.

When two or more employees are to work on the same pole, the first must reach a secure position before the second climbs. They must descend the pole one at a time.

Chapter 296-155 - Part I

No electrical work shall be performed on electric distribution circuits or equipment, except by a qualified person or by a person trained to perform electrical work and to maintain electrical equipment under the direct supervision of a qualified person. Disconnecting devices shall be locked out and suitably tagged by the persons who perform such work, except that in cases where locking out is not possible, such devices shall be opened and suitably tagged by such persons. Locks or tags shall be removed only by the persons who installed them or, if such persons are unavailable, by persons authorized by the operator or his agent.

Note: Each employee who may need to wear PPE must be properly trained. Retraining will be conducted when the workplace changes make the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.

The alerting techniques we will use to warn and protect employees from hazards which could cause injury due to electric shock, burns or failure of electric equipment parts include the use of safety signs and tags, barricades & attendants.

As mentioned in our PPE Program, such protective equipment shall be periodically inspected and/or tested.

If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected, example: an outer covering of leather used for the protection of rubber insulating material.

Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.

Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion.

Each employee shall use insulated tools or handling equipment if they might make contact with conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material shall be protected.

Ropes and handlines used near exposed energized parts shall be nonconductive.

Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts. When normally enclosed live parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the live parts.

Only qualified or trained personnel may perform electrical work.

All electrical work will be done according to the latest adopted National Electrical Code as well as established local codes.

Only qualified persons may work on electric circuit parts or equipment that have not been deenergized. These persons must be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. the skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. the clearance distances and the corresponding voltages to which the qualified person will be exposed.

APPROACH DISTANCES FOR QUALIFIED
EMPLOYEES - ALTERNATING CURRENT

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV	1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm).

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 vehicle traffic areas or covered to prevent tripping and vehicle damage.

    1. Electrical cords will not be suspended with staples, hung from nails, or suspended by wire.

    2. Worn or frayed electric cords or cables will not be used.

g. Hands will be dry when working on electrical equipment including plugging in 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 competent 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.

j. When working around any electrical power circuit, employees will:
    1. protect themselves by deenergizing the circuit and grounding it or by establishing insulation between themselves and the current.
    2. 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.
    3. use portable ladders that have non-conductive siderails.
    4. remove or insulate conductive articles of jewelry and clothing that might contact exposed energized parts.

k. 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.
    1. Ground fault circuit interrupters will be tested before use.

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

m. Sufficient access and working space must be maintained about all electric equipment to permit ready and safe operation and maintenance. This space must be kept clear, i.e., it cannot be used for storage.

n. If any work is to take place under overhead lines, the lines must be deenergized and grounded or other protective measures taken such s physically preventing approach such as using a barrier.

o. Portable ladders must have non-conductive side rails.

p. Conductive items of jewelry or clothing must not be worn around electricity unless rendered non-conductive by covering, wrapping, or other insulating means.

q. The dimension of the working space in the direction of access to live parts likely to required examination, adjustment, service, or maintenance must not be less that noted below:

Working Clearances

Minimum clear distance for conditions[1]

Nominal voltage to ground	(a) Feet[2]	(b) Feet[2]	(c) Feet[2]
0-150	3	3	3
151-600	3	3 ½	4

Footnote[1] Conditions (a), (b), and (c) are as follows:

{a} Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts.

{b} Exposed live parts on one side and grounded parts on the other side.

{c} Exposed live parts on both sides of the workplace [not guarded as provided in Condition (a)] with the operator between.

Minimum Depth of Clear Working Space in Front of Electric Equipment

Conditions[1]

Nominal voltage to ground	(a) Feet[2]	(b) Feet[2]	(c) Feet[2]
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75 kV	6	8	10
Above 75kV	8	10	12

Footnote[1] Conditions (a), (b), and (c) are as follows:

{a} Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating materials. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts.

{b} Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick, or tile are considered to be grounded surfaces.

{c} Exposed live parts on both sides of the workspace [not guarded as provided in Condition (a)] with the operator between.

The importance of working clearances cannot be overstated. At any time, when working with live electrical systems, there is the possibility of an arcing fault causing an arc flash where the current explosively flows through ionized air at 35,000°F causing incurable burns, hearing loss, collapsed lungs, or even death from the electricity of flying metal shrapnel.

Heavy equipment and electrical power lines

Table A—Minimum Clearance Distances

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Elevated Work Platforms

Only trained and authorized employees may operate elevated work platforms.

Training:

Employees who use elevated work platforms will be instructed by a qualified person in the safe use of the elevated work platforms in accordance with the manufacturer's operating instructions.

Training for employees who erect, disassemble, move, operate, use, repair, maintain, or inspect elevating work platforms will include, but not be limited to:

1. The provisions this of elevated work platforms section.
2. The correct procedures for performing their assigned duties.
3. The nature of hazards associated with the equipment, including electrical hazards, fall hazards and falling object hazards in the work area and correct procedures for dealing with those hazards.
4. The safe operation and use of elevating work platforms and the proper handling of materials on the work platform.
5. The maximum load capacity of the work platform based upon installed configuration.

Note: Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in conformity with all applicable provisions of ANSI A92.2-1969 and this section and to be at least as safe as the equipment was before modification.

Elevated work platforms:

Elevating work platforms include such items as vertical towers, scissor lifts, and mast-climbing work platforms and are used to position employees and materials.

General safety requirements:

1. The platform deck will be equipped with a guardrail or other structure around its upper periphery. Where the guardrail is less than 39 in. high, a personal fall protection system is required.
2. The platform will have toeboards at sides and ends.
3. No employee will ride, nor tools, materials, or equipment be allowed on a traveling elevated platform.
4. Units will not be loaded in excess of the design working load.

The following information must be displayed on the elevated work platform:

1. Manufacturer’s name, model, and serial number.
2. Rated capacity at the maximum platform height and maximum platform travel height.
3. Operating instructions.
4. Cautions and restrictions.

Elevated work platforms must be designed to applicable American National Standards Institute (ANSI) standards.

Additional elevated work platform procedures:

1. No employee will ride, nor tools, materials, or equipment be allowed on a traveling elevated platform unless the following conditions are met:
    a. The travel speed at Maximum Travel Height does not exceed 3 feet per second.
    b. Self-propelled units will be equipped with electrical or other interlock means which will prevent driving them with the platform height greater than the Maximum Travel Height or at speeds greater than permitted at Maximum Travel Height.
    c. The surface upon which the unit is being operated is level with no hazardous irregularities or accumulation of debris which might cause a moving platform to overturn.
2. Units will be assembled, used, and disassembled in accordance with the manufacturer's instructions.
3. Units will be inspected for damaged and defective parts before use.
4. Units will not be loaded in excess of the design working load and will be taken out of service when damaged or weakened from any cause. They will not be used until repairs are completed.
5. Employees will not sit, stand or climb on the guardrails of an elevating work platform or use planks, ladders, or other devices to gain greater working height or reach.

6. Employees will not work on units when exposed to high winds, storms, or when they are covered with ice or snow (unless provisions have been made to ensure the safety of the employees).
7. Employees climbing or descending vertical ladders will have both hands free for climbing. Note: Employees should remove foreign substances, such as mud or grease from their shoes.
8. Where moving vehicles are present, the work area will be marked with warnings such as flags, roped off areas or other effective means of traffic control will be provided.
9. Unstable objects such as barrels, boxes, loose brick, tools, debris, will not be allowed to accumulate on the work level.
10. In operations involving production of small debris, chips, etc., and the use of small tools and materials, and where persons are required to work or pass under the equipment, screens will be required between toeboards and guardrails. The screen will extend along the entire opening, will consist of No. 18 gage U.S. Standard Wire 1/2-inch mesh, or equivalent.
11. Mast-climbing work platforms, will not be used as construction personnel hoists or material hoists.
12. Each unit will have a manual containing instructions for maintenance and operations.
    a. The required manual(s) will be maintained in a weather resistant storage location on the elevating work platform or aerial device.

Chapter 296-155 - Part N

Special Note: Reference our Fall Protection Plan in Section III. As a general rule, when employees are exposed to a hazard of falling from a location 10 feet or more in height, a fall restraint, fall arrest system, or positioning device system will be utilized.

During trenching/excavating operations guardrails must be provided where walkways are four (4) feet or more above lower levels.

Assignment of a competent person:

The Safety Program Administrator will designate a competent person excavation work. The person designated will be qualified by training and/or experience and the title of the competent person will be: Excavation Competent Person. The specific name of this person would be different on different jobs.

Duties of the Excavation Competent Person:

1. Daily inspections of excavations, the adjacent areas, and protective systems shall be made for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.
2. Where evidence is found of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
3. If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored to ensure proper operation.

4. If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection.
5. Design structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person.

Note: Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with that design.

Excavating involves any earth removal which creates a cut, cavity, trench, or depression in the earth's surface. A trench is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Prior to excavating, obstructions that may create a hazard to employees will be removed or supported and utility companies will be contacted, advised of the proposed work, and asked to establish the location of underground installations.

If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

a. extreme caution is observed.
b. detection equipment or other acceptable means are used to locate the approximate location of the utility installation.
c. as the approximate location is approached, the exact location will be determined by safe and acceptable means before proceeding.

Note: Call before you dig: Call: "811" which is a call before you dig information service.

The below universal color indicates what utility is buried below ground:

Red – Electric

Orange – Communications, Telephone/CATV

Blue – Potable Water

Green – Sewer/Drainage

Yellow – Gas/Petroleum Pipe Line

Purple – Reclaimed Water

White – Premark site of intended excavation

Caution must be exercised because:

1. **Many underground utilities are not recorded.**
2. **Many that are recorded are not accurate.**
3. **Many are at different depths below ground than indicated.**

Utilities must be physically identified to ensure they are not hit.

Once utilities are found, use signage incorporating the universal color codes.

Note: After an underground utility is installed, it must be report it so the next contractor does not hit it.

In open excavations, underground installations will be protected, supported or removed as necessary to protect employees.

To ensure employee safety, the competent person will ensure that during excavating work in trenches there is:

a. appropriate access and egress for personnel and/or equipment such as stairs, ramps and ladders so as to require no more than 25 feet of lateral travel for employees in trenches four (4) feet or more deep.

b. employee protection from head injury. All employees must wear hard hats.

c. no spoil pile or equipment within two (2) feet of the edge of the excavation.

d. employee protection from vehicular traffic such as barricades, ground guides for operators of equipment with a limited view, away sloping grades, etc.

e. no exposure to falling loads.

Note: Employees may never work under loads of material being excavated.

f. no danger to employees from water accumulation. This must be checked prior to work. See our inspection checklist for excavating.

g. no danger from cave-in. Shoring, a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation, will prevent cave-ins.

   1. Shoring is not required for trenches less than five (5) feet deep if an examination by a competent person determines the soil has no potential for a cave-in. In this situation, vertical sides are allowed.

      Soil Classification: Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B, or Type C. The visual and manual analyses detailed in paragraph (c)(d), 1926 Subpart P App. A are acceptable. If soil properties, factors, or other conditions change in any way, the changes will be evaluated by the competent person and the soil, if necessary, reclassified.

   2. Once a trench is over 20 feet deep, protective systems, which may include shoring, must be designed by a registered professional engineer.

   3. There are other methods of protection from cave-ins such as sloping or benching the adjacent ground according to specific criteria dependent on the soil conditions, weather, and adjacent structures.

   4. The total number of cave-in accidents is relatively small, however, the accidents which do occur are generally very serious and are much more likely to be fatal than other types of accidents in the construction industry.

h. a method to prevent mobile equipment from falling into the excavation such as barricades. Ground guides will be used if the equipment operator does not have a clear view of the edge. If possible, the grade should slope away from the excavation.

If the atmosphere is dangerous or likely to be dangerous, testing will be done as often as needed and emergency rescue equipment -- such as breathing apparatus, safety harness and line, or a basket stretcher -- must be available.

When a hazardous atmosphere does exist, appropriate respiratory protection will be used and a rescue plan developed which includes having an attendant outside the hazardous area with appropriate equipment and training.

All employees involved with excavating are to review the above standards and understand, in general terms:

a. The extensive degree of basic data, design, and knowledge that goes into employee protection during excavating projects.
b. The types of soils and how to identify them on the job site.
c. The soil condition -- specifically moisture content -- and how that impacts on stability during excavations.
d. The absolute need for a competent person to be on site at all times during excavating work to visually and manually test soil conditions as work progresses and to maintain a safe site.

DAILY INSPECTIONS

Prior to work and as needed throughout the shift, a competent person will conduct daily inspections of excavations, adjacent areas and protective systems to find evidence of a developing cave-in situation; failure of protective systems; hazardous atmosphere; or other hazardous conditions.

After every rainstorm or event which would affect the safety of employees within an excavation, an inspection will be made by a competent person.

FALL PROTECTION

Except when an excavation is made entirely in stable rock or it is less than 4 feet in depth and a competent person finds no indication of potential cave-in, employees in an excavation will be protected from cave-in by protective systems designed in accordance with *WAC 296-155-657 Requirements for protective systems*.

All employees involved with excavating are to review these standards and understand, in general terms:

a. The extensive degree of basic data, design, and knowledge that goes into employee protection during excavating projects.
b. The types of soils and how to identify them on the job site.
c. The soil condition -- specifically moisture content -- and how that impacts on stability during excavations.
d. The absolute need for a competent person to be on site at all times during excavating work to visually and manually test soil conditions as work progresses and to maintain a safe site.
e. Walkways must be provided where employees or equipment are required or permitted to cross over excavations. If these walkways are 4 feet or more above a lower level, guardrails must be used.

Extension Cords

WAC 296-155-449 Wiring methods, components, and equipment for general use

Extension cords shall not replace permanent wiring and the following safety precautions will be adhered to:

a. Inspect the cord for cracks and cuts.
b. Cord must have a three prong plug for grounding.
c. Use the shortest continuous length of cord possible. Cords may not be spliced together.
d. Make certain the cord does not lay in water.
e. Ensure cord is properly rated for the job.
f. Secure and route cords out of the traffic flow to prevent tripping.
g. Defective cords will be tagged and removed from service.
h. Most importantly, an extension cord used on a job site MUST be used with a ground fault circuit interrupter (GFCI).

Flagmen/Traffic Control

Manual on Uniform Traffic Control Devices, Millennium Edition

The primary function of traffic control procedures is to move vehicles and pedestrians safely and expeditiously through or around temporary traffic control zones while protecting on-site workers and equipment.

Construction areas will be posted with legible traffic signs at points of hazard. All traffic control signs or devices used for protection of construction workers must conform to Part VI of the *Manual on Uniform Traffic Control Devices, Millennium Edition*, December 2000.

For daytime work, the flagger's vest, shirt, or jacket will be orange, yellow, strong yellow green or fluorescent versions of these colors.

For nighttime work, similar outside garments will be retroreflective. The retroreflective material will be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and will be visible at a minimum distance of 1,000 feet. The retroreflective clothing will be designed to identify clearly the wearer as a person and be visible through the full range of body motions.

Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important. Uniformed law enforcement officers may also be used on freeways where traffic is channeled around work sites and it is necessary to assure that advisory and regulatory speeds are being enforced. For nighttime work and in low-visibility situations, a retroreflective garment as described above should be worn.

Hand-signaling devices, such as STOP/SLOW paddles, lights, and red flags are to be used to control traffic through temporary traffic control zones. The STOP/SLOW paddle, which gives drivers more positive guidance than red flags, should be the primary hand-signaling device. The standard STOP/ SLOW sign paddle will be 18 inches square with letters at least 6 inches high. A rigid handle should be provided. This combination sign should be fabricated from light semi-rigid material, and will have an octagonal shape. The background of the STOP face will be red with white letters and border. To be better seen, the STOP/SLOW paddles may be supplemented by one or two symmetrically positioned alternately flashing white high-intensity lamps on each side. The background of the SLOW face will be orange with black letters and border. When used at night, the STOP/ SLOW paddle will be retroreflectorized in the same manner as signs.

Flag use should be limited to emergency situations and at low-speed and/or low-volume locations which can best be controlled by a single flagger. Flags used for signaling will be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff about 3 feet long. The free edge should be weighted so the flag will hang vertically, even in heavy winds. When used at night, flags will be retroreflective red.

Ground Fault Circuit Interrupters

WAC 296-155-449 Wiring methods, components, and equipment for general use

A ground fault circuit interrupter (GFCI) provides protection for all 120-volt, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring by detecting lost current resulting from a short, overheating, and/or ground fault. It should be noted that an extension cord into which electrical devices are plugged are not part of the permanent wiring; therefore, GFCI's are required.

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 GFCI can interrupt the current within as little as 1/40th of a second.

The current that is missing is being lost through a ground fault, whether it is in the actual grounding, a short in the equipment or electricity going through the employee to the ground.

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. GFCI’s must be tested before use.

Hazardous Job Site Chemical Exposure

Per our Hazard Communication Plan, we will keep on site, and readily available, Safety Data Sheet for each chemical to which we may be exposed.

The presence of asbestos, crystalline silica, and lead is possible on construction job sites. Before work begins, the appropriate PPE and respiratory protection requirements will be discussed with employees.

Because of the chronic (long term) nature of these hazards, detrimental health effects due to exposure would not be immediately noticed.

The competent person on site will prevent exposures to these materials.

Areas that contain the below materials will be cordoned off or protected with appropriate warning signs. Do not enter any restricted area unless dictated by job assignment and only after specific training for dealing with these hazards. The training would include PPE, respiratory protection, work procedures, medical surveillance, containment, hygiene, handling, testing, and labeling.

These materials may be “discovered” as work progresses and employees will be protected from these hazards by:

a. identification of these items by the competent person.
b. informing the owner, project designer, or engineer of the hazards.
c. securing the area in question until testing proves samples to be negative.

Asbestos Awareness

NIOSH Pocket Guide to Chemical Hazards - Asbestos

On some job sites, employees may have potential exposure to asbestos if precautionary steps noted below are not taken. Asbestos can be found in older tile flooring, pipe and mechanical insulation, plaster, fireproofing, soundproofing, roofing materials, and in sprayed-on materials located on beams, in crawl spaces, and between walls. 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 cannot 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. 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.

There are two types of asbestos, friable and non-friable.

Friable asbestos can be crumpled with hand pressure and is likely to emit minute fibers can cause serious long term health effects. Fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable.

Non-friable asbestos, undisturbed, poses no health risk. Vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

The health hazards associated with asbestos are caused by 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. Lastly, though not likely, it is possible to get cancer of the stomach and colon.

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

Asbestos Awareness Training is required for all employees who work in areas that contain or may contain asbestos. This training will be documented.

Steps to avoid asbestos exposure:

a. Under no circumstances will asbestos containing material (ACM) or presumed asbestos containing material (PACM) be disturbed during work activities.
b. If you believe the materials you will be working with contain asbestos, do not disturb the material and contact your supervisor.
c. Obey all asbestos warning signs and labels. ACM and PACM will not be disturbed.
d. If our employees are working on a multi-contractor worksite adjacent to a Class I asbestos abatement job and possible exposure occurs because of inadequate containment (an unlikely scenario because not only would the containment be faulty, the negative pressure system would have to fail), they are to immediately remove themselves from the area until the breach and containment systems is repaired.
e. All exposure to thermal system insulation and sprayed-on and troweled-on surfacing material will be assumed to be asbestos exposure unless results of laboratory analysis show that the material does not contain asbestos. For the record, permissible exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30-minute work period.

Crystalline Silica Awareness

Silica, Crystalline (Respirable Size), National Institute of Health

Crystalline Silica can be readily found on many job sites in rocks, as well as many concrete and masonry products. Crystalline Silica can be released in the air when employees are performing such tasks as:

a. Chipping, hammering, drilling, crushing, or hauling rock.
b. Abrasive blasting.
c. Sawing, hammering, drilling, or sweeping concrete or masonry.

Unprotected respiratory exposure to crystalline silica may cause a lung disease called silicosis as well as cancer and death.

Occupational silica exposure is completely preventable through employee training, use of a silica substitute, use of engineering controls, improved work practices, and, lastly, use of personal protective equipment.

Employees who are potentially exposed to an environment containing airborne concentrations of silica will receive training prior to working with silica and receive periodic refresher training after work has started.

Employee Information and Training

We will ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Additionally, we must ensure that our employees can demonstrate knowledge and understanding of at least the following:

a. The health hazards associated with exposure to respirable crystalline silica;

   Silicosis is caused by exposure to respirable crystalline silica dust. Crystalline silica is a basic component of soil, sand, granite, and most other types of rock, and it is used as an abrasive blasting agent. Silicosis is a progressive, disabling, and often fatal lung disease. Cigarette smoking adds to the lung damage caused by silica.

   Silicosis (especially the acute form) is characterized by shortness of breath, fever, and cyanosis (bluish skin); it may often be misdiagnosed as pulmonary edema (fluid in the lungs), pneumonia, or tuberculosis. Severe mycobacterial or fungal infections often complicate silicosis and may be fatal in many cases.

Three types of silicosis:

Chronic silicosis:	Usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations
Accelerated silicosis:	Results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure.
Acute silicosis:	Occurs where exposure concentrations are the highest and develops after a few months or as long as 2 years following exposures to extremely high concentrations of respirable crystalline silica.

b. Specific tasks in the workplace from Table 1 that could result in exposure to respirable crystalline silica;

c. Specific measures we have implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;

   Engineering controls would include local exhaust ventilation, blasting cabinets, and establishing a clearly identified exposure area.

   Work practice controls would include use of water sprays, wet methods for cutting, chipping, drilling, sawing, grinding, etc.

   Eating, drinking, or smoking near crystalline silica dust is prohibited.

   Employees will wash hands and face before eating, drinking or smoking away from silica exposure area.

   Personal protective equipment would include appropriate half-face or full face respirator.

d. The contents of WAC 296-840.;

e. The identity of the competent person designated by the employer in accordance with WAC 296-840-140 (4)(b); and

f. The purpose and a description of the medical surveillance program required by WAC 296-840-145.

We will make a copy of WAC 296-840 readily available and without cost to our employees covered by this program.

NIOSH Safety Recommendations:

NIOSH recommends the following measures to reduce crystalline silica exposures at the job site and prevent silicosis and silicosis-related deaths:

a. Prohibit silica sand (or other substances containing more than 1% crystalline silica) as an abrasive blasting material and substitute less hazardous materials.
b. Conduct air monitoring to measure worker exposures.
c. Use containment methods such as blast-cleaning machines and cabinets to control the hazard and protect adjacent workers from exposure.
d. Practice good personal hygiene to avoid unnecessary exposure to silica dust.
    1. Wash hands and face before eating.
    2. No eating, drinking or tobacco products in the blasting area.
    3. Shower before leaving work site.
    4. Vehicles parked away from contaminated area.
e. Wear washable or disposable protective clothes at the job site; shower and change into clean clothes before leaving the job site to prevent contamination of cars, homes, and other work areas.
f. Use respiratory protection when source controls cannot keep silica exposures below the NIOSH REL.
g. Provide periodic medical examinations for all workers who may be exposed to crystalline silica.
h. Post signs to warn workers about the hazard and to inform them about required protective equipment.
i. Provide workers with training that includes information about health effects, work practices, and protective equipment for crystalline silica.
j. Report all cases of silicosis to the state health department.

Lead Hazard Awareness

Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

WAC 296-155-176 addresses occupational exposure to lead in the construction industry. The word “lead” within this standard refers to elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

There may be times when employees are working within the vicinity of lead or lead-containing materials.

Under no circumstances will employees be exposed to lead above the action level which, for lead, is 30 micrograms of lead per cubic meter of air (30 μ/m³), averaged over an 8-hour workday. As a matter of interest, the permissible exposure limit (PEL) for lead is 50 micrograms of lead per cubic meter of air (50 μ/m³), averaged over an 8-hour workday.

Lead found in paints, coatings, and compounds that are undisturbed pose no hazardous exposure and work around these items does not require respirators, special clothing, or negative pressure enclosures.

Care will be taken by all employees to not abrade, remove, touch, or in any way disturb lead or lead containing compounds within the work area.

Contractors who actually abate lead do so under the provisions of the above lead standard which precludes lead from escaping into the surrounding areas by negative pressure enclosures and other methods.

As a point of interest, person whom perform lead abatement have to have received special training, be licensed, and be part of medical surveillance program.

To drive home the point of the importance of leaving lead in the workplace undisturbed and avoided, employees must be aware of the health hazards associated with lead exposure.

The below is extracted from 29 CFR 1910.125 App A, *Substance data sheet for occupational exposure to lead*:

> II. HEALTH HAZARD DATA
> A. "Ways in which lead enters your body". When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume, or mist it can be inhaled and absorbed through you lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting.

Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.
B. "Effects of overexposure to lead" - (1) "Short term (acute) overexposure". Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.
(2) "Long-term (chronic) overexposure". Chronic overexposure to lead may result in severe damage to your blood - forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood - forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of

decreased oxygen carrying capacity in the blood.
(3) "Health protection goals of the standard". Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 ug/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 ug/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg percent or ug percent. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of ug/dl.)
BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead - related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead - related health impairment or disease.
Once your blood lead level climbs above 40 ug/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 ug/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 ug/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead - related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 ug/dl. The provisions of the standard are designed with this end in mind.

Heavy Construction Equipment

WAC 296-155-610

All heavy equipment must be inspected prior to use and operated only by authorized personnel.

Heavy construction equipment would include:

- Bulldozers
- Compactors
- Front-end loaders
- Graders
- Haulage Vehicles (Trucks/Dump Trucks)
- Scrapers
- Skid-Steer Machines
- Tractors

All vehicles must be equipped with an operable audible warning device (horn) at the operator's station.

An operable automatic reverse signal alarm distinguishable from the surround noise level which will be used if the operator does not have a clear, unobstructed view **or** a ground guide indicating that the line of travel is safe.

Scissors points on all front-end loaders which may harm the operator will be guarded as well as all parts exposed to employees such as belts, gears, pulleys, sprockets, spindles, drums, flywheels, chains and other moving parts.

Equipment that is operated from the seated position and has roll over protection will have seat belts and their use is required. If there is no roll over protection, seat belts will not be used.

All trucks into which earth is dumped will have protection for the driver of that vehicle or the driver must exit the vehicle before loading.

Vehicle operators will not operate heavy equipment on any access roadway or grade that is not suitable for the vehicle.

Bulldozer blades, loader buckets, dump bodies and similar equipment will be fully lowered or blocked to prevent movement during maintenance or when not in use.

When equipment is parked, the parking brake will be set. Additionally, on inclines, wheeled vehicles will be chocked. Equipment left unattended at night, adjacent to either a highway or construction area in use, will be

clearly visible with reflectors, lights, or illuminated (with reflectors or lights) barricades.

Safety requirements for heavy construction equipment:

1. General repairs must not be made to powered equipment until workers are protected from movement of the equipment or its parts.
2. Before repairs are made workers must comply with lock-out/tag-out requirements, if applicable, of our Control of Hazardous Energy Program.
3. Wherever mobile equipment operation encroaches on a public thoroughfare, a system of traffic controls must be used.
4. Flaggers are required at all locations where barricades and warning signs cannot control the moving traffic.
5. Job-site vehicles must be equipped with the following, if so designed:
    a. Operable service, emergency, and parking brakes.
    b. Two operable headlights and taillights for night operation.
    c. Windshield wipers and defogging equipment as required.
    d. Seat belts if the vehicle has rollover protection structures.
    e. Fenders or mud flaps.
    f. Adequate seating if the vehicles are used to transport employees.
6. Vehicles and systems must be checked for proper operation at the start of each shift.
7. Vehicles operating when rear vision is blocked must be equipped with an automatic backup alarm or its equivalent.
8. Haulage vehicles in operation must be under operator control and must be kept in gear when descending grades
9. Engines must be stopped during refueling
10. Lights are required for night operation.

Ladders

WAC 296-155-475
Chapter 296-876 WAC

Ladder safety is no less important than scaffold safety. How easy it is to overlook ladder safety. After all, who hasn't used a ladder? All employees using ladders are required by to receive training and understand proper procedures for ladder use before using a ladder in a work situation.

All employees using ladders are required to receive training and understand proper procedures for ladder use before using a ladder in a work situation, specifically,

1. Recognition of ladder hazards and the procedures to minimize these hazards.
2. Training by a competent person for those employees who use ladders must include, at least the following topics:
    a. The proper construction, use, placement, and care in handling ladders.
    b. The maximum intended load capacities of ladders that are used.
    c. The requirements of Chapter 296-876 WAC, click above to access.
3. Retraining of employees as necessary to make sure they know and understand the content of the original training.

All ladders, both portable and fixed, will be inspected periodically by a competent person for visible defects. Additionally, ladders will be inspected after an occurrence that could affect their safe use. Defective ladders will be tagged with a "Do Not Use" tag and placed out of service.

American National Standards Institute (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.

Specific operational procedures for ladders directly relating to the elimination of fall hazards are listed below:

a. a stairway or a ladder will be provided at all personnel points of access where there is a break in elevation of 19 inches or more.
b. ladders will never be overloaded. Be aware of the ladder's rated capacity. Ladders may not be loaded beyond the manufacturer's rated capacity.
c. ladder rungs, cleats, and steps must be parallel, level, and uniformly spaced when a ladder is in position for use.
d. ladders will not be tied or fastened together unless they are so designed.
e. 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.
f. ladders must be free of oil, grease, or other slipping hazards.
g. ladders must be used for the purpose for which they were designed.
h. 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.
i. ladders will only be used on stable and level surfaces unless secured to prevent displacement.
j. ladders shall not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement.
k. 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.
l. the area around the top and bottom of the ladder shall be kept clear.
m. ladders shall not be moved, shifted, or extended while occupied.

n. the top step of a stepladder shall not be used as a step.
o. portable ladders with structural defects will be immediately marked in a manner that readily identifies them as defective and removed from service until repaired.
p. when ascending or descending a ladder, one must face the ladder.
q. employees must use at least one hand to grasp the ladder when progressing up and/or down the ladder.
r. employees are not to carry any object or load that could cause loss of balance and a resultant fall.
s. never use a ladder in a horizontal position or as scaffolding.
t. never place a ladder on top of boxes, crates, etc.

Fixed ladders where the length of climb is less than 24 feet but the top of the ladder is greater than 24 feet above the lower level must have cages, wells, ladder safety devices, or self-retracting lifelines.

Fixed ladders where the length of climb equals or exceeds 24 feet shall have at least one of the following:

a. ladder safety devices;
b. self-retracting lifelines and rest platforms not exceeding 150 feet;
c. a cage or well, and multiple ladder sections not exceeding 50 feet in length. At the maximum interval of 50 feet, ladder sections will be offset on landing platforms.

Laser Operations

Laser devices used in construction for distance measuring and leveling are generally of such low power that they present no recognizable safety hazard except one, severe damage to the eye which is caused only by intrabeam viewing. There are no skin, hearing, explosive, chemical, burn, heat, or any other type of hazard associated with laser devices.

The primary safety rule is: The laser operator must not let the laser beam impact any person's eye and any employee working in an area where laser operations are taking place must never look directly into a laser beam.

Additionally, beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off.

Only qualified and trained employees will be authorized to operate laser devices.

At a minimum, training, conducted by a knowledgeable designated individual, will included informing the operator of all hazards associated with laser operations in accordance with the applicable manufacturer's recommendations. This information will be found in the laser's owner/operator manual or literature.

Employees who have received training and are deemed qualified will be authorized to operate Class I, 1A, II, or IIIA type lasers will be issued an Operator Card to be kept on their person when operating the laser equipment.

Class I: cannot emit laser radiation at known hazard levels (typically continuous wave: cw 0.4 μW at visible wavelengths). Users of Class I laser products are generally exempt from radiation hazard controls during operation and maintenance (but not necessarily during service).

Since lasers are not classified on beam access during service, most Class I industrial lasers will consist of a higher class (high power) laser enclosed in a properly interlocked and labeled protective enclosure. In some cases, the enclosure may be a room (walk-in protective housing) which requires a means to prevent operation when operators are inside the room.

Class IA: a special designation that is based upon a 1000-second exposure and applies only to lasers that are "not intended for viewing" such as a supermarket laser scanner. The upper power limit of Class I.A. is 4.0 mW. The emission from a Class I.A. laser is defined such that the emission does not exceed the Class I limit for an emission duration of 1000 seconds.

Class II: low-power visible lasers that emit above Class I levels but at a radiant power not above 1 mW. The concept is that the human aversion reaction to bright light will protect a person. Only limited controls are specified.

Class IIIA: intermediate power lasers (cw: 1-5 mW). Only hazardous for intrabeam viewing. Some limited controls are usually recommended.

Note: **There are different logotype labeling requirements for Class IIIA lasers with a beam irradiance that does not exceed 2.5 mW/cm2 (Caution logotype):**

and those where the beam irradiance does exceed 2.5 mW/cm^2 (Danger logotype):

Appropriate laser warning placards will be posted during laser operations

Lawn Care Hazards

Primary hazards include:	Solutions:
Chemical Exposure	Read and obey Safety Data Sheets [Fertilizer application] (SDS) form information. Implement effective hazard communication program that includes employee training.
Eye Injury	Wear protective goggles when using a [Ejected material] mower, sprayers, trimmers, edger, etc.
Hearing Loss	Wear ear protection (ear plugs or ear [Machine noise] mufflers) when using power equipment.
Ergonomics	Wear gloves. Use safe-lifting techniques. [Machine vibration] [Awkward movement]
Respiratory	Dust mask (recommended). [Dust & chemical exposure]

Only trained and authorized personnel may operate powered equipment.

Prior to operating any item of powered equipment, it must be inspected in accordance with the operator's manual. The operator's manual should be readily available everywhere the equipment is used. The inspection would include guards, shields, fluid levels, and the presence of "danger", "warning" and "caution" decals.

Ensure the controls, gauges, and dials are in working order.

Know the purpose of all the controls, gauges, and dials.

Never operate lawn care equipment with missing or defective protective devices.

Before the start of each workday inspect equipment in accordance with the manufacturer's recommendations and repair or replace any loose, broken, missing, or damaged parts all parts.

Lawn Care Tools

29 CFR 1910.243 - Guarding of portable powered tools

Blowers (Gas):

PPE: Eye protection with side shields, Gloves, Appropriate footwear, Ear plugs

Cautions: Inspect before use per owner's manual. Ensure debris does not hit other persons. Ensure caution decals are in place.

Blowers (Electric):

PPE: Eye protection with side shields, Gloves, Appropriate footwear

Cautions: Inspect before use per owner's manual. Ensure caution decals are in place. Use ground fault circuit interrupter. Ensure debris does not hit other persons.

Edgers (Gas):

PPE: Eye protection with side shields, Gloves, Appropriate footwear, Ear plugs

Cautions: Inspect before use per owner's manual. Ensure debris does not hit other persons. Ensure caution decals are in place. Watch for hidden rocks.

Hedge Trimmers (Gas):

PPE: Eye protection with side shields, Gloves, Appropriate footwear, Ear plugs

Cautions: Inspect before use per owner's manual. Do not work above shoulder height. Ensure caution decals are in place.

Hedge Trimmers (Electric):

PPE: Eye protection with side shields, Gloves, Appropriate footwear

Cautions: Inspect before use per owner's manual. Do not work above shoulder height. Ensure caution decals are in place. Use ground fault circuit interrupter. Be careful to not cut cord.

Sprayers:

PPE: Eye Protection with side shields, Gloves, Appropriate footwear, Dust mask

Cautions: Inspect before use per owner's manual. Work upwind. Ensure SDS for chemical product is readily available.

Trimmers (Gas):

PPE: Eye protection with side shields, Gloves, Appropriate footwear, Ear plugs

Cautions: Inspect before use per owner's manual. Ensure caution decals are in place.

Wheel Barrels:

PPE: Appropriate footwear

Cautions: Inspect before use per owner's manual. Ensure load is balanced. Ensure tire pressure is correct.

Hand Tools:

Rakes, shovels, shears, clippers, etc. will be maintained in good condition and inspected before use. Defective items will be tagged and taken out of service.

Hand tools shall be used only for the purpose for which they are designed.

Hand tools will be cleaned after use and placed in proper storage.

Hand held cutting tools will be kept sharp and will be sheathed or retracted when not in use.

When using a striking tool such as a hammer or chisel, safety glasses or safety goggles will be used.

Do not force tools.

Appropriate PPE will be worn when using hand tools.

Powered Mowers:

Owner manuals will be readily available for each type of powered mower.

Factory installed guards prevent the operator from accidental contact with power-driven chains, belts, and gears during normal starting, mounting, and operation of the mowers. Employees are not to remove or modify any guards on any power lawnmowers whether they be walk-behind, riding-rotary, or reel type.

Prior to use, the mower will be inspected for defects and the operator will ensure that:

a. The shutoff device is functioning correctly.
b. All positions of the operating controls are clearly identified.
c. The words, "Caution. Be sure the operating control(s) is in neutral before starting the engine" [or similar wording] is clearly visible at an engine starting control point on self-propelled mowers.

Walk-Behind Rotary Mowers:

The operator will ensure that:

a. The horizontal angle of the opening(s) in the blade enclosure, intended for the discharge of grass, does not contact the operator area.

b. There is one of the following at all openings in the blade enclosure intended for the discharge of grass:

   1. A minimum unobstructed horizontal distance of 3 inches from the end of the discharge chute to the blade tip circle.

   2. A rigid bar fastened across the discharge opening, secured to prevent removal without the use of tools. The bottom of the bar must be no higher than the bottom edge of the blade enclosure.

c. The mower handle is fastened to the mower so as to prevent loss of control by unintentional uncoupling while in operation.

d. Wheel drive disengaging controls, except deadman controls, must move opposite to the direction of the vehicle motion in order to disengage the drive. Deadman controls will automatically interrupt power to a drive when the operator's actuating force is removed and may operate in any direction to disengage the drive.

Lighting

WAC 296-800-210

A competent person will ensure that we provide and maintain adequate lighting in the workplace. Adequate lighting serves a two-fold purpose -- allowing tasks to be more readily performed as well as providing the additional safety factor of being seen by persons not involved with the work -- especially vehicular traffic.

If generators are used for auxiliary lighting, they will be operated and maintained by authorized persons who are competent by training or experience.

Machine Guarding

Most injuries that occur when operating a machine happen at the point of operation -- the point on a machine where the actual work (cutting, bending, spinning) occurs. This is also the point where guards can protect fingers and hands exposed to that danger. Machine guarding also protects employees from other dangers such as flying pieces of metal, sparks, gears, belts, and rotating parts.

The most common types of machines on job sites are power tools which often have guards to prevent injury.

Accident prevention in this area is a function of machine design -- engineering controls -- and operator training. Types of machine guarding are almost as numerous as types of machines -- the most common being a physical barrier to prevent accidental insertion of body parts. Guards are vital for safety reasons and machine guards designed into a machine should never be altered or removed. The speed and tremendous forces involved in modern machines are such that severe injury or even death could occur without warning and without even slowing the machine down.

Training and proper work methods go a long way toward reducing machine accidents. Like all safeguards, there is generally a way to bypass safety features that are engineered into machines. This is sometimes done to increase speed or just to make one's job easier. This could result in a tragic, avoidable accident. The few seconds saved could cause a lifetime of grief. Do not bypass safety systems.

Operate all machines according to the instructor's manual and follow all safety procedures.

Machinery

Spinning, pounding, moving -- gears, pulleys, levers -- electricity, fuel, hydraulics -- action, reaction, force: danger! Machinery takes energy and performs a task or a multitude of tasks. Machinery, from a safety standpoint, is a collection of individual simple machines (pulleys, gears, etc.) combined to work in harmony to accomplish a specific job.

The danger is obvious: the power, speed, movement, and momentum of machinery is not going to be altered by something as insignificant as an employee's finger, hand, or even body.

How does one deal with the dangers of machinery? First, **never** operate any machinery until you have received proper training and you thoroughly understand safety procedures as well as procedures to follow for adjustments, power interruption, jamming, lubrication, and inspection.

Secondly, ensure the guarding systems are in place, functioning properly, and have not been altered or removed.

Thirdly, if a hazard assessment of the machinery operation dictates specific personal protective equipment (PPE), wear it!

Lastly, again from purely a safety standpoint, think of any power operated item with moving parts as machinery. This would include items as diverse as a small electric drill to an 80,000-pound tractor-trailer.

Material Storage

WAC 296-155-325

General Requirement for Storage

1. All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.
2. Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads shall not be exceeded.
3. Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas shall be kept in good repair.
4. When a difference in road or working levels exist, means such as ramps, blocking, or grading shall be used to ensure the safe movement of vehicles between the two levels.

Material Storage

1. Material stored inside buildings under construction shall not be placed within 6 feet of any hoistway or inside floor openings, nor within 10 feet of an exterior wall which does not extend above the top of the material stored.
2. Each employee required to work on stored material in silos, hoppers, tanks, and similar storage areas shall be equipped with personal fall arrest equipment meeting the requirements of Fall Protection of this Safety Manual.
3. Noncompatible materials shall be segregated in storage.
   a. Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.
4. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.
5. Brick stacks shall not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it shall be tapered back 2 inches in every foot of height above the 4-foot level.
6. When masonry blocks are stacked higher than 6 feet, the stack shall be tapered back one-half block per tier above the 6-foot level.
7. Used lumber shall have all nails withdrawn before stacking.
8. Lumber shall be stacked on level and solidly supported sills and shall

Signs & Tags

When appropriate, signs and tags will be used to warn of specific hazards. Types of signs are classified according to their use, and their design is regulated by standard. All personnel will be instructed in the meaning of the various types of signs. Sign usage includes:

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 must be positive, clear, concise, and easy to understand or the sign loses its value.

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. a signal word: Danger"; "Caution"; "Warning"; BIOHAZARD (or its symbol) and a major message, and

b. a major message such as: "High Voltage" or "Do not start". [Major messages indicate the specific hazardous condition.]

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.

Silica Exposure

Chapter 296-840 WAC Respirable Crystalline Silica

Construction employers must comply with all requirements of the standard by September 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.

Overview

Our Silica program applies to all work place exposures to respirable crystalline silica. The only exceptions are when employee exposure results from the processing of sorptive clays and when employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

Definitions

The following definitions apply to our silica program will help ensure that our employees fully understand the information provided.

Action level means a concentration of airborne respirable crystalline silica of 25 µg/m3, calculated as an 8-hour TWA.

Competent person means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in WAC 296-840-140.

Construction work means all or any part of excavation, construction, erection, alteration, repair, demolition, and dismantling, of buildings and other structures and all operations in connection therewith; the excavation, construction, alteration and repair of sewers, trenches, caissons, conduits, pipe lines, roads and all operations pertaining thereto; the moving of buildings and other structures, and to the construction, alteration, repair, or removal of wharfs, docks, bridges, culverts, trestles, piers, abutments or any other construction, alteration, repair or removal work related thereto.

Director means the director of the department of labor and industries or his/her authorized representative.

DOSH means the division of occupational safety and health, Washington state department of labor and industries.

Employee exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Permissible exposure limit (PEL) means a concentration of airborne respirable crystalline silica of 50 µg/m3, calculated as an 8-hour TWA.

Physician or other licensed health care professional [PLHCP] means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by WAC 296-840-145.

Regulated area means an area, demarcated by the employer, where an employee’s exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL.

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

Specified Exposure Control Methods

If any of our employees are engaged in a task identified on Table 1 below, we will fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task.

Exception: We must assess and limit the exposure of our employees to safe levels of respirable crystalline silica using the alternative exposure control methods following Table 1.

Table 1: Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None

Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	APF 10	APF 10
Drivable saws	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None
Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10

Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. OR	None	None
	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
	OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
	− When used outdoors.	None	APF 10
	− When used indoors or in an enclosed area.	APF 10	APF 10
Handheld grinders for mortar removal (i.e., tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25

Handheld grinders for uses other than mortar removal	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		
	− When used outdoors.	None	None
	− When used indoors or in an enclosed area.	None	APF 10
Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR	None	None
	Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None

Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only:		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
	For cuts of four inches in depth or less on any substrate:		
	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR	None	None
	Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab.	None	None
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR	None	None
	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, we must:

a. Provide a method of exhaust to minimize the accumulation of visible airborne dust for tasks performed indoors or in enclosed areas.
b. Apply water at flow rates sufficient to minimize release of visible dust for tasks performed using wet methods
c. If an enclosed cab or booth is used, we must ensure that it:
    1. Is maintained as free as practicable from settled dust;
    2. Has door seals and closing mechanisms that work properly;
    3. Has gaskets and seals that are in good condition and working properly;
    4. Is under positive pressure maintained through continuous delivery of fresh air;
    5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
    6. Has heating and cooling capabilities.

If one of our employees performs more than one task on Table 1 during the course of a single work shift, the total time for all tasks will be considered. If it's more than 4 hours in total, the employees must use the respiratory protection specified in the > 4 hours/shift column. If combined it's less than four hours, employee will follow the guidelines in the ≤ 4 hours/shift column.

Alternative Exposure Control Methods

If we are unable to fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1, we must ensure the following requirements are in place.

Permissible Exposure Limit (PEL)

We must ensure that none of our employees are exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/m3, calculated as an 8-hour TWA.

Exposure Assessment

We have to assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level. This can be accomplished using one of the following options:

Performance Option:

The performance option requires that we must assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

Scheduled Monitoring Option:

If we use the scheduled monitoring option, we have to have provide initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area.

Where several employees perform the same tasks on the same shift and in the same work area, we may sample a representative fraction of these employees. If we use representative sampling, we must sample the employees who are expected to have the highest exposure to respirable crystalline silica.

If initial exposure monitoring indicates that certain employee's exposures are below the action level, we may discontinue monitoring for those employees.

If the most recent exposure monitoring indicates that our employee's exposures are at or above the action level but at or below the PEL, we will ensure that the monitoring is repeated within six months of those results.

If the most recent exposure monitoring indicates that our employee's exposures are above the PEL, we will be sure to repeat the monitoring within three months of those results.

If the most recent exposure monitoring results (after the first round of monitoring) indicates that our employee's exposures are below the action level, then we will repeat the monitoring within six months of those results to determine if we need to continue monitoring.

If our repeat monitoring results indicate two consecutive measurements, taken seven or more days apart, are below the action level, we may discontinue monitoring for our employees whose exposures are represented by the monitoring.

Reassessment of Exposures:

It is our responsibility as the employer to provide a hazard free work place for our employees and if we have any reason to believe that new or additional exposures at or above the action level have occurred we will reassess employee exposures.

We will reassess exposures whenever we have a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level.

Methods of Sample Analysis:

We will ensure that all of our exposure monitoring samples are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Chapter 296-840 WAC - Appendix A.

Note: Requirements for laboratory evaluation of exposure samples are require to begin on June 23, 2018.

Employee Notification of Assessment Results:

We will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees within five working days after completing an exposure assessment.

If an exposure assessment indicates that an employee is exposed to respirable crystalline silica above the PEL, we will provide them with a description of the corrective action being taken to reduce their exposure to within the PEL in the written notification.

Observation of Monitoring:

We will provide all affected employees, or their designated representatives, an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.

When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, we must provide the observer with protective clothing and equipment at no cost and must ensure that the observer uses such clothing and equipment correctly.

Methods of Compliance

Engineering and Work Practice Controls:

We must use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless we can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, we will still use them to reduce our employee's exposure to the lowest feasible level. We will then supplement those controls with the use of respiratory protection in accordance with our Respiratory Protection Program.

Abrasive Blasting:

We must also comply with other DOSH standards, in addition to the engineering and work practice controls previous discussed, if abrasive blasting is conducted using crystalline silica-containing blasting agents or if abrasive blasting is conducted on substrates that contain crystalline silica.

Respiratory Protection Program

When respiratory protection is required by chapter 296-840 WAC, we will use our respiratory protection program to provide each of our employee's an appropriate respirator that complies with the requirements of chapter 296-842 WAC, Respirators

Respiratory protection is required:

a. Where specified by Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica.
b. For tasks not listed in Table 1, or where we do not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:
    1. Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
    2. Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
    3. During tasks for which we have implemented all feasible engineering and work practice controls and those controls are not sufficient to reduce exposures to or below the PEL.
    4. During periods when an employee or employees are in a regulated area.

Specified Exposure Control Methods

If we are able to fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1 - Specified Exposure Control Methods when Working with Materials Containing Crystalline Silica, we will be considered to be in compliance with WAC 296-840-125(1) and the requirements for selection of respirators in chapter 296-842 WAC with regard to exposure to respirable crystalline silica.

Housekeeping

We will not allow dry sweeping or dry brushing when it could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

Our employees are not permitted to use compressed air to clean clothing or surfaces when it could contribute to employee exposure to respirable crystalline silica unless:

a. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

b. No alternative method is feasible.

Written Exposure Control Plan

We will establish and implement a written exposure control plan that contains at least the following elements:

a. A description of the tasks in the workplace that involve exposure to respirable crystalline silica;

b. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;

c. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and

d. A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

We will review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.

We will make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this program, their designated representatives, and the Director.

We will designate a competent person to implement the written exposure control plan and to make frequent and regular inspections of job sites, materials, and equipment.

Medical Surveillance

We will make medical surveillance available to our employees at no cost and at a reasonable time and place for each who will be required under this program to use a respirator for 30 or more days per year.

We will ensure that all medical examinations and procedures required by this program are performed by a Physician or other licensed health care professional or PLHCP.

Initial Examination

We must make available an initial baseline medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of WAC 296-840-095 within the last three years. The examination must consist of:

a. A medical and work history, with emphasis on: past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing);smoking status and history; and history of tuberculosis The history of tuberculosis should include completion of the Washington State Department of Labor and Industries form F252-113-000, Adult Tuberculosis Screening Tool for Workers Exposed to Respirable Crystalline Silica, located in Appendix C.
b. A physical examination with special emphasis on the respiratory system;
c. A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film, no less than 14 x 17 inches and no more than 16 x 17 inches, or digital radiography systems), interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a NIOSH-certified B Reader;
d. A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;
e. Testing for latent tuberculosis infection; and
f. Any other tests deemed appropriate by the PLHCP.

Periodic Examinations

We will make medical examinations available that include the procedures described in WAC 296-840-145 at least every three years, or more frequently if recommended by the PLHCP.

Information Provided to the PLHCP

We will ensure that the examining PLHCP has a copy of this standard, and must provide the PLHCP with the following information:

a. A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;

b. The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;

c. A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

d. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the employer.

PLHCP's Written Medical Report for the Employee

We must ensure that the PLHCPs explain to our employees the results of the medical examination and provides them with a written medical report within 30 days of the medical examination performed. The written report must contain:

a. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment;

b. Any recommended limitations on the employee's use of respirators;

c. Any recommended limitations on the employee's exposure to respirable crystalline silica; and

d. A statement that the employee should be examined by a specialist under subsection 9(a) of WAC 296-840-145 if the chest X-ray provided in accordance with this chapter is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

PLHCP's Written Medical Opinion for the Employer

We must also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain **only** the following:

a. The date of the examination;

b. A statement that the examination has met the requirements of WAC 296-840; and

c. Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion can also contain either or both of the following:

a. Any recommended limitations on the employee's exposure to respirable crystalline silica;

b. A statement that the employee should be examined by a specialist (pursuant to WAC 296-840-145) if the chest X-ray provided in accordance with WAC 296-840 is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

We must ensure that each employee receives a copy of that written medical opinion within 30 days of each medical examination performed.

Additional Examinations

If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, we must make a medical examination by a specialist available within 30 days after receiving the PLHCP's written opinion.

We must ensure that the examining specialist is provided with all of the information that we provided to the PLHCP.

We must ensure that the specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report shall meet the requirements of subsection (6) (a), (b) and (c) of WAC 296-840.

You must obtain a written opinion from the specialist within thirty days of the medical examination. The written opinion shall meet the requirements of subsection (7), except (7) (b) and (d) (ii) of WAC 296-840.

Communication of Silica Hazards to Employees

Hazard communication

We will include respirable crystalline silica in Hazard Communication program. This requires that we ensure that our employees have access to labels on containers of crystalline silica and safety data sheets. Additionally, we will ensure our employees are trained in accordance with the provisions of HCS and the below information.

Signs

When a regulated area is established you must, post signs at all entrances to the regulated areas that bear the following legend:

DANGER
RESPIRABLE CRYSTALLINE SILICA
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

Employee Information and Training

We will ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Additionally, we must ensure that our employees can demonstrate knowledge and understanding of at least the following:

a. The health hazards associated with exposure to respirable crystalline silica;
b. Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
c. Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
d. The contents of WAC 296-840.;
e. The identity of the competent person designated by the employer in accordance with WAC 296-840-140 (4)(b); and
f. The purpose and a description of the medical surveillance program required by WAC 296-840-145.

We will make a copy of WAC 296-840 readily available and without cost to our employees covered by this program.

Air Monitoring Data

We will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica. This record will include at least the following information:

a. The date of measurement for each sample taken;
b. The task monitored;
c. Sampling and analytical methods used;
d. Number, duration, and results of samples taken;
e. Identity of the laboratory that performed the analysis;
f. Type of personal protective equipment, such as respirators, worn by the employees monitored; and
g. Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Objective Data

We will make and maintain an accurate record of all objective data relied upon to comply with the requirements of WAC 296-840. This record will include at least the following information:

a. The crystalline silica-containing material in question;
b. The source of the objective data;
c. The testing protocol and results of testing;
d. A description of the process, task, or activity on which the objective data were based; and
e. Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Medical Surveillance

We will make and maintain an accurate record for each employee covered by medical surveillance of WAC 296-840-145. The record will include the following information about the employee:

a. Name and social security number;

b. A copy of the PLHCPs' and specialists' written medical opinions; and

c. A copy of the information provided to the PLHCPs and specialists.

Medical Record Retention

You must ensure that medical records are maintained and made available in accordance with chapter 296-802 WAC, Employee medical and exposure records.

Tools: Hand

Part G Tools – Hand and Power

Hand tools shall be used only for the purpose for which they are designed.

Hand tools will be kept clean and, where appropriate, oiled.

Hand tools which are damaged will not be used.

Hand held cutting tools will be kept sharp and will be sheathed or retracted when not in use.

When using a striking tool such as a hammer or chisel, safety glasses or safety goggles will be used.

Do not force tools.

If you are unfamiliar with the proper procedure for using a tool, ask your Supervisor for instruction.

Power tools may be operated only by those persons who are qualified by training or experience.

Do not alter guards on power tools; wear appropriate PPE.

Electrical tools must be grounded and, in the absence of permanent wiring, a Ground Fault Circuit Interrupter must be used.

Electric tools will not be lifted by their cords and pneumatic tools will not be lifted by their hoses.

Tools: Pneumatic Powered

Pneumatic powered tools must be safeguarded whenever there are hazardous employee exposures. This is especially important for point of operation guarding.

Three specific hazards associated with pneumatic powered tools which are unique to their use are noise levels, tool retention, and air hose pressure.

Care must be taken to assure that noise levels are within acceptable limits (noise monitoring may be necessary) and, if required, engineering controls and/or ear protection will be employed.

If there is a possibility of tool ejection during use, a tool retainer must be installed.

Safety will dictate that hose and hose connections be designed for the pressure and service to which they are subjected.

Eye protection will be worn when using pneumatic powered tools in accordance with the owner/operator's manual.

When using a jackhammer, care must be taken to ensure that the employee is not exposed to unsafe levels of respirable dust or crystalline silica.

The PEL for particles not otherwise regulated is 5.0 mg/m³. The PEL for respirable dust containing crystalline silica is determined by the below formula:

PEL = 10 mg/m³ ÷ (%SiO_2+2), where %SiO_2+2 refers to the amount of crystalline silica measured in the sample.

Our operations would not exceed these PEL's and respiratory protection is not required.

Tools: Powder-Actuated

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. PPE will be in accordance with the owner/operator's manual.

On the job site, 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, exactly, 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.

WAC 296 155-170

There may be times in the course of our work such as grinding, cutting, sawing, sanding, etc. that hazardous dusts are released into the atmosphere that exceed the concentrations specified in the *"Threshold Limit Values of Airborne Contaminants for 1970"* of the American Conference of Governmental Industrial Hygienists, listed below:

MINERAL DUSTS	
Substance	(a)**mppcf**
SILICA Crystalline Quarts Threshold Limited calculated from the formula Cristobalite. Amorphous, including natural diatomaceous earth	 (b)$(250) \div (\%SiO_2+5)$ 20
SILICATES (Less than 1% crystalline silica) Mica Portland Cement Soapstone Talc (non-abestiform) Talc (fibrous), use asbestos limit	 20 20 20 20
GRAPHITE (Natural)	15
INERT OR NUISANCE PARTICULATES **Note 1 Covers all organic and inorganic particulates not otherwise regulated. Same as Particulates Not Otherwise Regulated.** **Note 2 Inert or Nuisance Dusts includes all mineral, inorganic, and organic dusts as indicated by examples in TLV's Appendix D.**	50 (or 15 mg/m³ which-ever is the smaller) of total dust <1% SiO

a. Millions of particles per cubic foot or air, based on impinger samples counted by lightfield techniques.

b. The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.

Below the above threshold limits, no action is required, however, employees may wear dust masks for personal comfort.

As always, engineering controls are preferred to personal protective equipment to deal with job site hazards. Therefore, local exhaust ventilation is a preferred method of maintaining atmospheres that have dust levels below the concentrations noted in the Dust Table, above.

Local exhaust ventilation must be designed so that they prevent dispersions of dust in concentrations causing harmful exposure and that dusts are not drawn through the work area of employees.

The dust collected by an exhaust or ventilating system will be discharged to the outside atmosphere.

If concentrations are so great that a dust separator is used, the dust and refuse will be disposed of in such a manner as to not harm employees. The exhaust will still be discharged to the outside atmosphere.

Of course, if the above ventilation procedures do not reduce the dust levels to acceptable limits, respirators will be used.

Part H Welding and Cutting

Employees assigned to operate both arc welding and cutting and oxygen-fuel welding and/or brazing equipment, **and their supervisors**, must be properly trained and instructed in the operation of such equipment. Proper PPE will be worn by all welders.

Before welding or cutting, the supervisor or competent person will inspect the area with emphasis on fire prevention and authorize welding or cutting using our Hot Work Permit noting special precautions that must be taken.

An appropriate fire extinguisher and first aid equipment will be readily available for immediate use.

Compressed Gas Cylinders Use:

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

Failure to follow basic safety procedures could result in serious injuries 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 SDS for the gas being used and know the location of the SDS 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 cylinder valves, regulators, couplings, and hoses 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.

    1. When welding or cutting in a confined space, the tanks must remain outside the confined space.

    2. Appropriate ventilation must be assured, portable equipment must be secured to prevent movement, if appropriate, a rescue plan should be prepared.

    3. If the rescue plan involves pulling the person out, attachment of the lifelines should be so the person's body does not jam in the exit and prevent his extraction.

    4. If arc welding is suspended for a substantial period of time, the electrodes must be removed to prevent accidental contact and the machine must be disconnected from the power source.

    5. If gas cylinder work is suspended, the torch valves must be closed and the fuel-gas and oxygen supply must be positively shut off or disconnected outside the confined space.

    6. After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other workers.

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/or c) cylinders are empty.

Compressed gas cylinders will:

a. have valve protectors in place when not in use or connected for use.

b. be legibly marked to identify the gas contained therein.

c. have the valves closed before the cylinder is moved, when the cylinder is empty, and at the completion of each job.

d. be stored in areas away from intense heat, electric arcs, and high temperature lines.

e. be secured upright (chained in portable dolly), in storage or transportation, to prevent tipping, falling, rolling, and damage from passing or falling objects. Oxygen cylinders must be kept 20 feet from any flammable gases or petroleum products.

f. be marked "EMPTY" when appropriate.

g. be removed from service if the regulators or gauges are defective.

h. be used only for the purpose for which they are designed -- for example, cylinders will not be used as rollers or supports.

i. be kept away from stairs.

j. Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.

Regulators and gauges will be inspected daily.

All cylinders, cylinder valves, couplings, regulators, hoses and apparatus will be kept free of oily or greasy substances.

Operators of welding equipment will report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs will be made only by qualified personnel.

Persons performing arc welding and cutting must be properly instructed and qualified to operated such equipment and, if performing gas shielded arc welding, must be familiar with *Recommended Safe Practices for Gas-Shielded Arc Welding*, A6.1-1966, American Welding Society as well as 29 CFR 1910.254 and paragraphs (a)(b) & (c) or 29 CFR 1910.252.

Electric welders will be inspected daily before use with emphasis on the cables. All splicing of cables must maintain the insulated protection with no exposed metal parts. Cables in need of repair will not be used.

The competent person will ensure that ventilation within a confined space is adequate to negate the possibility of a respiratory or explosion hazard.

A fire watch will be assigned when there is potential a fire might develop. Of course, any person assigned to fire watch must have received training in the specific fire extinguishing equipment being used. When welding, cutting, or brazing an object near a fire hazard that is not readily movable, the fire hazard will be removed. If any fire hazards remain, shields will be used to confine the sparks, heat, and slag. If the provisions of this paragraph cannot be met, welding and/or cutting **may not** take place. In fact, as a company policy, if welding cannot be conducted safely, it may not be conducted.

When performing operations capable of producing heat at chemical plants, refineries, or other facilities which have a higher degree of hazard than normal work sites, a hot work permit is generally required. Included in these types of operations are burning, cutting, heating, and welding.

Fire watchers are required in all locations where other than a minor fire might develop and any of the below conditions exist:

a. appreciable amounts of combustible materials closer than 35 feet to point of operation.
b. appreciable combustibles are 35 feet or more away but are easily ignited by sparks.
c. wall or floor openings within a 35 foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
e. Combustible materials are adjacent to the opposite side of metal partitions, ceilings, or roofs that are likely to be ignited by conduction or radiation.

The fire watch must be maintained at least one half hour after welding or cutting operations have ceased to detect, and extinguish, possible smoldering fires.

Assigned fire watchers must have received training in fire extinguishers, be familiar with the facilities in which they are working, and know the procedures for sounding an alarm in the event of a fire.

On the back of the Hot Work Permit are found fire safety instructions

[(29 CFR 1910 252(a)] which must be read and understood by the persons identified on the permit. A copy of 29 CFR 1910.252(a) follows.

29 CFR 1910.252(a)

Title: Fire prevention and protection

(a) Fire prevention and protection - (1) Basic precautions. For elaboration of these basic precautions and of the special precautions of paragraph (d)(2) of this section as well as a delineation of the fire protection and prevention responsibilities of welders and cutters, their supervisors (including outside contractors) and those in management on whose property cutting and welding is to be performed, see, Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA Standard 51B,1962. The basic precautions for fire prevention in welding or cutting work are:

(i) Fire hazards. If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.

(ii) Guards. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.

(iii) Restrictions. If the requirements stated in paragraphs(a)(1)(i) and (a)(1)(ii) of this section cannot be followed then welding and cutting shall not be performed.

(2) Special precautions. When the nature of the work to be performed falls within the scope of paragraph (a)(1)(ii) of this section certain additional precautions may be necessary:

(i) Combustible material. Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through the floor. The same precautions shall be observed with regard to cracks or holes in walls, open doorways and open or broken windows.

(ii) Fire extinguishers. Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose or portable extinguishers depending upon the nature and quantity of the combustible material exposed.

(iii) Fire watch. (A) Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

{1} Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.

{2} Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.

{3} Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.

{4} Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

(B) Fire watchers shall have fire extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

(iv) Authorization. Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations. He shall designate precautions to be followed in granting authorization to proceed preferably in the form of a written permit.

(v) Floors. Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the floor shall be swept clean for a radius of 35 feet (10.7 m). Combustible floors shall be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.

(vi) Prohibited areas. Cutting or welding shall not be permitted in the following situations:

(A) In areas not authorized by management.

(B) In sprinklered buildings while such protection is impaired.

(C) In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside uncleaned or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.

(D) In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulfur, baled paper, or cotton.

(vii) Relocation of combustibles. Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flameproofed covers or otherwise shielded with metal or asbestos guards or curtains.

(viii) Ducts. Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.

(ix) Combustible walls. Where cutting or welding is done near walls, partitions, ceiling or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

(x) Noncombustible walls. If welding is to be done on a metal wall, partition, ceiling or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.

(xi) Combustible cover. Welding shall not be attempted on a metal partition, wall, ceiling or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.

(xii) Pipes. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.

(xiii) Management. Management shall recognize its responsibility for the safe usage of cutting and welding equipment on its property and:

(A) Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding, in other areas.

(B) Designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes.

(C) Insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.

(D) Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

(xiv) Supervisor. The Supervisor:

(A) Shall be responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process.

(B) Shall determine the combustible materials and hazardous areas present or likely to be present in the work location.

(C) Shall protect combustibles from ignition by the following:

{1} Have the work moved to a location free from dangerous combustibles.

{2} If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition.

{3} See that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.

(D) Shall secure authorization for the cutting or welding operations from the designated management representative.

(E) Shall determine that the cutter or welder secures his approval that conditions are safe before going ahead.

(F) Shall determine that fire protection and extinguishing equipment are properly located at the site.

(G) Where fire watches are required, he shall see that they are available at the site.

(xv) Fire prevention precautions. Cutting or welding shall be permitted only in areas that are or have been made fire safe. When work cannot be moved practically, as in most construction work, the area shall be made safe by removing combustibles or protecting combustibles from ignition sources.

(3) Welding or cutting containers - (i) Used containers. No welding, cutting, or other hot work shall be performed on used drums, barrels, tanks or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors. Any pipe lines or connections to the drum or vessel shall be disconnected or blanked.

(ii) Venting and purging. All hollow spaces, cavities or containers shall be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.

(4) Confined spaces - (i) Accidental contact. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.

(ii) Torch valve. In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.

Welding, cutting, heating of metals of toxic significance (lead, zinc, cadmium, mercury, beryllium, or exotic metals or paints) in enclosed spaces will require either general mechanical ventilation of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits **or** local exhaust ventilation consisting of freely movable hoods intended to be placed by the welder or burner as close as practicable to the work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

This would include inert-gas metal-arc welding performed on stainless steel to protect against dangerous concentrations of nitrogen dioxide.

When performing welding operations on stainless steel and there is exposure to airborne chromium (VI) above its action level of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA), the provisions of 29 CFR 1926.1126 must be adhered to. The PEL is 5 $\mu g/m^3$. If air monitoring, as described in 29 CFR 1926.1126 is below .5 $\mu g/m^3$, the provisions of this standard do not apply.

Section III
Specific Compliance Programs

Bloodborne Pathogens - Exposure Control Plan

WAC 296-823 - Bloodborne Pathogens

Note

The primary job assignment of our designated first aid providers is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from workplace incidents and only at the location where the incident occurred.

Recordkeeping: all work-related injuries from needlesticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials (OPIM) are to be recorded on the OSHA 300 as an injury.

Note: Our first aid kits do not contain sharps or needles. However, a contaminated sharp, such as a broken pair of glasses, may trigger the above.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.

b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Policy Statement

This Exposure Control Plan has been developed to eliminate or minimize the risk of exposure to bloodborne pathogens and other potentially infectious materials. This Plan presents methods and procedures to eliminate and/or minimize the hazards associated with occupational exposure to bloodborne pathogens or other infectious materials.

As a matter of policy, universal precautions will be used.

Additional components of this plan include exposure determinations by job classification, standard operating procedures to eliminate or reduce the likelihood of disease transmission, the methods of disease transmission, definitions of terms, post exposure procedures and follow-up, training documentation, and recordkeeping.

Compliance with this Plan not only fulfills the requirements of WISHA, more importantly, it fulfills our desire to maintain a safe working environment and safeguard the health of our employees.

WAC 296-155-120, First-aid training and certification, makes it clear that, on a worksite, at least one person must have a valid first aid certificate. Because this person has the possibility of contact with bloodborne pathogens or other infectious materials, he or she falls under the provisions of this Exposure Control Plan for bloodborne pathogens or other infections materials.

> WAC 296-155-120, First-aid training and certification
>
> This section is designed to assure that all employees in this state are afforded quick and effective first-aid attention in the event of an on the job injury. To achieve this purpose the presence of personnel trained in first-aid procedures at or near those places where employees are working is required. Compliance with the provisions of this section may require the presence of more than one first-aid trained person.
>
> (1) Each employer must have available at all worksites, where a crew is present, a person or persons holding a valid first-aid certificate.
>
> (2) All crew leaders, supervisors or persons in direct charge of one or more employees must have a valid first-aid certificate.
>
> (3) For the purposes of this section, a crew means a group of two or more employees working at any worksite.
>
> *Note: The requirement that all crew leaders, supervisors or person in direct charge of one or more employees (subsection (3) of this section) applies even if other first-aid trained person(s) are available. In emergencies, crew leaders will be permitted to work up to thirty days without having the required certificate, providing an employee in the crew or another crew leader in the immediate work area has the necessary certificate.*

All affected employees should feel free to review this plan at any time and are encouraged to consult with our Exposure Control Plan Administrator to resolve any issues affecting its implementation.

Definitions

All employees should know the "language" of this plan. Because some of the words and/or terms are not used in everyday life, each person must be aware of the definitions so that we are all "reading off the same page". Below are definitions:

Blood: human blood, human blood components, and products made from human blood.

Bloodborne Pathogens: pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Clinical Laboratory: a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

Contaminated: the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry: laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps: any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination: the use of physical or chemical: to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Director: the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls: controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident: a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Handwashing Facilities: a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines.

Licensed Healthcare Professional: a person who's legally permitted scope of practice allows him or her to independently perform the following activities: actually providing Hepatitis B vaccine, ordering appropriate laboratory test, determining contraindications to vaccination, providing post-exposure prophylaxis and counseling. The legal scope of practice for this professional must allow the independent performance of all the procedures described in Sections Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, below.

HBV: hepatitis B virus.

HIV: human immunodeficiency virus.

Needleless systems: a device that does not use needles for:

a. The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;

b. The administration of medication or fluids; or

c. Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Occupational Exposure: reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials:

a. The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

b. Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

c. HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral: piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Personal Protective Equipment is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Production Facility: a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Regulated Waste: liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Research Laboratory: a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.

Sharps with engineered sharps injury protections: a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

Source Individual: any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

Sterilize: the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls: controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).

Exposure Control Plan

This Exposure Control Plan is provided for all personnel who, as a result of the performance of their duties, would have reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials.

This Plan will be reviewed and updated annually and whenever necessary as new or modified tasks and procedures are introduced which affect occupational exposure to bloodborne pathogens or other potentially infectious materials. The review and update of this plan will:

a. reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens.

b. document, annually, consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

First aid provider employees responsible for direct trauma victim care who are potentially exposed to injuries for contaminated sharps will be asked for input in the identification, evaluation, and selection of effective engineering and work practice controls.

Exposure Determination

Three (3) lists will be prepared and they will be maintained in Section II of this plan.

List I: A list of all job classifications in which all employees have occupational exposure.

List II: A list of job classifications in which some employees have occupational exposure.

List III: A list of all tasks and procedures or groups of closely related tasks and procedures in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Methods of Compliance

Universal precautions will be used. We will treat all trauma victims' blood, bodily fluids, and other potentially infectious materials as if they are known to be infectious. Unfortunately, there is no immediate, practical way to determine if HIV, HBV, and other bloodborne pathogens are present so, to be safe, we will assume they are. Traditionally, isolation of infectious materials has been diagnosis-driven. This meant that if a person were diagnosed to have HIV or HBV infection, for example, then isolation precautions would be taken. Because the infection status of each trauma victim cannot be immediately known, it makes sense to treat all trauma victims and their body fluids as if they were infected. The precautions to take depend on the procedures being performed. For example, if one's hands will be in contact with body substances, disposable gloves will be worn. If there is risk of one's eyes being splashed with body fluids, eye protection will be worn. An impermeable barrier must be placed between yourself and the potentially infectious bodily fluids. Overkill is not necessary. Cleaning up a minor spill on a counter top does not require a mask, eye protection, and plastic apron. It does, however, require disposable gloves.

All employees will strictly adhere to the below engineering and work practice controls to eliminate or reduce the possibility of occupational exposure to bloodborne pathogens or other potentially infectious materials. Specific controls and procedures, noted below, will be used to eliminate or minimize employee exposure. If occupational exposure is:

HANDWASHING EQUIPMENT AND PROCEDURES: Handwashing facilities are provided which are readily accessible to all employees.

Employees will wash their hands and any other skin area exposed to blood or other potentially infectious materials with soap and water immediately or as soon as feasible:

a. after removal of gloves or other personal protective equipment.

b. following contact with blood or other potentially infectious materials.

Particular attention will be given to fingernails and between fingers and rings under which infectious material may lodge. Furthermore, one should be aware that rings and jewelry are a good hiding place for bloodborne pathogens and other potentially infectious materials.

Examples of situations where handwashing is appropriate:

a. before and after examining any trauma victim.
b. after handling any soiled waste or other materials.
c. after handling any chemicals or used equipment.

If for some reason handwashing facilities are not functioning, appropriate antiseptic hand cleaner and clean cloth/paper towels (antiseptic towelettes) will be provided and used. If antiseptic hand cleaner and clean cloth/paper towels are used, hands will be washed with soap and water as soon as feasible.

EATING, DRINKING, SMOKING:

There shall be no eating, drinking, smoking, applying cosmetics or lip balm, or handling contact lenses in areas where there is a likelihood of occupational exposure to bloodborne pathogens or other potentially infectious materials.

Furthermore, food and drink shall not be kept in refrigerators, freezers, shelves, cabinets, or on countertops or benches where blood or other potentially infectious materials are present.

CONTAMINATED NEEDLES & OTHER CONTAMINATED SHARPS:

Contaminated needles will not be sheared, or broken.

Furthermore, all contaminated needles and other contaminated sharps shall not be bent, recapped, or removed unless:

a. it can be demonstrated that no alternative is feasible or that it is required by a specific medical procedure.
b. recapping or needle removal may be accomplished through the use of a mechanical device or a one-handed method.

Contaminated **reusable** sharps will be placed in appropriate containers immediately or as soon as possible after use until properly reprocessed. These containers will:

a. be puncture resistant.

b. have warning labels affixed to containers potentially infectious material and contain the following legend:

Note: The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

c. be leakproof on the sides and bottom.

Reusable sharps that are contaminated with blood or other potentially infectious materials will not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.

Contaminated **non-reusable** sharps will be discarded immediately or as soon as feasible and placed in containers that:

a. are closable

b. are puncture resistant.

c. are leakproof on sides and bottom.

b. have warning labels affixed that contain the following legend:

Note The above label will be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.

Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.

Red bags or red containers may be substituted for labels.

Contaminated **reusable** sharps shall not be stored or processed in such a manner that requires employees to reach by hand into the containers where these sharps have been placed.

During use, containers for contaminated sharps must be:

a. easily accessible to our employees.
b. located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found.
c. maintained upright throughout use.
d. replaced routinely and not be allowed to overfill.

If leakage is possible when removing a container of contaminated sharps, it shall be placed in a second container with the following container requirements:

a. it will be closable.
b. it will be constructed to contain all contents and prevent leakage during handling, storage, transport or shipping, and;
c. colored coded red or labeled as noted above.

Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous (introduced through the skin such as a cut) injury.

OTHER REGULATED WASTE - CONTAINMENT:

The provisions that apply to contaminated sharps, above, apply to other regulated waste.

DISPOSAL OF CONTAMINATED SHARPS & OTHER REGULATED WASTE:

The actual disposal of all regulated waste shall be in compliance with applicable state laws.

SPECIMENS OF POTENTIALLY INFECTIOUS MATERIALS:

Specimens of blood and potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.

SPLASHING, SPRAYING OF POTENTIALLY INFECTIOUS MATERIALS:

All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and the generation of droplets of these substances.

MOUTH PIPETTING:

Mouth pipetting and mouth suction of blood or other potentially infectious materials is prohibited.

Designated Exposure Control Plan Administrator

Our designated the Exposure Control Plan Administrator will be knowledgeable in all aspects of this Plan as it relates to our operations and be available to answer questions raised by our first aid providers. The Exposure Control Plan Administrator may call upon professionals in the Medical Arts to field questions that are of technical nature outside of the Administrator's area of expertise.

The Exposure Control Plan Administrator will:

a. ensure this Plan is kept current.

b. ensure training is provided as required.

c. maintain all records associated with this plan.

Designated First Aid Providers

Before one may be designated as a first aid provider, he/she must have a valid certificate in first aid training from the U.S. Bureau of Mines, the Red Cross, or equivalent training that can be verified by documentary evidence. No person is to administer any medical assistance for which they are not appropriately trained. It is noted that the rendering of first aid is not the primary job of our designated first aid providers.

Personal Protective Equipment (PPE)

In spite of work practice and engineering controls, there is a requirement for appropriate personal protective equipment to provide an impermeable barrier between potentially infectious materials and the employees work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

Employees will use appropriate personal protective equipment when there is a possibility of occupational exposure to bloodborne pathogens or other potential infectious materials.

Personal protective equipment will be provided in appropriate sizes and at no cost to the employees. Further, maintenance and replacement of personal protective equipment will be provided at no cost to the employee.

Personal protective equipment will be discarded immediately if its ability to function as a barrier is compromised.

Most importantly, employees must understand that personal protective equipment is useless unless it provides an impermeable barrier between bloodborne pathogens and other potentially infectious materials and the employee's clothes, skin, eyes, mouth, or other mucous membranes.

Personal Protective Equipment is considered appropriate if it prevents potentially infectious materials from reaching work/street clothing or body surface when used under normal conditions.

DISPOSABLE GLOVES:

Disposable, single use gloves, such as surgical or examination gloves will be worn when it can be reasonably anticipated that the employee may have hand contact with blood or other potentially infectious materials and when handling or touching contaminated items or surfaces. Disposable gloves will always be used when there is a possibility of contact with bloodborne pathogens or other potentially infectious materials.

Disposable gloves shall never be washed, decontaminated, or reused.

Disposable gloves shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or their ability to function as a barrier is compromised.

Should any employee be allergic to the normal gloves provided, an appropriate alternative (such as hypoallergenic and/or powderless gloves) will be provided in the proper size at no cost to the employee.

UTILITY GLOVES:

Utility gloves may be used for general cleanup (not for any trauma victim procedure) when there is anticipated exposure to bloodborne pathogens or other potentially infectious materials. Utility gloves may be decontaminated for re-use if the integrity of the gloves is not compromised. They will be discarded if they are cracked, peeling, torn, punctured, or exhibit signs of deterioration or when their ability to function as a barrier is compromised.

EYE AND RESPIRATORY PROTECTION:

Eye (goggles, glasses, face shield, etc.) and respiratory (mask, etc.) protection will be used when it can reasonably be expected that bloodborne pathogens or other potentially infectious materials may splash or spray in or around the eyes, nose, mouth, and general head area of the employee.

PROTECTIVE BODY CLOTHING:

Protective body clothing such as gowns, aprons, lab coats, etc. will be worn as determined by the professional judgment of the employee in relation to task. The protective body clothing will certainly be worn where there can reasonably be expected exposure to bloodborne pathogens or other potentially infectious materials to the body area.

LAUNDRY:

Personal protective equipment will be cleaned, laundered, and disposed of at no cost to the employee.

Note: In rare and extraordinary circumstances, an employee, in her/his professional judgment, may decline to temporarily and briefly wear personal protective equipment if he/she deems that the equipment would prevent the delivery of health care or would have increased the hazard of occupational exposure to the employee or his/her co-workers. Should this event occur, it will be documented, investigated, and procedures will be developed to prevent a reoccurrence.

Housekeeping

Housekeeping is an ongoing, never ending procedure which not only enhances our work environment but also eliminates health risk to our personnel. In the area of bloodborne pathogens and other hazardous materials, to ensure proper cleaning, decontamination, sterilization, and disinfecting of surfaces within our facility, cleaning will be accomplished only by employees who have received training in universal precautions and the provisions of this plan. The written Housekeeping Schedule & Checklist is found in Section II and this Schedule will be adhered to following an incident that results in the potential exposure to bloodborne pathogens or other potentially infectious materials.

Broken, potentially infected glassware, should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

Hepatitis B Epidemiology

Hepatitis B (serum hepatitis) routes of infection include parenteral, oral, or direct contact. The virus can also spread by contact with the respiratory tract. Its sources include contaminated needles and surgical instruments as well as contaminated blood products. The virus of hepatitis B has been found in urine. Further, the virus of hepatitis B can live for up to seven (7) days on a dry surface and can be easily be transmitted by a single needle stick. Its incubation period is quite lengthy generally between 45 and 180 days. It affects all age groups. Recovery from hepatitis B does provide immunity. Generally, one can expect a complete recovery from viral hepatitis, however, it is potentially fatal depending on many factors including the virulence (aggressiveness) of the virus, prior hepatic damage, and natural barriers to damage and disease of the liver. It is possible for viral hepatitis to lead to fulminating viral hepatitis and subacute fatal viral hepatitis both of which are fatal. Onset symptoms may include headache, elevated temperature, chills, nausea, dyspepsia, anorexia, general malaise, and tenderness over the liver. These types of symptoms will last about one (1) week, then subside, and jaundice will occur. Jaundice is caused by damaged liver cells. The convalescent stage begins with the disappearance of the jaundice and may last several months. Recovery is expected in six (6) months.

Risk of Exposure

Per the Department of Human Services of the Center for Disease Control, below is the risk of infection after occupational exposure:

HBV:

First aid providers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection. For an unvaccinated person, the risk from a single needlestick or cut exposure to HBV-infected blood ranges from 6-30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. In individuals who are both hepatitis B surface antigen (HBsAG) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.

HCV:

Based on limited studies, the risk for infection after a needlestick or cut exposure to HCV-infected blood is approximately 1.8%. The risk following a blood splash is unknown, but is believed to be very small; however, HCV infection from such an exposure has been reported.

HIV:

The average risk of HIV infection after a needle stick or cut exposure to HIV-infected blood is 0.3% (i.e., three-tenths of one percent, or about 1 in 300). Stated another way, 99.7% of needlestick/cut exposures do not lead to infection.

The risk after exposure of the eye, nose, or mouth to HIV-infected blood is estimated to be, on average, 0.1% (1 in 1,000).

The risk after exposure of the skin to HIV-infected blood is estimated to be less than 0.1%. A small amount of blood on intact skin probably poses no risk at all. There have been no documented cases of HIV transmission due to an exposure involving a small amount of blood on intact skin (a few drops of blood on skin for a short period of time). The risk may be higher if the skin is damaged (for example, by a recent cut) or the contact involves a large area of skin or is prolonged (for example, being covered in blood for hours).

All employees with occupation exposure are encouraged to accept the hepatitis B vaccination.

Hepatitis B Vaccination

The hepatitis B vaccination series will be provided, at no cost, to all unvaccinated first aid providers as soon as possible (within 24 hours of initial exposure). All exposed first aid provider employees are encouraged to take this vaccination series unless they have previously received the complete hepatitis B vaccination series; antibody testing has revealed that the employee is immune; or the vaccine is contraindicated (not recommended) for medical reasons. Post-exposure evaluation, prophylaxis (prevention of or protection from disease), and follow-up will be provided at no cost to the employee.

The Hepatitis B vaccination will be performed under the supervision of a licensed physician or other licensed healthcare professional.

All laboratory tests will be conducted by an accredited laboratory at no cost to the employee.

Should routine booster dose(s) of hepatitis B vaccine (as recommended by the U.S. Public Health Service at a future date) be required, they will be provided at no cost as long as the employee remains a first aid provider.

An employee may decline the Hepatitis B vaccination and this declination shall not shall not reflect unfavorably upon him/her, however this declination must be in writing.

It is important to note that if a first aid provider initially declines the

hepatitis B vaccination series, he/she may at a later date decide to accept the vaccination series and it will be provided at no cost assuming he/she is still occupationally exposed to bloodborne pathogens or other potentially infectious materials.

Sharps Injury Log

A Sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

The sharps injury log will contain:

a. the type and brand of device involved in the incident.

b. the department or work area where the exposure incident occurred.

c. an explanation of how the incident occurred.

The sharps injury log shall be maintained for the period of five years.

First Aid Provider Input

As a matter of policy, all first aid providers who are responsible for first aid delivery as an additional job are encouraged to suggest methods to improve our engineering and workplace controls. This input may be made verbally to the Plan Administrator at any time. Additionally, during the annual refresher training, suggestions will be solicited.

Plan Review

This plan will be reviewed, and if necessary, updated annually to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. As new medical devices are developed which reduce employee exposure, they will be introduced into our practice. A review of the “Sharps Log” will help identify problem areas and/or ineffective devices which may need replacement.

Post-Exposure Evaluation & Follow-Up

The information that has preceded this Section has dealt with the methods to restrict occupational exposure to bloodborne pathogens and other infectious materials. Post-exposure evaluation and follow-up deals with the steps to take immediately following a potential exposure incident and the steps that will be taken over time to protect our employees from further health risk.

All incidents involving exposure to blood or other potentially infectious materials will be reported to the Exposure Control Plan Administrator, in writing, before the end of the shift in which the incident occurred using the Exposure Incident Report. This Report will be prepared regardless of whether or not there has been an "Exposure Incident" as defined in this Plan. A separate Exposure Incident Report will be completed for each employee who was occupationally exposed.

Information in this Report will include:

a. the date and time the incident occurred.

b. a brief description of the events leading up to the exposure (what happened.)

c. the name of the individual exposed.

d. the route of exposure.

e. “source individual” and “exposed individual” information including the acceptance or rejection of hepatitis B vaccination series.

d. a determination of whether or not an actual "exposure incident" occurred.

The Exposure Control Plan Administrator or his authorized representative will review the Exposure Incident Report and determine if methods or procedures may be altered to prevent a reoccurrence of the incident.

Further, an occupational bloodborne pathogens exposure incident which results in the recommendation for hepatitis B vaccination would be recorded on OSHA Form 300 as an injury. See Recordkeeping.

All unvaccinated employees who have assisted in any situation involving blood will be afforded the opportunity to receive the hepatitis B vaccination series as soon as possible but not later than twenty-four (24) hours after the situation.

A confidential medical evaluation and follow-up will be provided immediately, at not cost, to the employee. The healthcare professional evaluating an employee after an exposure incident will be provided a copy of WAC 296-823. Bloodborne Pathogens.

Further, the healthcare professional will be provided a description of the exposed employee's duties as they relate to the exposure incident; documentation of the route(s) of exposure; the circumstances under which the exposure occurred; the results of the source individual's blood testing, if available; and all medical records relevant to the appropriate treatment of the employee including vaccination status which is maintained by our office. See Recordkeeping.

The confidential medical evaluation and follow-up will include:

a. documentation of the route(s) of exposure.
b. the circumstances under which the exposure incident occurred.
c. the identification and documentation of the source individual, unless it can be established that the identification is not feasible or prohibited by state or local law.
d. the exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.

   Note: If the employee consents to baseline blood collection, but does not consent at that time for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.

e. the source individual's blood shall be tested as soon as feasible to determine HBV and HIV infectivity unless it is already known in which case this procedure is not necessary.

If consent to test the source individual's blood cannot be obtained the following will occur:

a. it will be established and documented that legally required consent cannot be obtained.
b. when the source individual's consent is not required by law, the source individual's blood shall be tested and the results documented.

The results of the source individual's testing shall be made available to the exposed employee and the employee shall be informed of applicable laws and the identity and infectious status of the source individual.

The employee shall be provided post-exposure prophylaxis, when medically indicated, and counseling.

The employee will be provided with a copy of the healthcare professional's written opinion within 15 days of the completion of the evaluation. The written opinion shall be limited to:

a. whether Hepatitis B vaccination is indicated and if the employee has received such vaccination.
b. an indication that the employee has been informed of the results of the evaluation.
c. an indication that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.

All other findings or diagnoses will remain confidential and will not be included in the written report.

Recordkeeping

Complete and accurate medical records will be maintained for each employee with occupational exposure. These records shall remain confidential and will not be disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by law.

Medical records will be maintained for at least the duration of employment plus 30 years.

Included in the employee's medical record will be:

a. the employee's name and social security number.
b. a copy of the employee's hepatitis B vaccination status including the date of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination.
    1. if the employee has declined to receive the hepatitis B vaccination series when appropriate, this declination will be included in the person's medical records.
c. a copy of all results of examinations, medical testing, and follow-up procedures as required following an exposure incident.
d. the employer's copy of the healthcare professional's written opinion following an exposure incident.
e. a copy of all information provided to the healthcare professional following an exposure incident.

All work-related injuries from needlesticks and cuts, lacerations, punctures and scratches from sharp objects contaminated with another person's blood or other potentially infectious materials are to be recorded on the OSHA 300 as an injury.

a. To protect the employee's privacy, the employees name may not be entered on the OSHA 300.
b. If the employee develops a bloodborne disease, the entry must be updated and recorded as an illness.

Training

All of our first aid providers must have current certificates of first aid and CPR training on file. These records will be maintained by the Plan Administrator.

Initial training, training at the introduction of a new or altered task affecting exposure to bloodborne pathogens or other potentially hazardous materials, and annual training will be provided by a person knowledgeable in the subject matter contained in this Plan.

Training will be interactive between the instructor and employee. An opportunity to ask questions will be provided. Further, this Plan as well as WAC 296-823. Bloodborne Pathogens will be readily available for review.

All training will be documented using the forms found in Appendix A. Training documentation will be maintained for a period of three (3) years from the date on which the training occurred.

Training will include, but not be limited to, the following topics and materials:

a. a complete review of our Exposure Control Plan and its accessibility.
b. an accessible copy of WAC 296-823. Bloodborne Pathogens and an explanation of its contents.
c. a general explanation of the epidemiology and symptoms of bloodborne diseases.
d. an explanation of the modes of transmission of bloodborne pathogens.
e. an explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
f. an explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment.

g. information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment.

h. an explanation of the basis for selections of personal protective equipment.

i. information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.

j. information on the appropriate actions to take and persons to contact in an emergency involving blood other potentially infectious materials.

k. an explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.

l. information on the post-exposure evaluation and follow-up that is provided after an exposure incident.

m. an explanation of the color coding system.

n. a request for input from employees in the identification, evaluation, and selection of effective engineering and work practice controls.

Waste Management

Waste management, if necessary, will comply with State EPA standards regarding handling, storage, and shipping of medical wastes.

Summary

The whole thrust of the Program is to provide an awareness of the dangers of bloodborne pathogens, provide a means of reducing the possibility of occupational exposure, and, should occupational exposure occur, provide a means of reducing health risk.

Highline College Facilities Department

Exposure Determination Form - List I

All job classifications in which all employees have occupational exposure.

1. First Aid Providers
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of the designated first aid providers at Highline College Facilities Department is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Highline College Facilities Department

Exposure Determination Form - List II

Job classifications in which some employees have occupational exposure:

1. None
2. _____
3. _____
4. _____
5. _____
6. _____

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of the designated first aid providers at Highline College Facilities Department is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Highline College Facilities Department

Exposure Determination Form - List III

All tasks and procedures or groups of closely related tasks and procedures in which occupation exposure occurs and are performed by employees in job classifications noted in List II.

Job Classification	Tasks
1. None	
2.	
3.	
4.	

Note: The above exposure determinations are to be made without regard to the use of personal protective equipment.

Note: The primary job assignment of the designated first aid providers at Highline College Facilities Department is not the rendering of first aid or other medical assistance. Any first aid rendered by them is rendered only as a collateral duty, responding solely to injuries resulting from job site incidents and only at the location where the incident occurred.

Highline College Facilities Department

Housekeeping Schedule & Checklist

SCHEDULE

Following every incident where there is a possibility of the presence of residual bloodborne pathogens or other potentially infectious materials.

CHECKLIST

Only personnel who have had training in our Exposure Control will ensure that all surfaces are decontaminated and that cleaning materials are properly disposed of. Areas to consider include, but are not limited to:

	YES	NA
FLOORS	☐	☐
WALLS	☐	☐
EQUIPMENT	☐	☐
PRODUCT	☐	☐
WASTE CONTAINERS	☐	☐
TOOLS	☐	☐

Broken, potentially infected glassware should be picked up and disposed of using mechanical means such as a brush and dust pan or forceps.

All sharps will be stored in a manner that allows easy access and safe handling.

Infectious waste will be placed in containers that are color coded red. These containers will be decontaminated as soon as practical.

Subsequent to rendering any procedures, employees will ensure that all surfaces on which blood, body fluids, bloodborne pathogens, or other infectious materials may be present are cleaned with an appropriate disinfectant.

Highline College Facilities Department

Hepatitis B Declination Form

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis V vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

_____

(WITNESS)

_____

(EMPLOYEES SIGNATURE)

_____

(PRINTED NAME)

_____

(DATE)

Highline College Facilities Department

Sharps Injury Log

Note: A sharps injury log will be maintained for the recording of percutaneous injuries from contaminated sharps.

The information on the log will be recorded and maintained in such manner as to protect the confidentiality of the injured employee.

This sharps injury log shall be maintained for the period of five years.

_____ _____

(Incident Date) (Employee SSN)

Type and brand of device involved in the incident:

_____

Work area where the exposure incident occurred:

_____

Explanation of how the incident occurred:

_____
_____
_____
_____
_____
_____
_____
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_____
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_____
_____
_____
_____

_____

Jason Huff

Safety Program Administrator

Highline College Facilities Department

Annual Exposure Control Plan Review

This Exposure Control Plan was prepared:

At least annually, this program will be reviewed and, if necessary, updated to reflect innovations in procedures and technological developments that eliminates or reduces exposure to bloodborne pathogens.

As part of the annual review, the below will be considered:

a. Employee Input
b. Sharps Injury Log
c. Exposure Incident Reports
d. Professional Journals

Date Reviewed:	Signature	Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Highline College Facilities Department

Exposure Incident Report

ALL INFORMATION ON THIS FORM IS TO REMAIN CONFIDENTIAL

THIS FORM SHALL BE COMPLETED AS SOON AS FEASIBLE AFTER AN EXPOSURE INCIDENT BUT, UNDER NO CIRCUMSTANCES, AFTER THE SHIFT ON WHICH THE INCIDENT OCCURRED.

DATE: _____ TIME: _____

NAME OF EMPLOYEE: _____

ROUTE OF EXPOSURE: _____

SOURCE INDIVIDUAL'S NAME: _____

a. Above individual did / did not consent to be tested for HBV or HIV.

b. Testing was done by: _____

Results: _____

EMPLOYEE WAS OFFERED AND ACCEPTED:	**NO**	**YES**	
a. Hepatitis Vaccination Series. [Date(s)]	☐	☐	_____
1. If "NO", written declination was signed.			
b. Post Exposure Evaluation and follow-up.	☐	☐	
c. Employee consents to baseline blood collection.	☐	☐	_____ (Signature)

Description of events leading to this exposure incident:

_____

_____

_____

_____

Corrective Measures to Prevent a Reoccurrence:

_____

_____

_____

_____

_____ _____

Jason Huff
Safety Program Administrator

Employee Signature

Confined Spaces

Chapter 296-809 WAC Safety Standards for Confined Spaces

This Confined Spaces Program applies to all confined spaces and provides requirements to protect employees from the hazards of entering and working in confined spaces. This program applies in any of the following circumstances:

a. We have confined spaces at the workplace.

b. Our employees will enter another employer's confined spaces.

c. A contractor will enter our confined spaces.

d. We provide confined space rescue services.

We will refer to Table 1 when necessary to determine with requirements to follow for confined spaces.

Definitions

The following terms are defined for the purposes of this Confined Spaces in Construction Program only.

ACCEPTABLE ENTRY CONDITIONS: the conditions that must exist in a permit-required confined space to allow safe entry and work.

ALTERNATIVE METHODS: permit-required confined space using alternative methods. An alternative process for entering a permit space under very specific conditions outlined in WAC 296-809-60002 and 296-809-60004. Documentation must be completed as required to communicate the space conditions to the workers.

ATMOSPHERIC HAZARD: See definition for hazardous atmosphere.

ATMOPHERIC TESTING: See definition of monitoring or testing.

ATTENDANT: an individual stationed outside one or more permit-required confined spaces to monitor the entrants. Attendants must perform the duties as required in WAC 296-809-50020.

BARRIER: a physical obstruction that blocks or limits access.

BLANKING *or* **BLINDING**: the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

CALIBRATION: checking a direct reading instrument against an accurate standard such as a calibration gas to determine deviation and correct for analytical errors.

COMPETENT PERSON: one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate the hazards.

CONFINED SPACE: a space that:

a. Is large enough and so configured that an employee can bodily enter it;

b. Has limited or restricted means for entry and exit; and

c. Is not designed for continuous employee occupancy.

CONTROL: the action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.

CONTROLLING CONTRACTOR: the employer that has overall responsibility for construction at the worksite.

Note: If the controlling contractor owns or manages the property, then it is both a controlling employer and a host employer.

DOUBLE BLOCK AND BLEED: the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

EARLY-WARNING SYSTEM: the method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include but are not limited to: alarms activated by remote sensors; and lookouts with equipment for immediately communicating with the authorized entrants and attendants.

EMERGENCY: any occurrence (including any failure of power, hazard control or monitoring equipment) or event, internal or external, to the permit space that could endanger authorized entrants.

ENERGY-ISOLATING DEVICE: A mechanical device that physically prevents transmitting or releasing energy. This includes but is not limited to: manually operated electrical circuit breakers; disconnect switches; manually operated switches that disconnect the conductors of a circuit from all ungrounded supply conductors if no pole of the switch can be operated independently; line valves; blocks; similar devices.

Note: Push button, selector switches and other control circuit-type devices are not energy isolating devices.

ENGULFMENT: the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, crushing, or suffocation.

ENTRANT: an employee who is authorized by the employer to enter a permit-required confined space.

ENTRY: the action by which any part of a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space, whether or not such action is intentional or any work activities are actually performed in the space.

Note: When the opening is large enough for the worker to fully enter the space, a permit is required even for partial body entry. Permits are not required for partial body entry, where the opening is not large enough for full entry, although other rules such as chapter 296-803 WAC, Lockout/tagout, and chapter 296-841 WAC, Airborne contaminants may apply.

ENTRY EMPLOYER: any employer who decides that an employee it directs will enter a permit space.

Note: An employer cannot avoid the duties of the standard merely by refusing to decide whether its employees will enter a permit space, and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

ENTRY PERMIT (PERMIT): the written or printed document that is provided by the employer who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in WAC 296-809-500, Permit entry procedures.

ENTRY RESCUE: occurs when a rescue service enters a permit space to rescue one or more employees.

ENTRY SUPERVISOR: the qualified and trained person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard.

Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this standard for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

HAZARD: a physical hazard or hazardous atmosphere. See definitions below.

HAZARD ELIMINATION: The temporary or permanent action taken to remove a hazard from the work environment. For confined spaces, this definition includes isolation. It does not include the use of forced air ventilation. For a hazard to be considered eliminated, the conditions that create or cause the hazard must no longer exist within the confined space.

HAZARDOUS ATMOSPHERE: an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

a. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

b. Airborne combustible dust at a concentration that meets or exceeds its LFL;

   Note: This concentration may be approximated as a condition in which the combustible dust obscures vision at a distance of 5 feet (1.52 meters) or less.

c. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

d. Atmospheric concentration of any substance which may exceed a permissible exposure limit (PEL);

   Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

e. Any other atmospheric condition that is immediately dangerous to life or health.

   Note: For air contaminants for which WISHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with WAC 296-901-14014, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

HOST EMPLOYER: the employer that owns or manages the property where the construction work is taking place.

Note: If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, and has in writing transferred to that entity the information specified in WAC 296-809-20006. DOSH will treat the contracted management entity as the host employer for as long as that entity manages the property. Otherwise, DOSH will treat the owner of the property as the host employer.

HOT WORK: operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).

HOT WORK PERMIT: a written authorization to perform hot work operations, for example, riveting, welding, cutting, burning, and heating, that can provide a source of ignition.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.

Note: Some materials—hydrogen fluoride gas and cadmium vapor, for example—may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" after recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

INERTING: displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

ISOLATE OR ISOLATION: the process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; machine guarding; lockout or tagout of all sources of energy; blocking or disconnecting all mechanical linkages; or placement of barriers to eliminate the potential for employee contact with a physical hazard.

LIMITED OR RESTRICTED MEANS FOR ENTRY OR EXIT: a condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

LINE BREAKING: the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

LOCKOUT: the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

LOCKOUT DEVICE: A device that uses a positive means, such as a key or combination lock, to hold an energy-isolating device in the "safe" or "off" position. This includes blank flanges and bolted slip blinds.

LOWER FLAMMABLE LIMIT OR LOWER EXPLOSIVE LIMIT: the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

MOBILE WORKER: An employee who performs work in multiple locations such as: customer sites, company offices, private homes, vendor offices, or construction sites.

MONITOR *or* **MONITORING:** the process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

NON-ENTRY RESCUE: occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.

NON-PERMIT CONFINED SPACE: Requirements can be found in WAC 296-809-600.

OXYGEN DEFICIENT ATMOSPHERE: an atmosphere containing less than 19.5 percent oxygen by volume.

OXYGEN ENRICHED ATMOSPHERE: an atmosphere containing more than 23.5 percent oxygen by volume.

PERMIT-REQUIRED CONFINED SPACE (PERMIT SPACE): a confined space that has one or more of the following characteristics: (1) Contains or has a potential to contain a hazardous atmosphere; (2) Contains a material that has the potential for engulfing an entrant; (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; (4) Contains any physical hazard. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts; or (5) Contains any other recognized serious safety or health hazard that could impair the ability to self-rescue or results in an IDLH condition.

PERMIT-REQUIRED CONFINED SPACE PROGRAM (PERMIT SPACE PROGRAM): the employer's overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

PHYSICAL HAZARD: an existing or potential hazard that can cause death or serious physical damage. Examples include, but are not limited to: explosives (as defined by WAC 296-52-60130); mechanical, electrical, hydraulic and pneumatic energy; radiation; temperature extremes; engulfment; noise; and inwardly converging surfaces. Physical hazard also includes chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation).

POTENTIAL HAZARDS: All reasonable anticipated conditions within a space and outside the space that can adversely affect the conditions with the space.

PROGRAM ADMINISTRATOR: The person who has overall responsibility for your program and has sufficient training or experience with permit-required confined space entry to oversee the program development, coordinate implementation, and conduct required evaluations of program effectiveness outlined in WAC 296-809-50006.

PROHIBITED CONDITION: any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee.

QUALIFIED PERSON: one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

REPRESENTATIVE PERMIT SPACE: a mock-up of a confined space that has entrance openings that are similar to, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

RESCUE: retrieving, and providing medical assistance to, one or more employees who are in a permit space.

RESCUE SERVICE: the personnel designated to rescue employees from permit spaces.

RETRIEVAL SYSTEM: the equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non- entry rescue of persons from permit spaces.

SERIOUS PHYSICAL DAMAGE: an impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

TAGOUT: (1) Placement of a tagout device on a circuit or equipment that has been deenergized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and (2) The employer ensures that (i) tagout provides equivalent protection to lockout, or (ii) that lockout is infeasible and the employer has relieved, disconnected, restrained and otherwise rendered safe stored (residual) energy.

TEST *or* **TESTING:** the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Note: Testing enables us both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

VENTILATE *or* **VENTILATION:** controlling a hazardous atmosphere using continuous forced-air mechanical systems. Ventilation is a method of hazard control, not hazard elimination.

General Requirements

Before beginning work at a worksite, we must ensure that a competent person both identifies all confined spaces in which one or more of the employees that we direct may work **and** identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

If the workplace contains one or more permit spaces (or if we receive notice of a permit space from another contractor) we must:

a. Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space; and

   Note: A sign reading "DANGER – PERMIT- REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language would satisfy the requirement above for a sign.

b. Inform, in a timely manner and in a manner other than posting, employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

If we identify, or receive notice of, a permit space and do not authorize employees of Highline College Facilities Department to work in that space, we must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of Chapter 296-809 WAC, Safety Standard for Confined Spaces.

If we arrange to have another employer (contractor) perform work involving entry into our permit-required confined space, we must do all of the following:

a. Inform the contractor: that the workplace contains permit-required confined spaces; that entry is allowed only if the applicable requirements are met; about the identified hazards and our experience with each permit-required confined space; about any precautions or procedures we require for the protection of employees in or near spaces where the contractor will be working.

b. Coordinate entry operations with the contractor, when either employees or employers from different companies will be working in or near permit-required confined spaces.

c. Discuss entry operations with the contractor when they are complete. Our discussion will include the program followed during confined space entry and any hazards confronted or created.

If we decide that employees of Highline College Facilities Department will enter a permit space, we must have a written permit space program that complies with WAC 296-809-30002 implemented at the construction site. Our written permit space program must be made available prior to and during entry operations for inspection by our employees and their authorized representatives.

If our employees will enter another employer's confined space we must do the following:

a. Obtain any available information about permit-required confined space hazards and entry operations from the host employer.

b. Coordinate entry operations with any other employers whose employees will be working in or near the permit-required confined space.

c. Inform the host employer, either through a debriefing or during entry operations about the entry program we will follow and any hazards confronted or created.

We may use the **alternate procedures** for entering a permit space only under the conditions below:

a. We can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;

b. We can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely;

c. We develop monitoring and inspection data that supports the demonstrations required by preceding two paragraphs (a & b);

d. We have written documentation for the entrants before each entry that includes the following information: the location of the space; date of entry; duration of entry; the hazards of the space and the work; the specific measures used to eliminate the hazards; the ventilation system used to control atmospheric hazards, when applicable, direct reading instruments used to test the atmosphere, and results of the atmospheric testing that demonstrate the absence of a hazardous atmosphere; all conditions that required evacuation of the space; and the name, title, and signature of the entry supervisor ensuring safe entry procedures.

e. If an initial entry of the permit space is necessary to obtain the data required, the entry will be performed in compliance with WAC 296-809-500 Permit entry procedures.

f. The above determinations and supporting data required by the above paragraphs are documented and are made available to each employee who enters the permit space under the terms of the alternate procedures or to that employee's authorized representative; and

g. Entry into the permit space using the alternate procedures must be performed following the requirements of WAC 296-809-60004.

Classification/Reclassification of a Space

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, as an entry employer, we must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

A space that we have classified as a permit-required confined space may only be **reclassified as a non-permit confined space** when a competent person determines that all of the below applicable requirements have been met:

a. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless we can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;

b. As the entry employer, we eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, the entry will be performed in compliance with WAC 296-809-500 Permit entry procedures.

   If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated;

   Note: Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. These alternate procedures cover permit space entry where it can be demonstrated that forced air ventilation alone will control all hazards in the space.

c. As the entry employer, we must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized representative; and

d. If hazards arise within a permit space that has been reclassified as a non-permit, each employee in the space must exit the space. As the entry employer, we must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of Confined Spaces in Construction standard.

Permit-Required Confined Space Program

As an entry employer, we must:

a. Implement the measures necessary to prevent unauthorized entry;

b. Identify and evaluate the hazards of permit spaces before employees enter them;

c. Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:

   1. Specifying acceptable entry conditions;
   2. Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces;
   3. Isolating the permit space and physical hazard(s) within the space;

4. Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;

   Note: When we are unable to reduce the atmosphere below 10 percent LFL, we may only enter if we <u>inert</u> the space so as to render the entire atmosphere in the space <u>non-combustible</u>, and we use PPE to address any other atmospheric hazards (such as oxygen deficiency), and we eliminate or isolate all physical hazards in the space.

5. Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space;
6. Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;
7. Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless we can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee; and
8. Eliminating any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover.

d. Provide the following equipment at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:
   1. Testing and monitoring equipment needed to comply with paragraph (e) of this section;
   2. Ventilating equipment needed to obtain acceptable entry conditions;
   3. Communications equipment including any necessary electronic communication equipment for attendants assessing entrants' status in multiple spaces;
   4. Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees;
   5. Lighting equipment meeting minimum illumination requirements that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency;

6. Barriers and shields for isolation of the space;
7. Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
8. Rescue and emergency equipment needed to comply with requirements of this standard, except to the extent that the equipment is provided by rescue services; and
9. Any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces.

e. When entry operations are conducted, we must evaluate the permit space conditions both before and during operation as follows:
   1. Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry is authorized to begin, except that, if we demonstrate that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), we must:
      i. Perform pre-entry testing to the extent feasible before entry is authorized; and,
      ii. If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that we may use periodic monitoring for monitoring an atmospheric hazard if we can demonstrate that equipment for continuously monitoring that hazard is not commercially available;
      iii. Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.
   2. Continuously monitor atmospheric hazards unless we can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations;
   3. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

4. Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;
5. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that we conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and
6. Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted in accordance with this section.

f. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations:
    1. Attendants may be assigned to more than one permit space provided all the duties of the attendant, see Duties of Attendants, below, can be effectively performed for each permit space.
    2. Attendants may be stationed at any location outside the permit space as long as the duties can be effectively performed for each permit space to which the attendant is assigned.
g. Designate each person who is to have an active role (such as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the required training. See Training, below.
h. Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue;
i. Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions;

j. Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor, when employees of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one employer do not endanger the employees of any other employer;

k. Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

l. Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

Note: Examples of circumstances requiring the review of the permit space program include, but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

m. Review the permit space program using the canceled permits we retain for at least 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

Note: We may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Permitting Process

Before entry is authorized, as an entry employer, we must prepare an entry permit.

Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry supervisor must terminate entry and take the following action when any of the following apply:

a. Cancel the entry permit when the entry operations covered by the entry permit have been completed and secure an entrance cover; or

b. Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and

c. Cancel the entry permit when a condition that is not allowed or covered under the entry permit arises in or near the permit space.

The entry employer must retain each canceled entry permit for at least one (1) year to facilitate the required (within 1 year **after** each entry) review of the permit-required confined space program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made. Entry permits and other atmospheric monitoring records that show the actual atmosphere an employee entered or worked in must be maintained as employee exposure records.

Entry permit:

The entry permit that documents our compliance requirements and authorizes entry to a permit space must identify:

a. The permit space to be entered;

b. The purpose of the entry;

c. The date and the authorized duration of the entry permit;

d. The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

Note: This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

e. Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working;

f. Each person, by name, currently serving as an attendant;

g. The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry;

h. The hazards of the permit space to be entered;

i. The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

Note: Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

j. The acceptable entry conditions;

k. The results of tests and monitoring performed under the provisions of our permit-required confined space program, above, accompanied by the names or initials of the testers and by an indication of when the tests were performed;

l. The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;

m. The communication procedures used by authorized entrants and attendants to maintain contact during the entry;

n. Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard;

o. Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety; and

p. Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

Training

We will provide training to each employee involved in permit-required confined space activities, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

Training required must be provided to each affected employee:

a. In both a language and vocabulary that the employee can understand;

b. Before the employee is first assigned duties under this standard;

c. Before there is a change in assigned duties;

d. Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and

e. Whenever there is any evidence of a deviation from the permit space entry procedures required permit-required confined space program or there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in the duties required by this standard and must introduce new or revised procedures, as necessary, for compliance with this standard.

Training topics include, but are not limited to: roles and responsibilities; hazards of the permit space; procedures from the program created to protect employees, such as methods used to isolate and control hazards, equipment use, equipment maintenance and evacuation; for individuals not authorized to perform rescue, the dangers of attempting an unauthorized rescue. We will determine proficiency by observing employee performance using safe work procedures and equipment to perform specific job tasks during training exercises that simulate actual confined space conditions; a comprehensive written exam; or any other method we determine to be effective.

We will maintain training records to show that the training required above has been accomplished. The training records must contain each employee's name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

Duties of Authorized Entrants

As the entry employer, we must ensure that all authorized entrants:

a. Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

b. Properly use equipment as required by permit-required confined space program;

c. Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required duties of attendants;

d. Alert the attendant whenever:

1. There is any warning sign or symptom of exposure to a dangerous situation; or
2. The entrant detects a prohibited condition; and

e. Exit from the permit space as quickly as possible whenever:

   1. An order to evacuate is given by the attendant or the entry supervisor;
   2. There is any warning sign or symptom of exposure to a dangerous situation;
   3. The entrant detects a prohibited condition; or
   4. An evacuation alarm is activated.

Duties of Attendants

As the entry employer, we must ensure that each attendant:

a. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

b. Is aware of possible behavioral effects of hazard exposure in authorized entrants;

c. Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under entry permit accurately identifies who is in the permit space;

d. Remains outside the permit space during entry operations until relieved by another attendant;

Note: Once an attendant has been relieved by another attendant, the relieved attendant may enter a permit space to attempt a rescue when our permit space program allows attendant entry for rescue and the attendant has been trained and equipped for rescue operations as required by our rescue and emergency services procedures.

e. Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space as quickly as possible;

f. Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

   1. If there is a prohibited condition;

2. If the behavioral effects of hazard exposure are apparent in an authorized entrant;
3. If there is a situation outside the space that could endanger the authorized entrants; or
4. If the attendant cannot effectively and safely perform all the duties required under this section;

g. Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;

h. Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

1. Warns the unauthorized persons that they must stay away from the permit space;
2. Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and
3. Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;

i. Performs non-entry rescues as specified by our rescue procedure;

j. Has the means to respond to an emergency affecting one or more of the permit spaces being monitored without preventing performance of the attendant's duties to the other spaces being monitored; and

k. Performs no duties that might interfere with the attendant's primary duty to assess and protect the authorized entrants.

Duties of Entry Supervisors

As the entry employer, we must ensure that each entry supervisor:

a. Authorizes the entry into a permit-required confined space by signing the entry permit;

b. Oversees entry operations;

c. Is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

d. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;

e. Terminates the entry and cancels or suspends the permit as required by our permitting process;

f. Verifies that rescue services are available and that the means for summoning them are operable, and that we will be notified as soon as the services become unavailable;

g. Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

h. Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

Rescue and Emergency Services

When designating our rescue and emergency services per our permit-required confined space program, we must:

a. Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

Note: What will be considered timely will vary according to the specific hazards involved in each entry.

b. Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;

c. Select a rescue team or service from those evaluated that:

1. Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
2. Is equipped for, and proficient in, performing the needed rescue services;
3. Agrees to notify us immediately in the event that the rescue service becomes unavailable;
4. Make sure that at least one member of the rescue team or service holds a current certification in first aid and CPR;
5. Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
6. Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

If the employees of Highline College Facilities Department have been designated to provide permit space rescue and/or emergency services, we must take the following measures and provide all equipment and training at no cost to those employees:

a. Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE;

b. Train each affected employee to perform assigned rescue duties. We must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants;

c. Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). We must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available; and

d. Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space. Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

e. Establish procedures for contacting rescue and emergency services; rescuing entrants from permit-required confined spaces; providing necessary emergency services to rescued entrants; and preventing unauthorized persons from attempting a rescue.

Note: Planning to rely on a rescue service and posting 911 as a contact number without first contacting the rescue service, as well as completing an evaluation in advance to ensure they meet the criteria of this standard, is NOT considered adequate for rescue and emergency services.

Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. We must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the entry employer must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails.

Retrieval systems must meet the following requirements:

a. Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which we can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if we can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.
b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52 meters) deep.
c. Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.

If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

Employee Participation

We will consult with affected employees and their authorized representatives on the development and implementation of all aspects of our permit space program.

We will make available to each affected employee and his/her authorized representatives all information required to be developed by the Confined Spaces in Construction standard.

Provision of Documents to Secretary

For each document required to be retained in the Confined Spaces in Construction standard, as the retaining employer, we must make the document available on request to the Secretary of Labor or the Secretary's designee.

Highline College Facilities Department

Emergency Phone Numbers

(To be accessible to attendant)

Main Office: 206-592-3260

Police: 911 [_____]
(If no 911 Service Available)

Fire: 911 [_____]
(If no 911 Service Available)

Ambulance: 911 [_____]
(If no 911 Service Available)

Hospital Name:

EMERGENCY RESCUE SERVICE NAME: _____
PHONE: _____

Jason Huff
Safety Director
Work: 206-592-3260
Cell: _____

Other:

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

_____ Work: _____
(Name/Title) Cell: _____

When calling for EMERGENCY RESPONSE, this location is:

Highline College Facilities Department

Confined Space/Permit Space Evaluation Survey

Name/Description of this space: _____

Location of this space: _____

Person performing this survey: _____

Date of this survey: _____

Section 1 – Use this section to determine if the space is a <u>Confined</u> space.

Yes ☐ No ☐ Is the space large enough and so configured that an employee can enter and perform assigned work?

Yes ☐ No ☐ Does the space have restricted means for entry or exit? Doorways and other portals through which a person can walk are normally not considered restricted means for entry or exit.

Yes ☐ No ☐ Is the space **<u>not</u>** designed for continuous occupancy?

If all three answers above are yes, this is a confined space. Proceed to Section 2.

Section 2 – Use this section to determine if the space is a <u>Permit</u> space.

Yes ☐ No ☐ Does the space contain or have a potential to contain a hazardous atmosphere? Examples: combustible dust, flammable mixtures, or oxygen deficiency that may expose employees to risk of death, incapacitation, or acute illness.

Yes ☐ No ☐ Does the space contain a material that has the potential for engulfing an entrant? Examples: liquids or granular solids.

Yes ☐ No ☐ Does the space have an internal configuration such as inwardly converging walls or a sloping floor that could trap or asphyxiate an entrant?

If any answer is yes, this is a permit space. An entry permit is required for entry.

Highline College Facilities Department

Permit-Space Information & Attendant Designation

CONFINED SPACE DATE: _____

SPACE IDENTIFICATION: _____
SPACE LOCATION: _____
CLIENT: _____

1. Reasons the above confined space is designated a Permit-Required Confined Space:

_____
_____
_____

2. Special precautions taken to protect personnel in or around the above space:

_____
_____
_____

3. Specific hazards and experience with the above confined space:

_____
_____
_____

CLIENT UNDERSTANDING

I, _____, have been provided the above
(Client Representative)
information and understand that permit space entry is allowed only through compliance with a Permit Space Program meeting the requirements of WAC 296-809-300.

In the event that employees from Highline College Facilities Department and your company's employees are working near or in the same Permit-Required Confined Space, the below listed person is designated as the one and only Senior Attendant. The person, listed below, will have authority over other Attendants.

_____
(Designated Senior Attendant)

_____ _____
(Client Representative Signature/Title) (Date)

_____ _____
Jason Huff (Date)
Safety Director

[A copy of this form will be kept at the job site during all operations.]

Highline College Facilities Department

Entry Roster

CONFINED SPACE DATE: _____

SPACE IDENTIFICATION _____
SPACE LOCATION: _____

AUTHORIZED ENTRANT	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT	TIME IN	TIME OUT

Highline College Facilities Department

Entry Permit

Permit-Required Confined Space

Note: This Entry Permit must be used with the attached Pre-Entry Checklist. Additional pages may be added as necessary.

PERMIT VALID FOR _____ HOURS

CONFINED SPACE-HAZARDOUS AREA:

CONFINED SPACE IDENTIFICATION: _____ START DATE: _____

SPACE LOCATION: _____ TIME: _____

PURPOSE OF ENTRY: _____

SUPERVISOR(S) in charge of crew:

_____

_____

AUTHORIZED ATTENDANTS:

_____

_____

_____

_____

ATMOSPHERE (GAS) TESTER'S SIGNATURE & INITIALS: _____ _____

ATMOSPHERE TESTING EQUIPMENT USED:

_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)
_____ (Type)	_____ (Model and/or Serial Number)	_____ (Calibration date)

_____ **(Signature of Entry Supervisor/Date)**

_____ **(Jason Huff/Date)**

REVIEWED BY: (Confined Space Operations Personnel)

Note: The below listed persons, or their representative, have had the opportunity to observe the pre-entry atmospheric testing as well as any periodic testing that may be deemed necessary for employee safety.

_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)
_____ (Print Name)	_____ (Signature)	_____ (Print Name)	_____ (Signature)

Pre-Entry Checklist

This checklist is an integral part of our Permit System and MUST be maintained with the Entry Permit.

All items on the Pre-Entry Checklist must be completed before entry, for items that do not apply enter N/A.

Initial Atmospheric Check (before ventilation)

		Acceptable Parameters	Tester's Initials
Date:_____ Time: _____			
Oxygen: _____% _____%		**>19.5% <23.5%**	**_____**
Flammable Gases & Vapors Present:			
Name			
1. _____	**_____% LEL**	**<10.0%**	**_____**
2. _____	**_____% LEL**	**<10.0%**	**_____**
3. _____	**_____% LEL**	**<10.0%**	**_____**
Potential Toxic Air Contaminants:			
Name			
1. _____	**_____ PPM**	**<_____ PPM**	**_____**
2. _____	**_____ PPM**	**<_____ PPM**	**_____**
3. _____	**_____ PPM**	**<_____ PPM**	**_____**

Note: mg/m^3_may be substituted for PPM. For further reference see 1926.57(f)-(i)

Method of Isolation (atmospheric conditions): _____

_____

Means of Ventilation (to control atmospheric conditions): _____

_____

Atmospheric Check (after ventilation & isolation and immediately prior to initial entry)

	Acceptable Parameters	Tester's Initials	
Time: _____			
Oxygen: _____% _____%		**>19.5% <23.5%**	**_____**
Flammable Gases & Vapors Present:			
Name			
1. _____	**_____% LEL**	**<10.0%**	**_____**
2. _____	**_____% LEL**	**<10.0%**	**_____**
3. _____	**_____% LEL**	**<10.0%**	**_____**
Potential Toxic Air Contaminants:			
Name			
1. _____	**_____ PPM**	**<_____ PPM**	**_____**
2. _____	**_____ PPM**	**<_____ PPM**	**_____**
3. _____	**_____ PPM**	**<_____ PPM**	**_____**

Note: mg/m^3_may be substituted for PPM. For further reference see 1926.57(f)-(i)

OTHER HAZARDS:

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

___

___

___

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

___

___

___

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

___

___

___

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

___

___

___

(Type, i.e., configuration, engulfment, unacceptable atmosphere, any recognized serious safety or health hazard)

(Engineering controls to control or eliminate the hazard to the extent feasible.)

___

___

___

___

HAZARDS NOT COMPLETELY ELIMINATED BY ENGINEERING CONTROLS AND SAFETY GEAR REQUIRED (i.e., respirators (specific type), special boots, gloves, suits, eye protection, etc.):

(HAZARD) (SAFETY GEAR)

(HAZARD) (SAFETY GEAR)

(HAZARD) (SAFETY GEAR)

COMMUNICATIONS PROCEDURES:

___

___

___

___

___

___

Note: Acceptable, non-electrical, suggestions include, but are not limited to, predetermined rapping sounds, tugs on a rope or line, air horn signals, voice communications

BELOW LISTED ITEMS MUST BE COMPLETED AND REVIEWED PRIOR TO ENTRY:

NOTE: For items that do not apply, enter N/A.

REQUIREMENT	COMPLETED	DATE	TIME	REQUIREMENT	COMPLETED	DATE	TIME
Lock Out/De-energize/Try Out		_____	_____	Full Body Harness w/"D" ring		____	____
Lines Broken/Capped/blanked		_____	_____	Emergency Escape Retrieval Equipment		____	____
Purge-Flush & Vent		_____	_____				
Ventilation		_____	_____	Lifelines		____	____
Secure Area (Post & Flag)		_____	_____	Fire Extinguishers		____	____
Breathing Apparatus		_____	_____	Lighting (Explosion Proof)		____	____
Resuscitator-Inhalator		_____	_____	Protective Clothing		____	____
Standby Safety Personnel		_____	_____	Respirator(s) (Air Purifying)		____	____
Hoisting Equipment		_____	_____	Direct reading gas monitor tested		____	____
All electric equipment listed Class I, Division I, Group D		_____	_____	Non-Sparking Tools		____	____
SCBA's for entry & standby		_____	_____	Powered Communications		____	____
Other: _____		_____	_____	Burning & Welding Permit		____	____
Other: _____		_____	_____	Other: _____		____	____

EMERGENCY AND RESCUE PROCEDURES

	YES	NO	N/A
Rescue Procedures will be implemented by Company Employees.	☐	☐	☐
Company Rescue Personnel have had training in:			
a. Use of Personal Protective Equipment.	☐	☐	☐
b. Use of Rescue Equipment.	☐	☐	☐
c. Practiced simulated permit space rescue within the past 12 months for a space representative of the space for which this permit is issued.	☐	☐	☐

Each member of the Rescue Team has had training in basic First Aid and cardiopulmonary resuscitation (CPR) and at least one (1) member is currently certified.

NAME OF CERTIFIED PERSON (CPR): _____

NAME OF CERTIFIED PERSON (1st AID): _____

Appropriate Safety Data Sheets are at the job site.	☐	☐	☐
The retrieval line is affixed to the entrants and a fixed point outside the space or a mechanical device should the space be a vertical type more than five (5) feet deep.	☐	☐	☐
All entrants will wear a chest or full body harness with a retrieval line attached at the center of the entrant's back neat shoulder level, or above the entrant's head.	☐	☐	☐
Entrants will wear wristlets, in lieu of the above, should they create a lesser danger to the entrants.	☐	☐	☐

	YES	NO	N/A
Rescue procedures will be implemented by a rescue service consisting of persons who are not employees.	☐	☐	☐
This rescue service has been provided with:			
a. information on all hazards or potential hazards they may confront.	☐	☐	☐
b. access to all permit spaces from which rescue may be necessary to enable the rescue service to develop appropriate rescue plans and practice rescue procedures.	☐	☐	☐

SPECIFIC RESCUE PLAN FOR AN EMERGENCY IN THIS CONFINED SPACE:

Record of Continuous Monitoring

[The results of continuous monitoring, if applicable, are to be recorded below every two (2) hours.]

TESTS TO BE TAKEN	Permissible Entry Level	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TIME/ RESULTS	TESTER'S INITIALS	DATE
PERCENT OF OXYGEN	19.5 to 23.5%	____/____	____/____	____/____	____/____	________	________
LOWER EXPLOSIVE LIMIT	Under 10%	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________
________________	*_____ **_____	____/____	____/____	____/____	____/____	________	________

***8 Hour Time Weighted Average: Employee can work in area 8 hours (longer with appropriate protection).**

****Short term exposure limit: Employee can work in area up to 15 minutes.**

This six (6) page Entry Permit and Pre-Entry Checklist as been prepared by the Entry Supervisor and reviewed by all personnel involved in this Permit-Required Confined Space Entry Operation.

ENTRY SUPERVISOR: ______________________ ______________________ __________

(Name) (Signature) (Date)

6 of 6

Part L Cranes, Rigging, and Personnel Lifting

Note: All persons involved with cranes, rigging, and personnel lifting operations have received certified training. For ease of use, the below Part L accessible index is provided below.

296-155-561	Rigging hardware.
296-155-56100	General requirements.
296-155-56105	Shackles.
296-155-56110	Adjustable hardware.
296-155-56115	Compression hardware.
296-155-56120	Links, rings, and swivels.
296-155-56125	Rigging blocks.
296-155-562	Lifting devices other than slings and rigging hardware.
296-155-56200	Structural and mechanical lifters.
296-155-56205	Vacuum lifters.
296-155-56210	Close proximity lifting magnets.
296-155-56215	Remotely operated lifting magnets.
296-155-56220	Scrap and material handling grapples.
296-155-564	Appendices.
296-155-56400	Mobile crane hand signal chart.
296-155-56405	Examples of types of cranes.
296-155-56410	Personnel platform lift planning and authorization form.
296-155-56415	Qualifications for operators of below-the-hook lifting devices.
296-155-56420	Operator certification—Written examination—Technical knowledge criteria.
296-155-56425	Sample declaration form for hours of experience.
296-155-56430	Assembly/disassembly—Working under the boom, jib or other components—Sample procedures for minimizing the risk of unintended dangerous boom movement.
296-155-56435	Work area chart.

Certification and Proof Load Testing

All cranes and derricks will be certified and proof load tested annually by an accredited crane certifier recognized by the department.

Exception: The equipment listed below are exempted from WAC 296-155-531 and 296-155-532 (Crane certifier accreditation and crane certification) through 296-155-53300 (Operator qualifications and certification):

(a) Cranes having a maximum rated capacity of one ton or less. See WAC 296-15553414 for additional requirements.

(b) Powered industrial trucks (forklifts) when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load are exempted from WAC 296-155-532 (crane certification). Operators must also follow the requirements in chapter 296-863 WAC, Forklifts and other powered industrial trucks.

(c) Service cranes with booms that rotate manually.

Inspection criteria and proof load testing requirements for specific types of cranes can be found at the following links:

- WAC 296-155-53200 General requirements for all cranes.
- WAC 296-155-53202 for mobile cranes.
- WAC 296-155-53204 for articulating boom cranes.
- WAC 296-155-53206 for tower cranes.
- WAC 296-155-53208 for self-erecting tower cranes.
- WAC 296-155-53210 for overhead and bridge cranes.
- WAC 296-155-53212 for derricks

Cranes that have had modifications, additions, or significant repairs will be inspected by an accredited crane certifier after such modifications/additions/repairs have been completed, prior to initial use.

Crane Decertification and Reinstatement

If any of the following occur, the certification will become invalid, and the crane must be re-inspected by an accredited crane certifier:

a. Contact with an energized power line;
b. Any overload, other than proof load testing, or one that has been approved in writing in advance by the crane manufacturer or a registered professional engineer (RPE);
c. Any significant modifications or significant repairs of a load sustaining/bearing part that affects the safe operation of the crane/derrick.
d. Any deficiency that affects the safe operation of the crane or derrick that has been identified by a qualified person or through an inspection by the department of labor and industries.

Note: Replacement of hoisting rope does not constitute decertification.

We will ensure that the owner or lessee notifies the crane certification section by phone, 360-902-4943, or fax 360-902-5438, or email at lnicranes@lni.wa.gov within 24 hours if any of the above occurs.

The certification may be reinstated only after affected components have been re-inspected by an accredited crane certifier. If the accredited crane certifier identifies any deficiencies during the reinspection, the deficiencies must be corrected before the certification can be reinstated.

If the accredited crane certifier believes proof load testing should be conducted prior to reinstatement of the certification, proof load testing must be conducted. In the case of major modifications or repairs to important load sustaining/bearing parts, proof load testing must be performed prior to reinstatement. The accredited crane certifier must notify the department that the certification has been reinstated.

Assembly/Disassembly

When assembling and disassembling crane/derrick (or attachments), the Assembly/Disassembly director will comply with all applicable manufacturer prohibitions and elect to comply with manufacturer procedures applicable to assembly and disassembly.

Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person(“Assembly/Disassembly director”), or by a competent person who is assisted by one or more qualified persons.

Where the assembly/disassembly is being performed by only one person, that person must meet the criteria for both a competent person and a qualified person. This person will be considered the Assembly/Disassembly director.

The Assembly/Disassembly director must understand the applicable assembly/disassembly procedures.

The Assembly/Disassembly director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/disassembly unless the assembly/disassembly director has applied them to the same type and configuration of crane/derrick, including any possible accessories.

Prior to assembling crane/derrick components or attachments, the Assembly/Disassembly director must inspect these components and attachments to ensure that they meet the manufacturer's recommendations. This inspection must include a visual inspection to ensure that the components and attachments are of sound physical condition and functional within the manufacturer's recommendations. Documentation of this inspection must remain at the job site while the crane/derrick is in use.

Before commencing assembly/disassembly operations, the Assembly/Disassembly director must ensure that the crew members understand the following:

a. Their tasks;

b. The hazards associated with their tasks;

c. The hazardous positions/locations that they need to avoid.

Note: If a crew member takes on a different task during assembly/disassembly operations, or if new personnel is added during the assembly/disassembly operations, the Assembly/Disassembly director must complete the above three steps.

Before a crew member goes to a location that is out of view of the operator and is either in, on, under, or near the crane/derrick (or load) where the crew member could be injured by movement of the crane/derrick (or load), the crew member must inform the operator that they are going to that location.

Where the operator knows that a crew member went to a location noted above, the operator must not move any part of the crane/derrick (or load) until the operator is informed in accordance with a prearranged system of communication that the crew member is in a safe position.

When pins (or similar devices) are being removed, employees must not be under the boom, jib, or other components, except where the Assembly/Disassembly director demonstrates that site constraints require one or more employees to be under the boom, jib, or other components when pins (or similar devices) are being removed. The assembly/disassembly director must implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom. (See WAC 296-155-56430, Assembly/disassembly—Working under the boom, jib or other components—Sample procedures for minimizing the risk of unintended dangerous boom movement.)

During all phases of assembly/disassembly, rated capacity limits for loads imposed on the crane/derrick, components (including rigging), lifting lugs and crane/derrick accessories must not be exceeded.

The Assembly/Disassembly director supervising the assembly/disassembly operation must address the hazards associated with the operation, which include:

a. Site and ground conditions must be adequate for safe assembly/disassembly operations and to support the crane/derrick during assembly/disassembly (see WAC 296-155-53400 (34) through (38) for ground condition requirements).

b. The size, amount, condition and method of stacking blocking must be sufficient to sustain the loads and maintain stability.

c. When used to support lattice booms or components, blocking must be appropriately placed to:

    1. Protect the structural integrity of the crane/derrick; and

    2. Prevent dangerous movement and collapse.

d. When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be verified in accordance with WAC 296-155-53400(61) before assembly/disassembly begins.

e. The point(s) of attachment of rigging to a boom (or boom sections or jib or jib sections) must be suitable for preventing structural damage and facilitating safe handling of these components.

f. The center of gravity of the load must be identified if it is necessary for the method used for maintaining stability.

Note: Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used. (See WAC 296-155-56430, Assembly/disassembly—Working under the boom, jib or other components—Sample procedures for minimizing the risk of unintended dangerous boom movement.)

g. The boom sections, boom suspension systems (such as gantry A-frames and jib struts), and components must be rigged or supported to maintain stability upon the removal of the pins.

h. Suspension ropes and pendants must not be allowed to catch on the boom or jib connection pins or cotter pins (including keepers and locking pins).

i. The potential for unexpected movement from inadequately supported counterweights and from hoisting counterweights.

j. Each time reliance is to be placed on the boom hoist brake to prevent boom movement during assembly/disassembly, the brake must be tested prior to such reliance to determine if it is sufficient to prevent boom movement. If it is not sufficient, a boom hoist pawl, other locking device/back-up braking device, or another method of preventing dangerous movement of the boom (such as blocking or using an assist crane) from a boom hoist brake failure must be used.

k. Backward stability before swinging the upperworks, travel, and when attaching or removing crane/derrick components.

l. The effect of wind speed and weather on the crane/derrick.

Additionally, the following must be addressed, if applicable:

a. Manufacturer limitations on the maximum amount of boom supported only by cantilevering must not be exceeded. Where these are unavailable, a registered professional engineer familiar with the type of crane/derrick involved must determine this limitation in writing, which must not be exceeded.

b. The weight of each of the components must be readily available.

c. The selection of components and configuration of the crane/derrick that affect the capacity or safe operation of this equipment must be in accordance with:

    1. Manufacturer's instructions, prohibitions, limitations, and specifications. Where these are unavailable, a registered professional engineer familiar with the type of crane/derrick involved must approve, in writing, the selection and configuration of components; or

    2. Approved modifications that meet the requirements of WAC 296-155-53400 (58) and (59) (crane/derrick modifications).

d. Upon completion of assembly, the crane must be inspected to ensure compliance with the above.

Post-assembly

Upon completion of assembly, the crane/derrick must be inspected by a qualified person to assure that it is configured in accordance with manufacturer's criteria. For tower cranes, this inspection must be done by an accredited crane certifier.

Where manufacturer's criteria are unavailable, a qualified person must determine if a registered professional engineer (RPE) familiar with the type of crane/derrick involved is needed to develop criteria for the configuration. If an RPE is not needed, we will ensure that the criteria are developed by the qualified person. If an RPE is needed, we will ensure that they are developed by an RPE.

The crane/derrick must not be used until an inspection demonstrates that it is configured in accordance with the applicable criteria. Documentation of this inspection must remain at the job site while the crane/derrick is in use.

Note: Reusable shipping pins, straps, links, and similar equipment must be removed. Once they are removed, they must either be stowed or otherwise stored so that they do not present a falling object hazard.

Rigging

In addition to following the requirements in WAC 296-155-556, 296-155-558, 296-155-560, and 296-155-562, and other requirements in this and other standards applicable to rigging, when rigging is used for assembly/disassembly, we will ensure that:

a. The rigging work is done by a qualified rigger. See WAC 296-155-53306.

b. Synthetic slings are protected from abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression. See WAC 296-155-55815(6), 296-155-55820(6), and 296-155-55825(6).

Note: Requirements for the protection of wire rope slings are contained in WAC 296-155-55805.

c. When synthetic slings are used, the synthetic sling manufacturer's instructions, limitations, specifications, and recommendations must be followed.

A qualified rigger will also be used whenever employees are engaged in hooking, unhooking, or guiding a load, or in the initial connection of a load to a component or structure, and employees are within the fall zone.

Inspections

Any part of a manufacturer’s procedures regarding inspections that relate to safe operation (such as to a safety device or operational aid, critical part of a control system power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) that is more comprehensive or has a more frequent schedule of inspection than the requirements of WAC 296-155-53405 must be followed.

All inspection documents must be available during the applicable document retention period to all persons who conduct inspections.

Modified Equipment Inspection

Cranes that have had modifications, additions, or significant repairs as defined in WAC 296-155-53214 must be inspected by an accredited crane certifier after such modifications/additions/repairs have been completed, prior to initial use.

Repaired/adjusted Equipment Inspection

Cranes that have had a repair or adjustment not defined in WAC 296-155-53214, that relates to safe operation (such as a repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism), must be inspected by a **qualified person** after such a repair or adjustment has been completed, prior to initial use. The inspection must meet all of the requirements of WAC 296-155-53405(2)(b).

Each Shift Inspection

A **competent person** must begin a visual inspection prior to each shift the crane will be used, which must be completed before or during that shift. The inspection must consist of observation for apparent deficiencies. Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart crane components or booming down is needed. Determinations made in conducting the inspection must be reassessed in light of observations made during operation. Some of the items which must be inspected include control mechanisms, pressurized lines, hooks and latches, wire rope, electrical apparatus, tires (when used), and ground conditions.

The inspection must meet all the requirements of WAC 296-155-53405(3).

Monthly Inspection Records

We will keep monthly inspection records (see items listed in subsection (3) of WAC 296-155-53405). These inspection records will be kept for at least 3 months. This report will contain the following information:

a. The items checked and the results of the inspection;
b. The name and signature of the person who conducted the inspection and the date.

Severe Service Inspection

Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), we will stop using the crane and a **qualified person** will inspect the crane for structural damage to determine if the crane can continue to be used safely. This inspection will meet the requirements of WAC 296-155-53405(8).

Inspection of Cranes not in Regular Use

Cranes that have been idle for 3 months or more must be inspected by a qualified person in accordance with the requirements of subsection 3 of WAC 296-155-53405 before initial use.

Deficiencies

If any deficiency is found during an inspection, an immediate determination must be made by the competent/qualified person as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, the equipment must be taken out of service until it has been corrected, evaluated, and approved by a qualified person, except when temporary alternative measures are implemented as allowed in WAC 296-155-53412 and for tower cranes see WAC 296-155-54100(61).

If any deficiency in safety devices/operational aids is identified, the action specified in WAC 296-155-53410 and 296-155-53412 must be taken prior to using the equipment.

If a qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, we will ensure that the deficiency is checked in the monthly inspections.

Wire Rope Inspection

Wire Rope Shift Inspection

A competent person must begin a visual inspection prior to each shift the crane/derrick is used, which must be completed before or during that shift. The inspection must consist of observation of accessible wire ropes (running and standing) that are likely to be in use during the shift for apparent deficiencies, including those listed WAC 296-155-53404(2)(a). Untwisting (opening) of wire rope or booming down is not required as part of this inspection.

Wire Rope Monthly Inspection

Each month an inspection must be conducted in accordance with shift inspection, above, and WAC 296-155-53404(b).

This inspection will be documented, and inspection records will be kept during the applicable document retention period and made available upon request to all persons who conduct inspections.

Note: Electronic records are acceptable.

Wire Rope Annual/Comprehensive Inspection

Note: The annual/comprehensive inspection applies to cranes and derricks not covered by WAC 296-155-531 through 296-155-53214.

At least every 12 months, wire ropes in use on the crane/derrick must be inspected by a qualified person in accordance with shift inspection, above, and WAC 296-155-53404(c). This inspection will be documented, and inspection records will be kept during the applicable document retention period and made available upon request to all persons who conduct inspections.

Safety Devices and Operational Aids

Operations must not begin unless the safety devices listed below are in proper working order. If a device stops working properly during operations, the operator must safely stop operations. If any of the safety devices listed below are not in proper working order, the equipment must be taken out of service and operations must not resume until the device is again working properly. Alternative measures are not permitted to be used.

The following safety devices are required on all cranes/derricks covered by Chapter 296-155 WAC Part L, except tower cranes and self-erecting tower cranes, unless otherwise specified:

a. Crane level indicator

Note: This requirement does not apply to articulating cranes, portal cranes, derricks, floating cranes/derricks, and land cranes/derricks on barges, pontoons, vessels, or other means of flotation.

b. Boom stops, except for derricks and hydraulic booms.

c. Jib stops (if a jib is attached), except for derricks.

d. Cranes with foot pedal brakes must have locks, except for portal cranes and floating cranes.

e. Hydraulic outrigger jacks and hydraulic stabilizer jacks must have an integral holding device/check valve.

f. Cranes on rails must have rail clamps and rail stops, except for portal cranes.

g. Horn.

Additionally, the operational aids listed in WAC 296-155-53412 are required on all cranes/derricks covered by Chapter 296-155 WAC Part L, except tower cranes and self-erecting tower cranes, unless otherwise specified. Operations must not begin unless the listed operational aids are in proper working order. Where an operational aid is being repaired, we may use the specified temporary alternative measures listed in WAC 296-155-53412(3).

Note: For requirements relating to operational aids and safety devices for tower cranes, see WAC 296-155-53900 (60) and (61), for self-erecting tower cranes see WAC 296-155-54100 (42) and (43).

Signals

A qualified signal person that meets the requirements in WAC 296-155-53302 will be provided in each of the following situations:

a. When the point of operation, meaning the load travel or the area near or at load placement, is not in full view of the crane/derrick operator.

b. When the crane is traveling, the view in the direction of travel is obstructed.

c. When, due to site specific safety concerns, either the crane/derrick operator or the person handling the load determines that it is necessary.

Signals to crane/derrick operators will be by hand, voice, audible or other means at least equally effective.

Hand Signals

When using hand signals, the standard method as established in the applicable ASME B30 standards must be used. Hand signal charts must be either posted on the crane/derrick or conspicuously posted in the vicinity of the hoisting operations.

Note: See WAC 296-155-56400 for the hand signal chart.

Where use of the standard method for hand signals is infeasible, or where an operation or use of an attachment is not covered in the standard method, nonstandard hand signals may be used as follows:

When using nonstandard hand signals, the signal person, operator, and lift director must contact each other prior to the operation and agree on the nonstandard hand signals that will be used.

Voice Signals

Prior to beginning operations, the operator, signal person, and lift director, must contact each other and agree on the voice signals that will be used. Once the voice signals are agreed upon, these employees need not meet again to discuss voice signals unless another employee is added or substituted, there is confusion about the voice signals, or a voice signal is to be changed.

Each voice signal must contain the following 3 elements, given in the following order: Function (such as hoist, boom, etc.) and direction; distance and/or speed; function stop.

The operator, signal person and lift director, must be able to effectively communicate in the language used.

Radio, Telephone or Other Electronic Transmission of Signals

Device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.

Signal transmission must be through a dedicated channel except:

a. Multiple cranes/derricks and one or more signal persons may share a dedicated channel for the purpose of coordinating operations.
b. Where a crane is being operated on or adjacent to railroad tracks, and the actions of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks.

The operator's reception of signals must be made by a hands-free system.

Communication with Multiple Cranes/Derricks

Where a signal person(s) is in communication with more than one crane/derrick, a system for identifying the crane/derrick for which each signal is intended must be used, as follows:

a. For each signal, prior to giving the function/direction, the signal person must identify the crane/derrick for which the signal is intended; or
b. An equally effective method of identifying which crane/derrick the signal is intended for must be used.

Additional Considerations

a. The signals used (hand, voice, audible, or other effective means) and the means of transmitting the signals to the operator (such as direct line of sight, video, radio, etc.) must be appropriate for the site conditions.
b. Signals must be discernible or audible at all times. The crane operator must not respond unless signals are clearly understood.
c. During operations requiring signals, the ability to transmit signals between the operator and signal person must be maintained. If that ability is interrupted at any time, the operator must safely stop operations requiring signals until it is reestablished, and a proper signal is given and understood.
d. If the operator becomes aware of a safety problem and needs to communicate with the signal person, the operator must safely stop operations. Operations must not resume until the operator and signal person agree that the problem has been resolved.

e. Only one person must give signals to a crane/derrick at a time, except as stated in *Communication with Multiple Cranes/Derricks*, above.
f. Anyone who becomes aware of a safety problem must alert the operator or signal person by giving the stop or emergency stop signal. The operator must obey a stop (or emergency stop) signal, irrespective of who gives it.
g. All directions given to the operator by the signal person must be given from the operator's direction perspective.

Training

We will provide training at no cost. We will evaluate each employee required to be trained under Part L to confirm that the employee understands the information provided in the training. We will provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee's knowledge, there is an indication that retraining is necessary. Competent and qualified persons, dedicated spotters, signal persons, riggers, operators, trainee/apprentice operators will all receive training and be qualified and certified to perform their respective jobs as specified in WAC 296-155-533.

Fall Protection Training:

Each employee who may be exposed to fall hazards while on or hoisted by cranes/derricks covered by Part L will be trained on the following:

a. The requirements of WAC 296-155-53403.
b. The applicable requirements in Parts C-1 and K of Chapter 296-155 WAC. See *Fall Protection*.

Duties of Assigned Personnel

All assignments listed below must be assigned in at the worksite.

Note: A single individual may perform one or more of the below assignments concurrently.

Crane owner:	Has custodial control of a crane by virtue of lease or ownership.
Crane user:	Arranges the crane's presence on a worksite and controls its use there.
Site supervisor:	Exercises supervisory control over the worksite on which a crane is being used and over the work that is being performed on that site.

Lift director: Directly oversees the work being performed by a crane and the associated rigging crew.

Crane operator: Directly controls the crane's functions.

The crane owner’s and crane user's duties include the following:

Note: If the user leases or rents a crane from the owner without supervisory, operational, maintenance, support personnel, or services from the owner, then (c) and (d), below, apply.

a. Providing a crane that meets the requirements of Part L of this chapter as well as specific job requirements defined by the user.
b. Providing a crane and all necessary components, specified by the manufacturer, that meets the user's requested configuration and capacity.
c. Providing all applicable load/capacity chart(s) and diagrams.
d. Providing additional technical information pertaining to the crane, necessary for crane operation, when requested by the crane user.
e. Providing field assembly, disassembly, operation, maintenance information, and warning decals and placards installed as prescribed by the crane manufacturer.
f. Ensuring that inspection, testing, and maintenance is performed in accordance with Part L of this chapter and informing the crane user of these requirements.
g. Using personnel that meet the requirements for a competent and/or qualified person as defined in WAC 296-155-52902 for the purposes of inspections, maintenance, repair, transport, assembly, and disassembly.

The crane user's duties include the following:

a. Complying with the requirements of Part L of this chapter, manufacturer's requirements, and those regulations applicable at the worksite.
b. Using supervisors for crane activities that meet the requirements for a qualified person as defined in WAC 296-155-52902.
c. Ensuring that the crane is in proper operating condition prior to initial use at the worksite by:
    1. Verifying that the crane owner has provided documentation that the crane meets the requirements of Part L of this chapter.
    2. Verifying that inspections have been performed as prescribed in WAC 296-155-53405.
d. Verifying that the crane has the necessary lifting capacity to perform the proposed lifting operations in the planned configuration.

e. Using crane operators that meet the requirements of WAC 296-155-53300 and are qualified to perform the tasks that will be required with the crane to which they are assigned to operate.
f. Ensuring the assigned operator(s) has been notified of adjustments or repairs that have not been completed, prior to commencing crane operations.
g. Using personnel that meet the requirements for a competent and/or qualified person as defined in WAC 296-155-52902 for the purposes of inspections, maintenance, repair, transport, assembly, and disassembly.
h. Ensuring that all personnel involved in maintenance, repair, transport, assembly, disassembly, and inspection are aware of their assigned duties, and the associated hazards.
    1. Ensuring that the inspection, testing, and maintenance as required by this part are followed and any other related requirements specified by the crane owner.

The site supervisor's duties include the following:

a. Ensuring that the crane meets the requirements of Part L of this chapter prior to initial site usage.
b. Determining if additional regulations are applicable to crane operations.
c. Ensuring that a qualified person is designated as the lift director.
d. Ensuring that crane operations are coordinated with other job site activities that will be affected by or will affect lift operations.
e. Ensuring that the area for the crane is adequately prepared. The preparation includes, but is not limited to, the following:
    1. Access roads for the crane and associated equipment;
    2. Sufficient room to assemble and disassemble the crane;
    3. An operating area that is suitable for the crane with respect to levelness, surface conditions, support capability, proximity to power lines, excavations, slopes, underground utilities, subsurface construction, and obstructions to crane operation;
    4. Traffic control as necessary to restrict unauthorized access to the crane's working area.
f. Ensuring that work involving the assembly and disassembly of a crane is supervised by an assembly/disassembly director. See WAC 296-155-53402.

g. Ensuring that crane operators meet the requirements of WAC 296-155-53300.
h. Ensuring that conditions which may adversely affect crane operations are addressed. Such conditions include, but are not limited to, the following:
    1. Poor soil conditions;
    2. Wind velocity or gusting winds;
    3. Heavy rain;
    4. Fog;
    5. Extreme cold;
    6. Artificial lighting.
i. Allowing crane operation near electric power lines only when the requirements of WAC 296-155-53408 have been met.
j. Permitting special lifting operations only when equipment and procedures required by this part, the crane manufacturer, or a qualified person, are employed. Such operations include, but are not limited to, the following:
    1. Multiple crane lifts;
    2. Multiple load line lifts;
    3. Lifting personnel;
    4. Pick and carry operations;
    5. Mobile/articulating cranes operating on barges.
k. Ensuring that work performed by the rigging crew is supervised by a qualified rigger. See WAC 296-155-53406.
l. Ensuring that crane maintenance is performed by a qualified person. See WAC 296-155-53404.

The lift director's duties include the following:

a. Being present at the job site and overseeing the lifting operations;
b. Stopping crane operations if alerted to an unsafe condition affecting those operations;
c. Ensuring that the preparation of the area needed to support crane operations has been completed before crane operations commence;
d. Ensuring necessary traffic controls are in place to restrict unauthorized access to the crane's work area;
e. Ensuring that personnel involved in crane operations understand their assigned duties, and the associated hazards;

f. Addressing safety concerns raised by the operator or other personnel and deciding if it is necessary to overrule those concerns and directs crane operations to continue. In all cases, the manufacturer's criteria for safe operation and the requirements of this chapter and any other applicable safety and health standards must be adhered to;

g. Assigning qualified signal person(s) and conveying that information to the crane operator;

h. Ensuring that signal persons assigned meet the qualification requirements located in WAC 296-155-53302;

i. Allowing crane operation near electric power lines only when the requirements of WAC 296-155-53408 and any additional requirements determined by the site supervisor have been met;

j. Ensuring precautions are implemented when hazards associated with special lifting operations are present. Such operations include, but are not limited to, the following:

   1. Multiple crane lifts;
   2. Multiple load line lifts;
   3. Lifting personnel;
   4. Pick and carry operations;
   5. Mobile/articulating cranes operating on barges.

k. Ensuring that the applicable requirements of WAC 296-155-547 through 296-155-55405 are met when lifting personnel;

l. Informing the crane operator of the weight of loads to be lifted, as well as the lifting, moving, and placing locations for these loads;

m. Obtaining the crane operator's verification that this weight does not exceed the crane's rated capacity;

n. Ensuring that a crane's load rigging is performed by a qualified rigger as defined in WAC 296-155-53306;

o. Ensuring that the load is properly rigged and balanced before it is lifted more than a few inches.

Note: Whenever the crane operator has doubt or concerns as to the safety of crane operations, the operator must stop the crane's functions in a controlled manner. Lift operations can only resume after safety concerns have been resolved or the continuation of crane operations is directed by the lift director as above.

The crane operator's duties include the following:

a. Reviewing the requirements for the crane with the lift director before operations;

b. Knowing what types of site conditions could adversely affect the operation of the crane and consulting with the lift director concerning the possible presence of those conditions;

c. Understanding and applying the information contained in the crane manufacturer's operating manual;

d. Understanding the crane functions and limitations as well as its particular operating characteristics;

e. Using the crane's load/capacity chart(s) and diagrams and applying all notes and warnings related to the charts to confirm the correct crane configuration to suit the load, site, and lift conditions;

f. Refusing to operate the crane when any portion of the load or crane would enter the prohibited zone of energized power lines except as defined in WAC 296-155-53408;

g. Performing a daily inspection as specified in WAC 296-155-53405;

h. Promptly reporting the need for any adjustments or repairs to the appropriate person;

i. Following applicable lockout/tagout procedures. See WAC 296-155-53400(67);

j. Not operating the crane when physically or mentally unfit;

k. Ensuring that all controls are in the off or neutral position and that all personnel are in the clear before energizing the crane or starting the engine;

l. Not engaging in any practice that will divert their attention while actually operating the crane controls;

m. Testing the crane function controls that will be used and operating the crane only if those function controls respond properly;

n. Operating the crane's functions, under normal operating conditions, in a smooth and controlled manner;

o. Knowing and following the procedures specified by the manufacturer or approved by a qualified person, for assembly, disassembly, setting up, and reeving the crane;

p. Knowing how to travel the crane;

q. Observing each outrigger during extension, setting, and retraction or using another worker to observe each outrigger during extension, setting, or retraction;

r. Ensuring that the load and rigging weight(s) have been provided;

s. Calculating or determining the net capacity for all configurations that will be used and verifying, using the load/capacity chart(s), that the crane has sufficient net capacity for the proposed lift;

t. Considering all factors known that might affect the crane capacity and informing the lift director of the need to make appropriate adjustments;

u. Knowing the standard and special signals as specified in WAC 296-155-53406 and responding to such signals from the person who is directing the lift or a qualified signal person;

v. If power fails during operations:

   1. Setting all brakes and locking devices.
   2. Moving all clutches or other power controls to the off or neutral position.
   3. Landing any load suspended below the hook under brake control if practical.

w. Before leaving the crane unattended:

   1. Landing any load suspended below the hook, unless the requirements of WAC 296-155-53400(52) are met.
   2. Disengaging the master clutch.
   3. Setting travel, swing, boom brakes, and other locking devices.
   4. Putting controls in the off or neutral position.
   5. Stopping the engine. An exception to this may exist when crane operation is frequently interrupted during a shift and the operator must leave the crane. Under these circumstances, the engine may remain running and (w)(i) and (iv) of this subsection must apply. The operator must be situated where any entry to the crane can be observed.
   6. Considering the recommendations of the manufacturer for securing the crane, when a local weather storm warning exists.

Power Line Safety

When assembling/disassembling or operating a crane/derrick near power lines, we will always assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

Before assembling/disassembling or operating a crane/derrick, we will determine if any part of the crane/derrick, load line, or load (including rigging and lifting accessories) could get closer than 20 feet of a power line that is up to 350 kV or closer than 50 feet of a power line that exceeds 350 kV during the assembly/disassembly process or crane/derrick operations. If so, we will meet the requirements in Option 1, Option 2, or Option 3, as follows:

Option 1 Deenergize and ground. Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite.

Option 2 20-foot clearance. Ensure that no part of the crane/derrick, load line, or load (including rigging and lifting accessories), gets closer than 20 feet to the power line by implementing the measures specified in (b) of this subsection.

Option 3 Table 4 clearance.

1. Determine the line's voltage and the minimum approach distance permitted under Table 4, below.
2. Determine if any part of the crane/derrick, load line or load (including rigging and lifting accessories), during assembly/disassembly or while operating up to its maximum working radius in the work zone, could get closer than the minimum approach distance of the power line permitted under Table 4, below. If so, we will follow the following encroachment/electrocution precautions to ensure that no part of the crane/derrick, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum approach distance.

Note: Where Option 3 is used, the utility owner/operator of power lines must provide the requested voltage information prior to commencement of work or within two working days of our request.

Preventing Encroachment/Electrocution

Where encroachment precautions are required under Option 2 or Option 3, all of the following requirements will be met:

a. A planning meeting will be conducted with the operator and the other workers who will be in the area of the crane/derrick or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution.

b. If tag lines are used, they will be nonconductive.

c. An elevated warning line, barricade, or line of signs, in view of the operator and equipped with flags or similar high-visibility markings, will be erected and maintained at 20 feet from a power line that is up to 350 kV or 50 feet from a power line that exceeds 350 kV (if using Option 2) or at the minimum approach distance under Table 4 (if using Option 3). If the operator is unable to see the elevated warning line, a dedicated spotter must be used, as described below, in addition to implementing one of the measures described in a, c, or d of this subsection.

d. At least one of the following measures will be implemented:

Note: The following requirements do not apply to work covered by Chapter 296-45 WAC.

1. A proximity alarm will be set to give the operator sufficient warning to prevent encroachment.
2. A dedicated spotter who is in continuous contact with the crane/derrick operator will be used, plus an elevated warning line, barricade, or line of signs, in view of the spotter, equipped with flags or similar high-visibility markings. See *Dedicated Spotter Requirements*, below.
3. A device that automatically warns the operator when to stop movement, such as a range control warning device, will be set to give the operator sufficient warning to prevent encroachment.
4. A device that automatically limits range of movement will be set to prevent encroachment.
5. An insulating link/device, as defined in WAC 296-155-52902, will be installed at a point between the end of the load line (or below) and the load.

Dedicated Spotter Requirements

To be considered a dedicated spotter, the requirements of WAC 296-155-53302 (Signal person qualifications) must be met. The dedicated spotter's sole responsibility must be to watch the separation between the power line and the equipment, the load line, and load (including rigging and lifting accessories) and to ensure through communication with the operator that the applicable minimum approach distance is not breached. The dedicated spotter must:

a. Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include: A clearly visible line painted on the ground; a clearly visible line on stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter).

b. Be positioned to effectively gauge the clearance distance.

c. Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

d. Give timely information to the operator so that the required clearance distance can be maintained.

Operations Below Power Lines

During crane/derrick operations, no part of the crane/derrick, load line, or load (including rigging and lifting accessories) will be allowed below a power line unless we have confirmed that the utility owner/operator has deenergized and visibly grounded the power line at the worksite.

Exceptions: The above requirement is inapplicable where we can demonstrate that one of the following applies:

a. The work is covered by chapter 296-45 WAC.

b. For cranes/derricks with nonextensible booms: The uppermost part of the crane/derrick, with the boom at true vertical, would be more than 20 feet below the plane of a power line that is up to 350 kV, 50 feet below the plane of a power line that exceeds 350 kV or more than the Table 4 minimum clearance distance below the plane of the power line.

c. For cranes with articulating or extensible booms: The uppermost part of the crane, with the boom in the fully extended position, at true vertical, would be more than twenty feet below the plane of a power line that is up to 350 kV, fifty feet below the plane of a power line that exceeds 350 kV or more than the Table 4 minimum clearance distance below the plane of the power line.

Operation of a Crane/Derrick Inside the Table 4 Zone

Operations in which any part of the crane/derrick, load line or load (including rigging and lifting accessories) is either closer than the minimum approach distance under Table 4 of an energized power line or the power line voltage is undetermined and the crane/derrick load line or load is within 20 feet from the power line are prohibited, except where we demonstrate that all of the following requirements are met:

a. We will notify the crane safety program within the department of labor and industries.
b. We will determine that it is infeasible to do the work without breaching the minimum approach distance under Table 4 of this section.
c. We will determine that, after consultation with the utility owner/operator, it is infeasible to deenergize and ground the power line or relocate the power line.
d. The power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution will determine the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include, but are not limited to: Conditions affecting atmospheric conductivity; time necessary to bring the crane/derrick, load line and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions, and other conditions affecting the ability to prevent electrical contact.

   Note: This requirement does not apply to work covered by chapter 296-45 WAC; instead, for such work, the minimum clearance distances specified in chapter 296-45 WAC, Table 1 apply. Employers covered by chapter 296-45 WAC are permitted to work closer than the distances in chapter 296-45 WAC, Table 1, where both the requirements of this rule and WAC 296-45-375(10) are met.

e. A planning meeting with the employer and utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) will be held to determine the procedures that will be followed to prevent electrical contact and electrocution. At a minimum these procedures will include:
   1. If the power line is equipped with a device that automatically reenergizes the circuit in the event of a power line contact, before the work begins, the automatic reclosing feature of the circuit interrupting device must be made inoperative if the design of the device permits.

2. A dedicated spotter who is in continuous contact with the operator. See *Dedicated Spotter Requirements*, above.
3. An elevated warning line, or barricade (not attached to the crane), in view of the operator (either directly or through video equipment), equipped with flags or similar high-visibility markings, to prevent electrical contact. However, this provision does not apply to work covered by chapter 296-45 WAC.
4. An insulating link/device installed at a point between the end of the load line (or below) and the load.
    i. For work covered by chapter 296-45 WAC, the use of an insulating link/device as stated above applies only when working inside the clearance distances of Table 1 in chapter 296-45 WAC.
    ii. For work covered by chapter 296-45 WAC, electrical workers, involving operations where use of an insulating link/device is infeasible, the requirements of WAC 296-45-375 (10)(c)(ii) or (iii) may be substituted for the use of an insulating link/device as stated above.
5. Use nonconductive rigging if the rigging may be within the Table 4 distance during the operation.
6. If the crane/derrick is equipped with a device that automatically limits range of movement, it must be used and set to prevent any part of the crane/derrick, load line or load (including rigging and lifting accessories) from breaching the minimum approach distance established under (d) of this subsection.
7. If a tag line is used, it must be of the nonconductive type.
8. Barricades forming a perimeter at least 10 feet away from the crane/derrick to prevent unauthorized personnel from entering the work area. In areas where obstacles prevent the barricade from being at least 10 feet away, the barricade must be as far from the crane/derrick as feasible.
9. Workers other than the operator must be prohibited from touching the load line above the insulating link/device and crane. Operators remotely operating the equipment from the ground must use either wireless controls that isolate the operator from the equipment or insulating mats that insulate the operator from the ground.

10. Only personnel essential to the operation are permitted to be in the area of the crane and load.
11. The crane/derrick must be properly grounded.
12. Insulating line hose or cover-up must be installed by the utility owner/operator except where such devices are unavailable for the line voltages involved.

f. The above listed procedures will be documented and immediately available on-site.

g. The crane/derrick user and utility owner/operator (or registered professional engineer) will meet with the operator and the other workers who will be in the area of the crane/derrick or load to review the procedures that will be implemented to prevent breaching the minimum approach distance established for the site by the power line owner/operator or registered professional engineer and to prevent electrocution.

h. The implementation of the procedures developed to prevent electrical contact and electrocution will be directed by one person who has been identified by the utility owner/operator (or registered professional engineer) and all employers of employees involved in the work. This person will have the authority to stop work at any time to ensure safety.

i. If a problem occurs implementing the procedures being used to prevent electrical contact and electrocution or indicating that those procedures are inadequate to prevent electrocution, we will safely stop operations and either develop new procedures or have the utility owner/operator deenergize and visibly ground or relocate the power line before resuming work.

j. Devices originally designed by the manufacturer for use as: Safety devices (see WAC 296-155-53410), operational aids (see WAC 296-155-53412), or a means to prevent power line contact or electrocution, when used to comply with this section, will meet the manufacturer's procedures for use and conditions of use.

Training

In addition, each operator and crew member assigned to work with a crane/derrick will be trained in the procedures to be followed in the event of electrical contact with a power line. Such training will include the following:

a. Information regarding the danger of electrocution from the operator simultaneously touching the crane/derrick and the ground.

b. The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.

c. The safest means of evacuating from the crane/derrick that may be energized.

d. The need for crew in the area to avoid approaching or touching the crane/derrick and the load.

e. Safe clearance distance from power lines.

    1. Power lines are presumed to be energized unless the utility owner/operator confirms that the power line has been and continues to be deenergized, and visibly grounded at the worksite.

    2. Power lines are presumed to be uninsulated unless the utility owner/operator or a registered engineer who is a qualified person with respect to electrical power transmission and distribution confirms that a power line is insulated.

    3. The limitations of an insulating link/device, proximity alarm, and range control (and similar) device, if used.

    4. The procedures to be followed to properly ground equipment and the limitations of grounding.

Traveling near Power Lines Without a Load

When a crane is traveling under a power line on the construction site with no load, we will ensure the following:

a. The boom/mast and boom/mast support system are lowered sufficiently to meet the clearances specified in Table 5.

b. The effects of speed and terrain on crane movement (including movement of the boom/mast) are considered so that those effects do not cause the minimum clearance distances specified in Table 5 to be breached.

c. A dedicated spotter who is in continuous contact with the driver/operator is used if any part of the crane will get closer than 20 feet of the power line while traveling. See *Dedicated Spotter Requirements*.

In addition to the measures specified above, when traveling at night or in conditions of poor visibility we will ensure that the power lines are illuminated or another means of identifying the location of the lines is used and a safe path of travel is identified and used.

WAC 296-155-53408

Table 4 Minimum Clearance Distances	
Voltage (nominal, kV)	Minimum clearance distance (feet)
Up to 50	10
Over 50 to 200	15
Over 200 to 345	20
Over 345 to 500	25
Over 500 TO 750	35
Over 750 to 1,000	45

Note: The value that follows "to" is up to and includes that value.

Table 5 Minimum Clearance Distances While Traveling With No Load and Boom/Mast Lowered	
Voltage (nominal, kV)	While traveling--minimum clearance distance (feet)
Up to 0.75	4 (while traveling/boom lowered).
Over .75 to 50	6 (while traveling/boom lowered).
Over 50 to 345	10 (while traveling/boom lowered).

[Statutory Authority: RCW 49.17.010, .004, .050, and .060. 13-02-068 (Order 12-14), § 296-155-53408, filed 12/31/12, effective

02/01/13. Statutory Authority: RCWs 47.17.010, 49.17.040, 49.17.050, 49.17.440 and 49.17.060. 12-01-086 (Order 08-32), § 296-

Personnel Lifting

We will only authorize a personnel lift operation if we can verify that less hazardous alternatives to performing the work or providing access to the area are not feasible. We will ensure that all personnel lifting operations comply with the requirements of WAC 296-155-55300.

If a personnel lift is determined to be necessary, we will do the following:

a. Assign an employee to function as the lift supervisor. The lift supervisor will perform all responsibilities required by WAC 296-155-55205;

b. Prepare a personnel lift plan containing at least the information shown in WAC 296-155-56410. This plan will be retained as part of the job site records;

c. Verify that the crane/derrick to be used for the personnel lift meets the requirements of WAC 296-155-54900 and WAC 296-155-55210;

d. Require the personnel lift be accomplished in accordance with the provisions of Chapter 296-155 WAC Part L;

e. Verify that qualified persons are assigned to perform the functions of the personnel lift supervisor, operator, signal persons, riggers and tagline handlers, as applicable;

f. Ensure that a qualified person has inspected the crane/derrick and personnel platform in accordance with WAC 296-155-55100;

g. Guarantee that any adjustments or repairs to the platform and suspension system are done by a qualified person as specified in WAC 296-155-55105;

h. Make sure that a proof load test of the platform and rigging is performed at each new location before lifting personnel as required by WAC 296-155-55110;

i. Confirm that a trial lift with the personnel platform is performed on each shift before lifting personnel as described in WAC 296-155-55115; and

j. Accomplish other tasks that may be needed to enhance the safety of the personnel lift.

Pre-lift Meetings

A pre-lift meeting will be held prior to the trial lift at each new work location. The crane/derrick operator, signal person (if used for the lift), employees to be hoisted, personnel lift supervisor, and the person responsible for the task to be performed will be required to attend the pre-lift meeting and any other necessary safety indoctrinations.

The pre-lift meeting will cover, at a minimum:

a. The requirements of the applicable portions of Chapter 296-155 WAC Part L;

b. Assignment and responsibilities of each person involved in the lift operation;

c. The procedures to be followed;

d. Guidance on general and specific safety precautions;

e. Special signals for the operation;

f. Unique considerations of the lift;

g. Work to be accomplished during lift;

h. If applicable, the responsibilities and assignments when lifting personnel near electrical power lines.

If individuals are changed during a series of personnel lifts, each new person will be appropriately briefed.

Operator Limits

Operators will not be allowed or required to lift personnel under the following conditions:

a. The operator does not feel physically or mentally fit to perform the operation;
b. The operator has been working for more than 10 hours prior to the start of the lift, or the lift will not be completed before the operator has been working for 12 hours;
c. The operator did not have at least 8 hours off, immediately prior to the work shift containing the personnel lift operation.

Personnel Lifting Near Power Lines

Personnel lifting over, under, or in the vicinity of power lines will only be authorized in accordance with the requirements of Figures 9, 10, and 11, and Table 10 in WAC 296-155-55305.

Boatswain's Chairs

Boatswain's chairs will only be used to lift personnel as a last resort when it is not possible to accomplish the task in a less hazardous way. Boatswain chair operations will adhere to WAC 296-155-55400 and WAC 296-155-55405.

Fall Protection

WAC 296-155 - Part C-1, Fall Restraint and Fall Arrest

Overview

One of the most serious hazards faced by our employees is falls from heights. Our Fall Protection Program has been developed to prevent injury from falls from a walking/working surface to a lower level, to prevent objects falling from above and striking persons below, and to prevent job site persons from falling into holes.

Within the context of this program, the term “fall hazard” does not refer to tripping and falling which is addressed in our general safety & health program, nor does it apply to falling off a ladder or scaffold. Scaffold and ladder safety is addressed within its own program.

This Fall Protection Program will be readily accessible to all employees.

A Fall Protection **Work Plan** will be prepared and be available for inspection on every applicable job site.

On all job sites where fall hazards exist, there will be at least one competent person who has the training and ability to identify fall hazards and the authority to ensure that proper fall protection systems are properly implemented.

The following areas of concern are addressed by this Program:

a. the need to know where fall protection is required.
b. selection of fall protection systems which are appropriate for given situations.
c. construction and installation of safety systems.
d. supervision of employees.
e. implementation of safe work procedures.
f. training in selection, use, and maintenance of fall protection systems.

Our Fall Protection Program may be reviewed at any time by our employees. Should a question arise concerning this Program, personnel are encouraged to consult with their supervisor or our Fall Protection Program Administrator.

Duties of the Program Administrator

The Fall Protection Program Administrator's duties include:

a. training of personnel.
b. maintenance of training records.

c. random, unannounced job site inspections to assure compliance with both WISHA standards and company safety policies.
d. resolution of specific problems that may present themselves regarding a particular job site situation.
e. designating a competent (by training or experience) person at each applicable job site who will ensure:
    1. a copy of our fall protection program/plan is readily accessible on appropriate job sites.
    2. subcontractors with whom we work are appropriately trained in fall protection.
    3. a written certification record has been prepared documenting that employees who have potential exposure to fall hazards at the job site have received the required training in protection.
    4. the fall protection system(s) utilized at the job site are appropriate for the hazard(s) present.
    5. that, before any work is initiated, the walking/working surfaces at the job site are capable of supporting both our personnel and equipment.

The Fall Protection Program Administrator will be familiar with all applicable standards and will keep abreast of developments in the field of fall protection.

Pre-Project Planning

Fall protection requires a joint effort by our personnel and the specialty subcontractors who may be working with us to identify work situations in which fall hazards exist, determine the most appropriate fall protection system to be utilized, and to ensure that all persons understand the proper methods of utilizing the selected fall protection systems. A pre-construction survey by a competent person will often provide the information needed to make these determinations.

Fall protection system requirements may change during a project and the competent person on site will ensure that fall protection is maintained at all times. Care will be taken to assure that load limits are not exceeded on walking/working surfaces and attachment points and hardware is capable of withstanding (with the appropriate safety factor) the potential forces that may be generated during an actual fall incident.

Fall protection hardware and equipment owned, rented, or leased will be NIOSH/ANSI approved and it is assumed that the manufacturer’s technical specifications and capabilities are accurate.

From the very inception of a potential project (pre-bid) to completion, fall protection needs and costs will be factored in.

Where Fall Protection is Required

For all construction activities where employees are exposed to a hazard of falling 4 feet or more, all employees will be provided with fall protection. Additionally, when employees are exposed to falls of 10 feet or more, we will also implement a fall protection plan. Exceptions to the above are:

Height	Activity	Verbiage
Any Height	Dangerous equipment, pickling or galvanizing tanks, degreasing units, and other similar hazards	Guard open-sided floors, walkways and platforms above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and other similar hazards, regardless of height with a railing and toeboard.
Any Height	Boom supported elevating work platforms	Safety harness and lanyard devices fixed to attachment points provided and approved by the manufacturer must be used by all occupants.
Above the ground	Electrical workers – line clearance tree-trimming	Each employee shall be tied in with a climbing rope and safety saddle when the employee is working above the ground in a tree, unless he or she is ascending into the tree.
4 Feet	Electrical workers	Fall arrest equipment, work positioning equipment, or travel restricting equipment shall be used by employees working at elevated locations more than 4 feet above the ground on poles, towers, or similar structures if other fall protection has not been provided. Unqualified employees (including trainees) are required to use fall protection any time they are more than 4 feet above the ground.
4 Feet	Trenching/ Excavation	Guardrails shall be provided where walkways are 4 feet or more above lower levels.
4 Feet	Open-sided floor, platforms or surface	Every open sided floor, platform or surface four feet or more above adjacent floor or ground level shall be guarded by a standard railing, or the equivalent on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder.
6 Feet	Concrete and masonry operations	No employee shall be permitted to place or tie reinforcing steel more than six feet above any adjacent working surface unless the employee is protected by personal fall arrest systems, safety net systems, or positioning device systems meeting the criteria of chapter 296-155 WAC, Part C-1.
6 Feet	Concrete and masonry operations	Each employee on the face of formwork or reinforcing steel shall be protected from falling 6 feet or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems meeting the criteria of chapter 296-155 WAC, Part C-1.

Definitions

There are a number of terms and phrases, not common in everyday life, which must be understood to grasp the thrust of this Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of our Fall Protection Program. Words used within the definitions which are themselves defined are printed in bold italic.

ANCHORAGE: a secure point of attachment for ***lifelines***, ***lanyards*** or ***deceleration devices***.

BODY HARNESS: straps which may be secured about the employee in a manner that will distribute the fall arrest over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a ***personal fall arrest system***.

BUCKLE: any device for holding the ***body harness*** closed around the employee's body.

CARABINER: an oval metal ring with a snap link used to fasten a rope to the piton [a spike (attachment) with an eye to which a rope can be secured.]

COMPETENT PERSON: one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees; and who has authorization to take prompt corrective measures to eliminate them.

CONNECTOR: a device which is used to couple (connect) parts of the ***personal fall arrest system*** and ***positioning device systems*** together. It may be an independent component of the system, such as a ***carabiner***, or it may be an integral component of part of the system (such as a ***buckle*** or dee-ring sewn into a self-retracting ***lanyard***).

CONTROLLED ACCESS ZONE (CAZ): an area in which certain work (e.g., ***overhand bricklaying***) may take place without the use of ***guardrail systems***, ***personal fall arrest systems***, or safety net systems; access to the zone is controlled.

DANGEROUS EQUIPMENT: equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other units) which, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

DECELERATION DEVICE: any mechanism, such as a ***rope grab***, rip-stitch ***lanyard***, specially-woven ***lanyard***, tearing or deforming ***lanyards***, automatic self-retracting ***lifelines***/***lanyards***, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

DECELERATION DISTANCE: the additional vertical distance a falling employee travels from the point at which the ***deceleration device*** begins to operate before stopping, excluding ***lifeline*** elongation and ***free fall distance***. It is measured as the distance between the location of an employee's ***body harness*** attachment point at the moment of activation (at the onset of fall arrest forces) of the ***deceleration device*** during a fall, and the location of that attachment point after the employee comes to a full stop.

EQUIVALENT: alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

FALL PROTECTION WORK PLAN: means a written planning document in which the employer identifies all areas on the job site where a fall hazard of 10 feet or greater exists. The plan describes the method or methods of fall protection to be utilized to protect employees, and includes the procedures governing the installation use, inspection, and removal of the fall protection method or methods which are selected by the employer.

FREE FALL: the act of falling before a ***personal fall arrest system*** begins to apply force to arrest the fall.

FREE FALL DISTANCE: the vertical displacement of the fall arrest attachment point on the employee's ***body harness*** between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes ***deceleration distance***, and ***lifeline***/***lanyard*** elongation, but includes any ***deceleration device*** slide distance of ***self-retracting lifeline/lanyard*** extension before they operate and fall arrest forces occur.

GUARDRAIL SYSTEM: a barrier erected to prevent employees from falling to ***lower levels***.

HOLE: a gap or void 2 inches (5.1 cm) or more in its least dimension, in a floor, ***roof***, or other ***walking/working surface***.

LANYARD: a flexible line of rope, wire rope, or strap which generally has a ***connector*** at each end for connecting the ***body harness*** to a ***deceleration device***, ***lifeline***, or ***anchorage***.

LEADING EDGE: the edge of a floor, ***roof***, or formwork for a floor or other ***walking/working surface*** (such as the deck) which changes location as additional floor, ***roof***, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

LIFELINE: a component consisting of a flexible line for connection to an ***anchorage*** at one end to hang vertically (vertical lifeline), or for connection to ***anchorages*** at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of ***personal fall arrest system*** to the ***anchorage*.**

LOW-SLOPE ROOF: a ***roof*** having a slope less than or equal to 4 in 12 (vertical to horizontal).

LOWER-LEVELS: those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

MECHANICAL EQUIPMENT: all motor or human propelled wheeled equipment used for ***roofing work***, except wheelbarrows and mopcarts.

OPENING: a gap or void more than 12 inches wide

[Must be protected by a guardrail or cover which can support 200 pounds.]

PERSONAL FALL ARREST SYSTEM: a system used to arrest an employee in a fall from a working level. It consists of an ***anchorage***, ***connectors***, a ***body harness*** and may include a ***lanyard***, ***deceleration device***, ***lifeline***, or suitable combination of these. **The use of body belts for fall arrest is prohibited.**

POSITIONING DEVICE SYSTEM: a *body belt* or ***body harness*** system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

QUALIFIED PERSON: one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

ROPE GRAB: a ***deceleration device*** which travels on a ***lifeline*** and automatically, by friction, engages the ***lifeline*** and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

ROOF: the exterior surface on the top of a building. This does not include floors or formworks which, because a building has not been completed, temporarily become the top surface of a building.

ROOFING WORK: the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the ***roof*** deck.

SAFETY-MONITORING SYSTEM: a safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

SELF-RETRACTING LIFELINE/LANYARD: a ***deceleration device*** containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

SNAPHOOK: a ***connector*** comprised of a hook-shaped member with a normally closed keeper of similar arrangement which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types:

1. the locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or
2. the non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. The use of a non-locking snaphook as part of ***personal fall arrest systems*** and ***positioning device systems*** is prohibited.

STEEP ROOF: a ***roof*** having a slope greater than 4 in 12 (vertical to horizontal).

TOEBOARDS: a low protective barrier that will prevent the fall of material and equipment to ***lower levels*** and provide protection from falls for personnel.

UNPROTECTED SIDES AND EDGES: any side or edge (except at entrances to points of access) of a ***walking/working surface***, e.g., floor, ***roof***, ramp, or runway where there is no wall or ***guardrail system.***

WALKING/WORKING SURFACE: any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runway, formwork and concrete reinforcing steel; not including ladders, vehicles, or trailers on which employees must be located in order to perform their job duties.

WARNING LINE SYSTEM: a barrier erected on a ***roof*** to warn employees that they are approaching an unprotected ***roof*** side or edge, and which designates an area in which ***roofing work*** may take place **without** the use of guardrail, ***body belt***, or safety net systems to protect employees in the area.

WORK AREA: that portion of a ***walking/working surface*** where job duties are being performed.

ROOFING WORK ON LOW-SLOPED ROOFS:

Each employee engaged in roofing activities on low-sloped roofs with unprotected sides and edges 10 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and a safety net system or a warning line system and a safety monitoring system.

Note: On roofs 50 feet or less in width, the use of a safety monitoring system alone (without the warning line system) is permitted.

STEEP ROOFS:

Each employee on a steep roof with unprotected sides and edges 10 feet or more above lower levels shall be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Fall Protection Work Plan

For every area of the work place where employees are assigned and where fall hazards of 10 feet or more exist, a Fall Protection Work Plan will be prepared that includes the following:

a. Identity all fall hazards in the work area.

b. Description of the method of fall arrest or fall restraint to be provided.

c. Description of the correct procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used.

d. Description of the correct procedures for the handling, storage, and securing of tools and materials.

e. Description of the method of providing overhead protection for workers who may be in, or pass through the area below the work site.

f. Description of the method for prompt, safe removal of injured workers.

The Fall Protection Work Plan must be available on the job site for inspection by WISHA.

Pre-Construction Survey

Prior to the initiation of any construction project, the job site will be surveyed by a competent/qualified person to determine:

a. if fall protection systems will be required.

b. if fall hazards exist, the types of conventional fall protection systems to be utilized.

    1. particular attention will be given to anchorage points, location of warning lines, etc.

c. rescue procedures to be used if a fall actually occurs.

d. the load-carrying capabilities of the walking/working surface.

e. assuring that all personnel utilizing a fall protection system have training in that system.

This survey may be made without the use of fall protection because no work will be accomplished during this survey and installing fall protection systems would create a greater hazard.

If it is determined that certain areas within the overall worksite have fall hazards that cannot be addressed with conventional fall protection systems (those areas being limited to leading edge work, residential construction work, and precast concrete work), **then** a Fall Protection Plan must be prepared to specifically protect employees from these hazards.

Fall Protection Systems

Basically, there are three types of fall protection systems. They are:

a. Fall Restraint: protects from falling in the first place.

b. Fall Arrest: prevents hitting a lower level if a fall occurs.

c. Positioning Device: prevents employees from reaching an edge.

Components of fall protection systems will be inspected prior to each use for mildew, wear, damage, and other deterioration. Defective components will from service if their function or strength has been adversely affected.

FALL RESTRAINT SYSTEMS

Fall restraint systems include:

GUARDRAIL SYSTEM:

A guardrail system is a physical barrier erected to prevent employees from falling to lower levels.

Specific guardrail systems criteria are found in WAC 296-155-24615 and we will erect guardrail systems that comply with the cited criteria.

The main advantage of a guardrail system is that it is a “passive” system which, once installed, requires no employee involvement in its function. A guardrail will stop an employee who inadvertently walks into it.

A guardrail system is an acceptable fall protection system in all situations where it can be safely erected and used.

GUARDRAIL SYSTEMS AT HOISTING AREAS:

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section (minimum 4 feet) will be placed across the access opening between the guardrail sections when hoisting operations are not taking place.

Note: If a portion of the guardrail system is removed at a hoisting area to facilitate the hoisting operations and an employee must lean out over the opening, then that employee must be protected by a personal fall arrest system. In this instance it is important to remember that the personal fall arrest system may not be attached to the guardrail system.

GUARDRAIL SYSTEMS AT HOLES:

Guardrail systems used at holes shall be erected on all unprotected sides of the edges of the hole.

When the hole is to be used for the passage of materials, the hole shall not have more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover **or** protected with a guardrail system on all unprotected sides or edges.

Note: Guardrails need not be erected around holes while employees are working at the hole, passing materials through the hole, etc. When work is completed around the hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Guardrail systems used around holes which are used as points of access (such as ladder ways) will be provided with a gate or be offset so that a person cannot walk directly into the hole.

GUARDRAIL SYSTEMS ON RAMPS AND RUNWAYS:

Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge. Ramps, runways, and other walkways on which employees need protection from falling to a lower level must be protected by a guardrail system and only a guardrail system.

SAFETY BELTS AND/OR HARNESS ATTACHED TO SECURELY RIGGED RESTRAINT LINES:

The criteria for the safety belts, harnesses, attachment points, and restraint line are found in WAC 296-155-24615.

Restraint protection must be rigged to allow the movement of employees only as far as the sides and edges of the walking/working surface.

WARNING LINE SYSTEM:

The criteria for the warning line rope, wire, chain, and stanchions is found in WAC 296-155-24615.

A warning line system is a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.

Warning lines shall be erected around all sides of the work area.

Note: When mechanical equipment is <u>not</u> being used, the warning line shall be erected not less than six feet from the edge of the roof.

Note: When mechanical equipment is being used, the warning line shall be erected not less than six feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge which is perpendicular to the direction of mechanical equipment operation.

Points of access, materials handling areas, and storage areas must be connected to the work area by a clear access path formed by two warning lines.

When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area.

The warning line system used in conjunction with a safety monitor system can be used to protect employees working between the forward edge of the warning line and the unprotected sides and edges, including the leading edge, of a low pitched roof or walking/working surface.

Note: Employees engaged in roofing on low-pitched roofs less than 50 feet wide may be protected from falls by using a safety monitor system without warning lines.

Note: The Warning Line System used in conjunction with a Safety Monitor System cannot be used on steep roofs (surfaces exceeding 4 in 12 pitch) and any surface whose dimensions are less than 45 inches in all directions.

SAFETY MONITOR SYSTEM:

Reference the above paragraph. A safety monitor system may be used in conjunction with a warning line system as a method of guarding against falls during work on low pitched roofs and leading edge work only.

If these systems are used, the names of the safety monitors must be entered in the Fall Protection Work Plan (which must be on-site) as well as the extent of their training. Safety monitors must:

a. Be a competent person.
b. Have control authority over the work as it relates to fall protection.
c. Be instantly distinguishable over members of the work crew.
d. Engage in no other duties while acting as safety monitor.
e. Be positioned in relation to the workers under their protection, so as to have a clear, unobstructed view and be able to maintain normal voice communication.
f. Not supervise more than eight exposed workers at one time.
g. Warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.

The safety monitor system shall not be used when adverse weather conditions create additional hazards.

PERSONAL FALL ARREST SYSTEM:

A personal fall arrest system is, as the name implies, a means of safety decelerating a falling body before a lower level is hit. The three (3) main components of a personal fall arrest system are the:

a. anchorage point.

b. lanyard.

c. body harness.

Note: Body belts will not be used in a personal fall arrest system.

The tie-off attachment point must be at or above the connection point on the harness to prevent additional free fall distance.

As are guardrails, personal fall arrest systems are “passive” and require no employee involvement once they are properly rigged.

For all practical purposes, dee-rings and locking type snaphooks shall have a minimum tensile strength of 5,000 pounds and lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Anchorages must be capable of supporting 5,000 per employee. Anchorages used in personal fall arrest systems must be independent of any anchorage being used to support or suspend platforms.

Note: Knots in a rope lanyard or lifeline can reduce its strength by as much as 50% and having a lanyard go over or around sharp edges can completely destroy its effectiveness.

With the exception that harnesses and components may be used as positioning device systems, personal fall arrest system components may not be used for purposes other than that for which they were designed.

System components shall be inspected prior to each use for wear, damage, and other deterioration and defective components shall be removed from service.

Personnel should be aware that should a fall occur and self-rescue is not possible, equipment and personnel will be available for rescue.

Should a personal fall arrest system actually be used to stop a fall, it will be removed from service and not used again until inspected and determined to be undamaged and suitable for reuse by a competent person.

SAFETY NET SYSTEM:

Safety nets will be installed as close as practicable under the walking/ working surface on which employees are working and in no case shall they be more than 30 feet below such level.

Safety nets shall be inspected at least once per week and after an occurrence which could affect the integrity of the system. Defective nets will not be used.

All items that have fallen in a safety net will be removed as soon as possible and at least before the next work shift.

Safety nets will be drop-tested at the job site after initial installation and before being used as a fall protection system; whenever relocated; after major repair; and at six-month intervals if left in one place.

Note: If it is demonstrably unreasonable to perform a drop-test, a designated competent person shall prepare a certification in accordance with WAC 296-155-24615.

POSITIONING DEVICE SYSTEM:

A positioning device system consists of a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Positioning devices must be rigged such that an employee cannot free fall more than 2 feet.

Positioning device systems must be inspected prior to each use for wear, damage, and other deterioration. Defective components must be removed from service. Components of positioning device systems must never be used for purposes other than that for which they were designed -- specifically fall protection and/or positioning on a vertical surface.

Positioning device systems will meet the criteria found in WAC 296-155-24615.

COVERS

Covers can prevent an employee from stepping into a hole, tripping over a hole, falling through a hole, or being injured by objects falling through a hole.

NOTE: When work is completed around a hole, the hole must be protected by guardrails on all sides of the hole or by covers.

Covers must be capable of supporting, without failure, twice the weight of the employees, equipment, and/or materials that may be imposed upon them.

Covers, when used, must be secured to prevent accidental displacement by wind, equipment, or employees.

All covers must be color coded or marked with the word: “HOLE” or “COVER” to identify the hazard.

Covers will be used on walking/working surfaces to protect employees from tripping or stepping into or through a hole (including skylights). This provision is **regardless of the height** of the hole above a lower surface.

Covers will be used to protect employees from objects falling through holes (including skylights). This provision is **regardless of the height** of the hole above a lower surface.

If it becomes necessary to remove the cover, a monitor shall remain at the opening until the cover is replaced. The monitor shall advise persons entering the area of the hazard, shall prevent exposure to the fall hazard and shall perform no other duties.

Protection from Falling Objects

Covers are to be used to protect employees from objects falling through holes (including skylights) from upper surfaces regardless of heights.

Toeboards, used to prevent objects from falling on employees on a lower level must be at least 3½ inches high with not more than a ¼ inch clearance between the toeboard and the walking/working surface. When tools, materials, or equipment are piled higher than the top edge of the toeboard, paneling or screening will be erected from the top of the toeboard to the appropriate mid or top rail of the guardrail system to provide adequate protection to employees below.

There are only two (2) instances where employees may be exposed to fall hazards without the use of fall protection systems. Those times are: pre-construction activities (inspecting, investigating, or assessing the workplace) and post-construction activities. During these times, no actual construction work may take place.

Accidents & Near Accidents

Accidents and near accidents involving fall hazards will be investigated by the Fall Protection Program Administrator to determine the cause of the incident and a method of preventing a reoccurrence. Questions to be considered are:

a. Was the fall protection system selected appropriate for the hazard?
b. Was the system properly installed?
c. Was the person involved in the accident following proper procedures?
d. Were there contributing factors such as ice, wind, debris, etc.?
e. Is retraining or a change of the Fall Protection Plan required?

Training/Retraining

Training, which must be certified, will include the following topics:

a. the nature of fall hazards in the work area.

b. the correct procedures for erecting, maintaining, disassembling, inspecting. and using fall protection equipment.

c. the use and operation of guardrail systems; personal fall arrest systems; safety net systems; warning line systems; safety monitoring systems; and other protection to be used.

Training will be conducted by competent person(s) using the below listed items as resource materials:

a. this Fall Protection Program.

b. the manufacturer's instruction manuals that come with fall protection equipment.

c. WAC 296-155, Part C-1

d. the competent person's work experiences.

Should the competent person, a supervisor, or the Program Administrator suspect that an employee lacks the skills needed for proper fall protection, that employee will be retrained.

Changes in the workplace, types of fall protection systems and equipment will also necessitate retraining.

The latest Training Certificate will be kept on file.

Highline College Facilities Department

Fall Protection Work Plan

WISHA Example of Fall Protection Work Plan Requirements

Instructions: For every area of the work place where employees are assigned and where fall hazards of 10 feet or more exist, a Fall Protection Work Plan will be prepared [and maintained on the job site] that includes the following:

Job Site Identification: _____ Page 1 of 2

Prepared by: _____ Date: _____

Identity of all fall hazards in the work area

Methods of Fall Arrest or Fall Restraint

Description of the correct procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used.

Procedures for the handling, storage, and securing of tools and materials

Method of providing overhead protection for workers who may be in, or pass through the area below the work site.

Method for prompt, safe removal of injured workers.

Highline College Facilities Department

Safety Net Installation Certification

This is to certify that the Safety Net identified below was installed with sufficient clearance under it to prevent contact with the surface or structures below when subjected to an impact force equivalent to the drop test specified in 29 CFR 1926.502(c)(4)(i).

SAFETY NET MAKE: _____

SAFETY NET MODEL: _____

SAFETY NET LOCATION: _____

It was found to be unreasonable to perform the below listed drop test for the following reasons:

_____
_____
_____
_____
_____

Drop Test (Circle appropriate drop test to which the certification applies):

a. After initial installation and before using drop test.

b. After relocation drop test.

c. After major repair drop test.

d. After remaining in the same location for 6 months drop test.

_____ _____
(Competent Person) (Date)

Forklifts

WAC 296-863 - Forklifts and Other Powered Industrial Trucks

Overview

This program has been developed to make our truck operators aware of the hazards associated with motorized truck use as well as to provide guidance for safe truck operations.

Persons will be authorized to operate our forklifts only after they have successfully demonstrated their understanding of proper procedures for truck inspection, use, and refueling/recharging. Operators will demonstrate their truck knowledge and abilities by passing a written test and performing designated truck maneuvers. All truck operators will be evaluated by the Forklift Program Administrator or a designated competent person.

Because of their power; weight; size; restricted visibility; and, often, high center of gravity, operation of industrial trucks takes skill and attention to detail. One moment of inattention can lead to a major mishap in an instant. Additionally, the load presents potential hazards if not properly secured, balanced, and/or properly placed on the truck.

The Program Administrator or other competent person will determine whether the atmosphere or location in which our industrial trucks will operate is hazardous or non-hazardous and, after further assessing our needs, will determine which types of trucks are appropriate and allowed for our specific operations.

In the unlikely event that unsafe industrial motor truck operations are observed, retraining will be given with emphasis on correcting the improper behavior. To prevent the possibility of severe injury to the operator (or a bystander), our forklifts must be operated in a professional manner and anything less will not be tolerated.

All truck operators will have ready access to this program, appropriate WISHA standards, and the truck owner/operator manuals.

Forklifts are designed to move items quickly, safely, and cleanly. Forklift training would also apply to numerous types of powered industrial trucks such as: tractors; platform lift trucks; motorized hand trucks; and other specialized industrial trucks powered by electric motors or internal combustion engines.

While many safety features are designed into forklifts, accidents still happen and they are generally the result of operator error. According to *Modern Materials Handling*, pg. E-18, Jul 97, powered industrial vehicles are involved in approximately 68,000 accidents annually, causing 90,000 injuries and 100 deaths.

There is a general agreement among safety professionals, as well as WISHA, that requiring training for all persons (including part-time, seasonal, and temporary employees) who operate forklifts will significantly reduce the above accident and injury rate.

General Requirements

All truck operators must be thoroughly familiar with the truck, itself. This includes knowing:

a. instinctively what each and every control does.

b. how to perform a truck safety check.

c. the truck's limitations such as maximum load, height and width, visibility, stability, and surface requirements.

d. the truck's stopping and turning ability and its effect on loads.

The below safety rules and guidelines to which one must adhere while operating a forklift have been established. These rules are designed to protect the operator and/or persons adjacent to truck operations.

Specifically:

1. No person shall operate one of our trucks unless authorized in writing.
    a. Prior to authorization, the operator will have read this program, received training, passed a quiz on truck operations, and been evaluated on operational skills.
    b. Authorization to operate one type of truck does not automatically authorize a person to operate all trucks. Different power sources, visibility restrictions, controls, and capacities may dictate, in the judgment of the Program Administrator, that a separate certification process may be required for a different type of truck. There may be instances where a new vehicle does not necessitate new training and a demonstration of proficiency. A newer model of a currently used truck may be identical to the truck the operator is qualified on as far as safety and operations are concerned. As a general rule, each type of truck has its own characteristics, limitations, and idiosyncrasies -- each model of a type of truck may or may not be unique.

2. No riders are allowed on our forklift unless:
   a. the truck is specifically designed for such use.
   b. the rider is authorized by the Program Administrator.

   Note: Forklifts are generally designed to move product, supplies and equipment, not personnel.

3. The Program Administrator will revoke the authority to operate a truck if unsafe acts are observed or it is apparent that the operator has not retained the knowledge and job skills necessary to safely perform truck operations.
   a. an operator who has lost his authorization to operate a truck will be retrained, reevaluated, and, if appropriate, re-certified.
4. At the beginning of each shift, the operator will inspect the truck using our Forklift Daily Checklist.
   a. If deficiencies relating to safety are found, the deficiencies will be noted on the Checklist and reported to the Program Administrator or other designated person. The vehicle will not be used until safety defects are repaired.
   b. If cosmetic damage is discovered during the daily check, it will be noted on the Checklist, however, the truck will be used. Cosmetic faults will not delay our operations.

Hazards

The major personal safety hazards involved in truck operation include:

a. physically hitting a person/object with the truck or load.
b. having a load fall and hit the operator or other person.
c. having the truck tip and crush the operator or other person.
d. fire or explosion during refueling/recharging.

Below are rules and guidelines to control the hazards identified and reduce the likelihood of accident/injury. While some of the procedures may seem too obvious to mention or just plain common sense, remember this —serious, even fatal, accidents have occurred because for one split second an operator forgot or ignored a basic safety rule.

HITTING A PERSON/OBJECT

a. Never drive up to a person standing in front of a fixed object.
b. When possible, stay within delineated travel lanes or aisles.
c. Be seen and/or heard.
d. Ensure that adequate lighting is available.
e. Maintain a clear view of travel. If the load blocks or restricts the view, the operator will drive with the load trailing (backwards).
f. Slow down, sound horn, and do not pass where vision is restricted.
g. Operate the truck at speeds that will allow it and the load to be stopped in a safe, smooth, manner.
h. Be aware of floor conditions. Remove loose objects that have found their way to the truck travel lanes. Operate the truck at slower speeds on wet or slippery floors.
i. Of course, stunt or reckless driving is prohibited.
j. Be aware of the height of the truck and, if equipped, its mast and load. Carelessness can damage ceiling, lights, pipes, etc.
k. Never allow anyone to stand or pass under an elevated portion of any truck at any time.

FALLING LOADS

a. Know your load -- do not “over stack”. Because practically all loads lifted or hauled by a forklift are not secured to the truck, ensure the load is properly stacked. Cartons generally should be interlaced or banded.
b. If lifting a load or pallet, get the forks (or other engaging means) as far under the load as possible.
c. Travel with the load in the lowest position for stability as well as prevention of hitting objects overhead. If using forks, tilt the load backward for stabilization.
d. Do not exceed the truck’s rated capacity or stack loads too high.
e. Do not make “jerky” movements such as slamming the brakes or high speed turns.
f. A load backrest extension will reduce the possibility of part of the load falling rearward.
g. When using a fork lift, the forks may be tilted forward only for picking up or setting down a load.

TIPPING

Forklifts are, by design, narrow allowing them greater access within the work setting. Unfortunately, a narrow track offers less stability. Tipping or falling off an edge (or dock) is a preventable accident by following the guidelines below. If your truck tips, keep your body and limbs within the safety of the cage. Wear a seat belt if the truck is so equipped.

a. stay within travel lanes.

b. if entering a trailer, ensure:

   1. the trailer brakes are engaged.
   2. the trailer is secured from movement by means of chocks and/or a locking mechanism.
   3. the tractor is either shut off or removed from the trailer.
   4. the trailer is squared up with the dock opening and dock plates are secure.
   5. the trailer floor is capable of supporting the forklift and its load.
   6. the lighting within the trailer is adequate.

Note: Falling off a dock edge because a trailer has moved is invariably a serious accident. Do not count on the tractor-trailer driver to lock his brakes or even trust that his brakes work. Physically check and ensure that the trailer into which you are taking your forklift is flush against the dock. If possible, the trailer should be actually attached to the dock, but in all cases, it should be chocked.

c. travel with the load in the lowest possible position and avoid sharp turns at higher speeds as well as abrupt truck movements.

d. be aware of the surface on which you are traveling -- its traction, ability to hold weight, slope, and surface.

Fire/Explosion during Refueling/Recharging

Refueling accidents are not common experiences, however should they occur, they would be sudden and possibly catastrophic. Follow the manufacturer's owner's manual and local fire laws.

a. There is absolutely NO SMOKING or open flame during any portion of the refueling/recharging process.

b. At least an 8B:C rated fire extinguisher must be readily available when refueling propane. Facilities for quick drenching of the eyes and body must be readily available.

Other Concerns

The program deals primarily with the personal safety of our forklift operators. However, when discussing truck operations, we would be remiss if it were not pointed out that improper truck operations could also result in physical damage to products, trucks, and/or facilities. Proper truck operation will reduce personal injury accidents, and, as an added benefit, prevent general damage.

Operation Protection

A hazard assessment of forklift operations will be conducted by the Program Administrator. Particular attention will be given to hand, head, eye, and foot protection as well as environmental conditions such as atmospheres, heat or cold. If the truck is equipped with a seat belt, it must be worn when the truck is moving.

Keep your limbs within the running lines of the truck and keep your hands and fingers away from moving parts -- particularly the mast on a fork lift truck.

The Program Administrator will perform a hazard assessment of our truck operations and determine what, if any, personal protective equipment (PPE) requirements are appropriate. If PPE (examples: steel toed boots, leather gloves, hard hat, eye protection, etc.) is required, it must be worn.

Forklift Operations

In addition to safety operating practices previously identified in this manual, the following will be considered general operating procedures:

a. fire aisles, access to stairways, and fire equipment must be kept clear.

b. operators leaving their trucks must ensure the load is fully lowered, controls neutralized, and brakes set. On an incline, the wheels must be blocked. If the operator is 25 feet or more from the truck or does not have a clear view of the truck, the power to the truck must be shut off.

c. a safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, platform or freight car.

d. trucks shall not be used for opening or closing freight doors.

    1. trucks, like all items of equipment, will be used for the purpose for which they were designed.

e. be aware that if the operator of a semi-trailer has placed the rear wheels in a far forward position, the trailer may act as a “teeter-totter” when a heavy forklift enters the trailer. When a trailer is not coupled to a tractor, fixed jacks may be necessary to support the semi-trailer during loading or unloading.

f. be aware that the overhead guard (used as protection against falling objects) is designed to prevent injury from the impact of small packages, boxes, bagged material, etc. -- it is not necessarily designed to withstand the impact of a falling capacity load.

g. in the event persons are lifted by a truck, a lifting platform must be securely attached to the lifting mechanism and the persons on the safety platform must have means of shutting off power to the truck.

h. if more than one truck is operated, they must be separated by a safe distance (at least three truck lengths) and they may not pass each other in intersections, blind spots, or other dangerous locations. The right of way shall be yielded to other trucks in emergency situations.

i. trucks traveling in the same direction shall not be passed at all.

j. driving on grades:

    1. grades shall be ascended or descended slowly.

    2. when ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.

k. motorized hand trucks must enter confined areas with the load end forward.

Maintenance

While the operator is responsible for checking the truck before use, actual mechanical maintenance must be performed by an authorized person.

a. if at any time a forklift is found to be in need of repair, defective, overheating, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

b. forklifts should be kept reasonably clean and free of excess oil and grease.

Duties of the Forklift Administrator

The duties of the Forklift Program Administrator include:

a. operator training and certification.

b. hazard assessment of our truck operations.

c. identification of truck operators who, through their performance have demonstrated a lack of retained knowledge or ability to safely operate a powered truck. These persons will receive retraining.

d. keeping abreast of developments in the materials handling field with an emphasis on safety.

Additionally, the administrator will ensure that all truck operators have ready access to WAC 296-863 - Forklifts and Other Powered Industrial Trucks, this program, and the individual truck's Operator/Owner Manual.

Training

will administer the training portion of this program.

Interactive training will be given by a competent (one with knowledge, training, and experience) person with ample opportunity to ask questions and clarify all aspects of truck operation relating to safety.

Prior to actual truck operation on the job, all truck operators will become familiar with the contents of this program as well as the operator's manual applicable to the specific powered truck they will operate. Each operator will demonstrate an understanding of truck operations and complete a driving test which will include truck inspection, maneuvering, and fueling/charging.

New truck operators may operate powered trucks in a training capacity:

a. When they are under the direct supervision of persons who have the knowledge, training, and experience to train and evaluate their competence.

b. Where such operation does not endanger themselves or others.

will ensure that all truck operators have a complete understanding of the below listed topics:

Truck-Related Topics:

a. Operating instructions, warnings, and precautions for the type 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.

Work-Related Topics:

a. Surface conditions where the vehicle will be operated.
b. Composition of loads to be carried and load stability.
c. Load manipulation, stacking, and unstacking.
d. Pedestrian traffic in areas where the vehicle will be operated.
e. Narrow aisles and other restricted places where the vehicle will be operated.
f. Hazardous (classified) locations where the vehicle will be operated.
g. Ramps and other sloped surfaces that could affect the vehicle's stability.
h. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
i. Other unique or potentially hazardous environmental conditions in the work area that could affect safe operation.

Refresher training in relevant topics will be provided to the operator when:

a. If unsafe truck operations are observed.
b. After an accident or near-accident.
c. Operator has received an evaluation that reveals that the operator is not operating the truck safely
d. If the operator is to be assigned to drive a different type of truck.
e. If work area changes could affect safe operation of the truck.

An evaluation of each powered industrial truck operator's performance must be conducted at least once every three years and refresher training will be provided as needed.

Use of Forklifts to Support Scaffold Platforms

Per 29 CFR 1926.451(c)(2)(v), if deemed appropriate, forklifts may be used to support scaffold platforms with the following conditions:

a. The forklift will be designed for such use as indicated either:
    1. In the owner’s manual, or
    2. By a letter from the manufacturer allowing such use, or
    3. Certification by a registered engineer that the forklift is so designed.
b. The entire scaffold platform is securely attached to the forks.
c. The fork lift is not moved horizontally while the platform is occupied.
d. The platform (and machine) meets the requirements of 29 CFR 1926.451 for capacity, construction, access, use, and fall protection.
    1. If the platform is not designed by the manufacturer of the forklift, it must be designed by a qualified person.
    2. The forklift must be capable of supporting, without failure, its own weight and at least four times the maximum intended load.
e. The platform for elevating personnel must not extend more than 10 inches beyond the wheelbase of the machine in use.
f. The employees on the platform must be able to have travel and power controls at the platform level.
    1. This requirement is fulfilled by having the forklift operator remain with the forklift while personnel are on the platform.
g. The use of a forklift to support a scaffold platform will be used only after a determination that the use of other equipment such as scaffolds, scissor lifts, aerial lifts, and ladders is not practical.

Hazard Communication

WAC 296-155-180 - Hazard Communication

Purpose

The whole purpose of our hazard communication program is to ensure that the hazards of all chemicals used in the workplace are transmitted to our employees in a manner consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.

Per WAC 296-155-180 we must develop and maintain a hazard communication program that complies with WAS 296-901-14010. We are to provide information to our employees about the hazardous chemicals to which they are exposed by means of a hazard communication program, labels and other forms of warning, safety data sheets, and information and training. We are to provide information on any chemical which is known to be present in the workplace that employees may be exposed under normal conditions of use or in a foreseeable emergency.

This written hazard communication program must be maintained at each worksite and at least describe the criteria specified in WAC 296-901-14012, 296-901-14014, and 296-901-14016 for labels and other forms of warning, safety data sheets, and employee information and training will be met, and which also includes the following:

a. A list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and

b. The methods we will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas. These methods are:

Non-routine task

Prior to performing a non-routine task, an employee will be given information by a competent person or supervisor concerning the hazardous chemicals to which he may be exposed. This information will include:

a. Specific chemical hazards

b. Protective/safety measures the employee may take.

c. Measures taken to lessen the hazards including ventilation, respirators, presence of another employee and emergency procedures.

Chemicals contained in unlabeled pipes

Should work activities be performed in areas where chemicals are transferred through unlabeled pipes, the employee shall be informed by the competent person or supervisor of:

a. The chemical in the pipes.
b. Potential Hazards.
c. Safety precautions to be taken.

Multi-employer workplaces

When we use or store hazardous chemicals at a workplace in such a way that the employees of other employer may be exposed (for example, employees of a construction contractor working on-site) we must additionally ensure that:

a. The methods we will use to provide the other employer(s) on-site access to safety data sheets for each hazardous chemical their employees may be exposed to while working;
b. The methods we will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies; and
c. The methods we will use to inform the other employer(s) of the labeling system used in the workplace.

Sharing information:

The competent person on the job site will inform those with whom we work of any hazardous chemical products we are using and will provide them with the appropriate SDS for their review. SDS for all chemical products used on the job site will be readily available.

Should we introduce a new chemical product to the job site that contains a physical or health safety hazard, the product's SDS will accompany that product and, before use, employees will be given instruction on the products hazards. This information will be shared with other contractors with whom we may be working. Employees are to be kept informed of the chemical products being used by other contractors if they pose a safety hazard.

Our written hazard communication program is available, upon request, to employees, their designated representatives, the department. In the event employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the written hazard communication program may be kept at the primary workplace facility.

Definitions:

Though not required, the below definitions are included in this program to increase clarity.

Article means a manufactured item other than a fluid or particle:

a. Which is formed to a specific shape or design during manufacture;

b. Which has end use function(s) dependent in whole or in part upon its shape or design during end use; and

c. Which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under WAC 296-901-14008), and does not pose a physical hazard or health risk to employees.

Chemical means any substance, or mixture of substances.

Chemical name means the scientific designation of a chemical the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Classification means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Exposure or exposed means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g., accidental or possible) exposure.

Hazard category means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and must not be taken as a comparison of hazard categories more generally.

Hazard class means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

Hazard statement means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical including, where appropriate, the degree of hazard.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

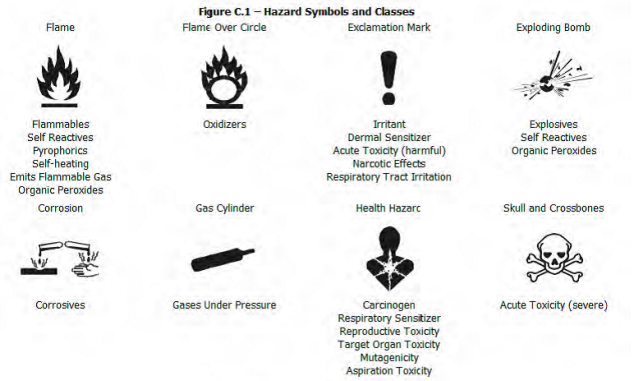

Figure C.2 – Exclamation Mark Pictogram

Product identifier means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used must permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Safety data sheet (SDS) means written or printed material concerning a hazardous chemical that is prepared in accordance with WAC 296-901-14014.

Signal word means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for the less severe.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Work area means a room or defined space in a workplace where hazardous chemicals are used and where employees are present.

Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

Labels and other forms of warning:

Each container of hazardous chemicals entering the workplace must be labeled, tagged, or marked with the following information:

a. Product identifier;
b. Signal word;
c. Hazard statement(s);
d. Pictogram(s);
e. Precautionary statement(s); and
f. Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

Solid materials.

a. For solid metal (such as a steel beam or a metal casting), solid wood, or plastic items that are not exempted as articles due to their downstream use, or shipments of whole grain, the required label may be transmitted to the customer at the time of the initial shipment, and need not be included with subsequent shipments to the same employer unless the information on the label changes;
b. The label may be transmitted with the initial shipment itself, or with the safety data sheet that is to be provided prior to or at the time of the first shipment; and
c. This exception to requiring labels on every container of hazardous chemicals is only for the solid material itself, and does not apply to hazardous chemicals used in conjunction with, or known to be present with, the material and to which employees handling the items in transit may be exposed (for example, cutting fluids or pesticides in grains).

As a point of interest, chemical manufacturers, importers, or distributors must ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) and regulations issued under that act by the Department of Transportation.

Workplace labeling

Except as provided in subsection (7) and (8) of WAC 296-901-14012, we must ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with either:

a. Product identifier;

b. Signal word;

c. Hazard statement(s);

d. Pictogram(s); or

e. Product identifier and words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

Note: See above paragraph; subsection (7) and (8) of WAC 296-901-14012:

We may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required under *Workplace labelin*g, above, to be on a label. We must ensure the written materials are readily accessible to the employees in their work area throughout each work shift.

We are not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

We must not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

We must ensure that workpl4ace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. If some or our employees speak other languages, we may add the information in their language to the material presented, as long as the information is presented in English as well.

Safety data sheets

Chemical manufacturers and importers must obtain or develop a safety data sheet for each hazardous chemical they produce or import. We must have a safety data sheet in the workplace for each hazardous chemical we use.

Safety data sheets must ensure that it is in English (although we may maintain copies in other languages as well). Safety Data Sheets must have the below information in the order listed.

Section 1, Identification:

a. Product identifier used on the label;
b. Other means of identification;
c. Recommended use of the chemical and restrictions on use;
d. Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party;
e. Emergency phone number.

Section 2, Hazard(s) identification:

a. Classification of the chemical in accordance with WAC 296-901-14008;
b. Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with WAC 296-901-14012. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones);
c. Describe any hazards not otherwise classified that have been identified during the classification process;
d. Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.

Section 3, Composition/information on ingredients:

Except as provided for in WAC 296-901-14018 on trade secrets:

For Substances

a. Chemical name;
b. Common name and synonyms;
c. CAS number and other unique identifiers;
d. Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.

For Mixtures

In addition to the information required for substances:

a. The chemical name and concentration (exact percentage)or concentration ranges of all ingredients which are classified as health hazards in accordance with WAC 296-901-14008 and
    1. are present above their cut-off/concentration limits; or
    2. present a health risk below the cut-off/concentration limits.
b. The concentration (exact percentage) must be specified unless a trade secret claim is made **or** when there is batch-to-batch variability in the production of a mixture **or** for a group of substantially similar mixtures with similar chemical composition. In these cases, concentration ranges may be used.

For All Chemicals Where a Trade Secret is Claimed:

Where a trade secret is claimed, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

Section 4, First-aid measures:

a. Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion;

b. Most important symptoms/effects, acute and delayed.

c. Indication of immediate medical attention and special treatment needed, if necessary.

Section 5, Firefighting measures:

a. Suitable (and unsuitable) extinguishing media.

b. Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

c. Special protective equipment and precautions for fire-fighter

Section 6, Accidental release measures:

a. Personal precautions, protective equipment, and emergency procedures.

b. Methods and materials for containment and cleaning up.

Section 7, Handling and storage:

a. Precautions for safe handling.

b. Conditions for safe storage, including any incompatibilities.

Section 8, Exposure controls/personal protection:

a. DOSH permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

b. Appropriate engineering controls.

c. individual protection measures, such as personal protective equipment.

Section 9, Physical and chemical properties:

a. Appearance (physical state, color, etc.);
b. Odor;
c. Odor threshold;
d. pH;
e. Melting point/freezing point;
f. Initial boiling point and boiling range;
g. Flash point;
h. Evaporation rate;
i. Flammability (solid, gas);
j. Upper/lower flammability or explosive limits;
k. Vapor pressure;
l. Vapor density;
m. Relative density;
n. Solubility(ies);
o. Partition coefficient: n-octanol/water;
p. Auto-ignition temperature;
q. Decomposition temperature;
r. Viscosity.

Section 10, Stability and reactivity:

a. Reactivity;
b. Chemical stability;
c. Possibility of hazardous reactions;
d. Conditions to avoid (e.g., static discharge, shock, or vibration);
e. Incompatible materials;
f. Hazardous decomposition products.

Section 11, Toxicological information:

Description of the various toxicological (health) effects and the available data used to identify those effects, including:

a. Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);

b. Symptoms related to the physical, chemical and toxicological characteristics;

c. Delayed and immediate effects and also chronic effects from short-and long-term exposure;

d. Numerical measures of toxicity (such as acute toxicity estimates).

e. Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by DOSH.

Section 12, Ecological information:

a. Ecotoxicity (aquatic and terrestrial, where available);

b. Persistence and degradability;

c. Bioaccumulative potential;

d. Mobility in soil;

e. Other adverse effects (such as hazardous to the ozone layer).

Section 13, Disposal considerations:

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

Section 14, Transport information:

a. UN number;

b. UN proper shipping name;

c. Transport hazard class(es);

d. Packing group, if applicable;

e. Environmental hazards (e.g., Marine pollutant (Yes/No));

f. Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);

g. Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.

Section 15, Regulatory information:

Safety, health and environmental regulations specific for the product in question.

Section 16, Other information, including date of preparation or last revision:

The date of preparation of the SDS or the last change to it.

The department will not be enforcing information requirements in SDS Sections 12 through 15 as they are not under its jurisdiction.

If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, we must obtain one from the chemical manufacturer or importer as soon as possible; and

We must be provided a safety data sheet if requested from the chemical manufacturer or importer or distributor.

Additional Safety Data Sheet Information:

While we, as an employer, must maintain in the workplace copies of the required safety data sheets for each hazardous chemical and must ensure that they are readily accessible during each work shift to employees when they are in their work area(s), electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace.

Where employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the material safety data sheets may be kept at the primary workplace facility. This is allowed only if employees can immediately obtain the required information in an emergency.

Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, we must ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

Safety data sheets must also be made readily available, upon request, to designated representatives, and the department in accordance with the requirements of WAC 296-901-14010.

Employee information and training:

Employees will be provided with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

Employees must be informed of:

1. The requirements of WAC 296-901-14016 Employee information and training;
2. Any operations in their work area where hazardous chemicals are present; and
3. The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and safety data sheets required by this section.

Employee training must include at least:

1. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by competent persons, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
2. The physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area;
3. The measures employees can take to protect themselves from these hazards, including specific procedures we implement to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
4. The details of our hazard communication program that we developed including an explanation of the labels received on shipped containers and our workplace labeling system; the safety data sheet, including the order of information and how employees can obtain and use the appropriate hazard information.

Note: This written Chemical Hazard Communication Program is available, upon request, to employees, their designated representatives, the department, and NIOSH, in accordance with the requirements of chapter 296-802 WAC, Employee medical and exposure records.

Highline College Facilities Department

Request for Safety Data Sheets

TO:

_____
(Date)

_____
(Supplier)

_____
(PO Box/Street Address)

_____
(City, State, ZIP)

To whom it may concern:

On _____, we received a shipment of _____,
(Date) (Product Name)
reference invoice: _____.
(Invoice Number)

The above product was received without an accompanying Safety Data Sheet (SDS). Per 29 CFR 1910.1200, we are unable to use this product without its SDS.

Please furnish the appropriate SDS as soon as possible to:.

Highline College Facilities Department

2400 S. 240th St.
Des Moines, WA 98198
206-592-3260

Thank you,

_____
Jason Huff
Safety Director

List of Hazardous Chemicals

The Safety Data Sheets for the below listed Hazardous Chemicals will follow this list. The Safety Data Sheets are arranged in the order listed below:

Hazardous Chemical *Product Identifier:

*Product Identifier means the name of number used in the SDS - permits cross-references to be made among this list of hazardous chemicals, the label and the SDS.

Chemicals

Lockout/Tagout - Control of Hazardous Energy

WAC 296-803 - Lockout/Tagout (Control of Hazardous Energy)

Overview

As a contractor, we could be involved in the constructing, installing, setting up, adjusting, inspecting, modifying, maintaining or servicing equipment with the possibility of injury due to the unexpected energization, start up or release of stored energy.

Coordination will be established between the client and, if appropriate, subcontractors to clearly indicate who is responsible for what function of the program as well as the identifying characteristics of the lockout/tagout devices -- shape, color, color codes for locks and tags, if used.

Coordination is required because -- for example: our employee may complete lockout/tagout procedures and perform maintenance on a fixed piece of equipment while a client's employee is affected by that work.

All our employees affected by this program will be "authorized employees" by virtue of their work (see "Definitions" below.)

Definitions

There are a number of terms and phrases which must be understood by all employees to grasp the general thrust of this Program. For those employees directly involved with this Program or affected by it, there are specific requirements and procedures which would be meaningless without an understanding of the "language" of Control of Hazardous Energy.

AFFECTED EMPLOYEE: an employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

AUTHORIZED EMPLOYEE: a person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment.

Note: An authorized employee is authorized to service only machines and equipment with which he/she is familiar by training and/or experience.

CAPABLE OF BEING LOCKED OUT: an energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

ENERGIZED: connected to an energy source or containing residual or stored energy.

ENERGY ISOLATING DEVICE: a mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

ENERGY SOURCE: any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

FIXED EQUIPMENT: equipment fastened in place or connected by permanent wiring methods.

HOT TAP: a procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

LOCKOUT: the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

LOCKOUT DEVICE: a device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

NORMAL PRODUCTION OPERATIONS: the utilization of a machine or equipment to perform its intended production function.

OTHER EMPLOYEES: those employees whose work operations are or may be in an area where energy control procedures may be utilized.

SERVICING AND/OR MAINTENANCE: workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of equipment or release of hazardous energy.

SETTING UP: any work performed to prepare a machine or equipment to perform its normal production operation.

TAGOUT: the placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

TAGOUT DEVICE: a prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Applicability

The provisions of this program apply when there is a possibility of injury due to the unexpected energization, start up or release of stored energy while constructing, installing, setting up, adjusting, inspecting, modifying, maintaining or servicing fixed machinery. Stored energy in an electro/mechanical system can be found in rotating flywheels, weights and counter-weights, hydraulic and pneumatic pressure, thermal and chemical energy, springs and unbalanced loads.

This program does not apply to:

a. work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

b. hot tap operations provided:

    1. continuity of service is essential.
    2. shut down of the system is impractical.
    3. documented procedures are followed and special equipment is used which will provide proven effective protection for employees.

Procedures for Control of Hazardous Energy

The general procedures for lockout, tagout, or lockout and tagout are quite similar. Below are instructions which apply to all control of hazardous energy procedures. Exceptions and specific requirements for lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout are noted in their own subchapters.

Note: Throughout this section, lockout/tagout refers to lockout without tagout; tagout without lockout; and lockout used in conjunction with tagout.

PURPOSE AND SCOPE: effective hazardous energy control procedures will protect employees during machine and equipment servicing and maintenance where the unexpected energization, start up or release of stored energy could occur and cause injury. Further, effective hazardous energy control procedures will protect employees when working near or on exposed deenergized electrical conductors and parts of electrical equipment. Hazards being guarded against include, but are not limited to, being cut, struck, caught, crushed, thrown, mangled, and/or shocked by live electrical circuits caused by the unexpected release of hazardous energy. One (1) piece of machinery can have more than one (1) real or potential source of hazardous energy that must be guarded against.

These procedures for the control of hazardous energy will ensure that machines and equipment are isolated properly from hazardous or potentially hazardous energy sources during servicing and maintenance and properly protected from reenergization.

While any employee is exposed to contact with parts of fixed electrical equipment or circuits which have been deenergized, the circuits energizing the parts will be locked out and/or tagged.

PREPARATION FOR SHUTDOWN: prior to lockout/tagout, all energy isolating devices must be located which apply to the specific machine in question. **There may be more than one energy source**. While electrical is most common, other sources could be: hydraulic, pneumatic, chemical, thermal, rotational, spring, etc. All must be isolated. The Energy Source Evaluation Form and the Control Procedures Form must be completed prior to isolation. These forms must be completed by an authorized employee. Once completed, it is recommended that these evaluations remain on file for future use. Any changes in design or energy hazard will require an update of these forms. Not only the energy source hazard, but its magnitude must be recorded on the Energy Source Evaluation Form. Example: Energy Source: Pneumatic. Magnitude: 125 p.s.i.

Before an authorized or affected employee turns off the piece of equipment, the authorized employee must have knowledge of the type and magnitude of the energy to be controlled and the methods or means to control the energy. Refer to the Control Procedures Form for specific energy control procedures.

MACHINE OR EQUIPMENT SHUTDOWN: before lockout/tagout controls are applied, all affected employees will be notified and given the reasons for the lockout/tagout.

If a machine or equipment is operating, it will be shut down by normal stopping procedures by either the affected or authorized employee.

LOCKOUT/TAGOUT DEVICE APPLICATION: authorized employees will lockout/tagout the energy isolating devices with assigned individual locks. Locks or other lockout/tagout devices will be color coded and shall be used for no other purpose. Lockout/tagout devices will indicate the identity of the authorized employee applying the device.

Lockout/tagout devices will be durable and capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected. They shall be standardized in color and be substantial enough to prevent their removal without the use of excessive force or unusual techniques such as bolt cutters or other metal cutting tools. Key or combination locks are acceptable. Tagout device attachments shall be non-reusable, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds. The tagout attachment will have the general design and basic characteristics of, at a minimum, a one-piece, all environmental tolerant nylon cable tie.

Lockout/tagout devices will be applied so that they will hold the energy isolating devices in a "Neutral" or "Off" position. Protective materials and hardware shall be provided for isolating, securing or blocking of machines or equipment from energy sources. These protective materials and hardware include, but are not limited to, locks, tag chains, wedges, key blocks, adapter pins, self-locking fasteners, etc.

RELEASE OF STORED ENERGY: all stored energy will be blocked or dissipated. Types of stored energy include flywheels, springs, hydraulic or pneumatic systems, etc. Should there be a possibility of reaccumulation of stored energy, verification of isolation must be continued until servicing is complete.

VERIFICATION OF ISOLATION: prior to starting work on machines or equipment that have been locked out and after ensuring that no personnel are exposed to the release of hazardous energy, the authorized employee shall operate the normal operating controls to verify that the machine or equipment has been deenergized and that it will not operate.

After the above test, the operating controls will be returned to the "NEUTRAL" or "OFF" position.

At this point, the machine/equipment is now locked out. The work may proceed.

RELEASE FROM LOCKOUT/TAGOUT: Before the lockout/tagout devices are removed and energy is restored to the machine or equipment, the following procedures will be implemented to ensure the following:

a. the work area will be inspected to ensure that nonessential items have been removed and to ensure that the machine or equipment components are operationally intact.

b. the work area will be checked to ensure that all employees have been safely positioned or removed.

After the lockout/tagout devices have been removed and before the machine or equipment is started, affected employees will be notified that the lockout/tagout devices have been removed.

Each lockout/tagout device must be removed by the authorized employee who applied it.

Note: The one exception to the above is when the authorized employee who applied the lockout/tagout device is not available to remove it. That device may be removed under the direction of the competent person provided that the below specific procedures are followed:

a. verification by the competent person that the authorized employee who applied the lockout/tagout device is not within the facility.

b. all reasonable efforts will be made to contact the authorized employee to inform him/her that his/her lockout/tagout device has been removed.

c. ensuring that the Authorized employee has been informed of the above before resuming work.

The person who removes the device must be an authorized employee.

Each type of control of hazardous energy procedure shall be documented using the Energy Source Evaluation Form and the Control Procedures Form **except** when all the below listed conditions exist:

a. The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees; and
b. The machine or equipment has a single energy source which can be readily identified and isolated; and
c. The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment; and
d. The machine or equipment is isolated from that energy source and locked out during servicing and maintenance; and
e. A single lockout device is under the exclusive control of the authorized employee performing the servicing and maintenance; and
f. The servicing and maintenance does not create hazards for other employees; and
g. No accidents have occurred involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

The above exceptions apply to documentation only. Whether using lockout, tagout, or lockout and tagout, the general procedures are the same.

Device Selection Criteria for Non-Electrical Hazardous Energy

A lock, color coded with either paint or tape and identifiable with the name of the employee who applied it, shall be placed on each energy isolating device where feasible. Lockout is the primary means of non-electrical hazardous energy isolation and, where possible, will always be used in lieu of tagout. In the event a machine or piece of equipment will not accept a lock on its energy isolating device(s), it will be modified to do so whenever it is replaced, renovated, or undergoes a major repair.

There are occasions where lockout cannot be accomplished and in those instances, tagout alone may be used as long as it provides full employee protection as explained below:

a. A tag may be used without a lock if a lock cannot be physically applied. This procedure must be supplemented with at least one additional safety measure providing a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include, but are not limited to the:
    1. removal of an isolating circuit element.
    2. blocking of a controlling switch.
    3. opening of an extra disconnecting device.

Note: A tag may be used without a lock if it can be demonstrated that tagging pro-cedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option.

All affected persons must be fully aware of the fact that tags used in tagout procedures are essentially a warning device affixed to energy isolating devices. Unlike locks, tags do not physically restrain. Tags will:

a. be capable of withstanding the environment to which they have been exposed for the maximum period of time that exposure is expected.
b. be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
c. be standardized in at least one (1) of the following:
    1. color.
    2. shape.
    3. size.

d. be standardized in print and format.

e. in their method of attachment, be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment methods and means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum strength of no less than 50 pounds and have the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

f. indicates the identity of the employee applying the tag.

g. warn against the hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: Do Not Start; Do Not Open; Do Not Close; Do Not Operate, etc.

Control of Electrical Hazardous Energy on Fixed Equipment

Electrical hazards associated with fixed equipment present a special hazard class and, in each case, a determination must be made whether lockout, tagout, or lockout used in conjunction with tagout is to be utilized.

Live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs. Fixed equipment is defined as: "equipment fastened in place or connected by permanent wiring methods."

Before circuits and/or equipment are deenergized, safe procedures will be determined before the fact. At a minimum:

a. the circuits and equipment to be deenergized will be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.

b. stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded if the stored electric energy might endanger personnel. Be aware of the shock potential of capacitors and associated equipment. If they are handled in meeting this requirement (discharging), they shall be treated as energized until they have been totally discharged.

c. stored non-electrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

Device Selection Criteria for Electrical Hazardous Energy

Note: When dealing with safety related work practices to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, a Qualified Person is defined as one who: "is permitted to work on or near exposed energized parts" and who, at a minimum, has been trained in and is familiar with:

a. the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, and

b. the skills and techniques necessary to determine the nominal voltage of exposed live parts, and

c. the clearance distances and the corresponding voltages to which the qualified person will be exposed.

A lock and tag shall be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed except:

a. a tag may be used without a lock if it can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock. This demonstration must be documented. This is an allowable, but not preferred, option. A tag may also be used without a lock if a lock cannot be physically applied. Under either of the above two circumstances that a tag is used without a lock, the procedures must be supplemented with at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include:
    1. the removal of an isolating circuit element.
    2. the blocking of a controlling switch.
    3. the opening of an extra disconnecting device.
b. A lock may be used without a tag if, and only if:
    1. only one circuit or piece of equipment is being deenergized, and
    2. the lockout period does not extend beyond the work shift, and
    3. employees exposed to the hazards associated with reenergizing the circuit are familiar with this procedure -- utilizing a lock without a tag.

After electrical hazards are locked out, tagged out, or locked and tagged out, a Qualified Person must verify deenergization before work can proceed on deenergized equipment. Verification by the Qualified Person will include:

a. operation of the equipment operating controls or otherwise verify that the equipment cannot be restarted.

b. using test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and verifying that the circuit elements and equipment parts are deenergized.

c. using test equipment to determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe.

Note: If the circuit to be tested is over 600 volts, the test equipment shall be checked for proper operation immediately before and immediately after this test.

Reenergizing Electrical Equipment

The process of reenergizing electrical equipment, even temporarily, must be accomplished as noted below in the order listed:

a. A Qualified Person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuit and equipment can be safely energized.

b. Employees exposed to the hazards associated with reenergizing the circuit or equipment shall be warned to stay clear of circuits and equipment.

c. Each lock and tag will be removed by the authorized employee (who must also be a Qualified Person when dealing with electrical hazards).

d. If the person who applied the lock or tag is absent from the workplace, the competent person may designate another Qualified Person to remove the lock and/or tag provided that:

   1. it is assured that the Authorized Person who applied the lock or tag is not available at the workplace, and

   2. it is assured that the Authorized Person who applied the lock and/or tag is aware that the lock and/or tag has been removed before he/she resumes work at the workplace.

e. A visual determination shall be accomplished to ensure all employees are clear of the circuits energized.

Special Considerations

Whether using lockout, tagout, or lockout and tagout procedures, the below special considerations apply.

There may be special circumstances where, during a lockout procedure, a machine or equipment must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment or components thereof. The below procedures will be followed to accomplish this task:

a. The machine or equipment will be cleared of tools and nonessential items and, if it is to be operated, all components will be operationally intact.

b. The work area will be checked to ensure that all employees have been safely positioned or removed.

c. The standard release from lockout procedures will be implemented.

d. The machine or equipment will be energized and testing or positioning will proceed.

e. After testing or positioning, deenergize all systems and reapply the energy control device following standard procedures.

Group Lockout and/or Tagout Procedures

In the event that servicing or maintenance is performed by more than one individual, the following shall be implemented:

a. One person will be designated as Group Leader and that person will have overall responsibility for a set number of employees working under his/her control.

b. The Group Leader will have exclusive control of a Master Group Lockout and/or Group Tagout device.

c. The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

d. Each authorized employee within the group shall affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and shall remove his/her personal lockout/ tagout device upon completion of work.

If there is more than one group of personnel working a machine or piece of equipment, an employee shall be designated to coordinate and take responsibility for all the individual groups.

Shift and/or Personnel Changes

In the event that Energy Control Procedures must extend into the next shift or if there are individual or group personnel changes, the procedures listed below will be implemented in the order listed:

a. If the energy isolation device will accept two lockout/tagout devices:
    1. The authorized employee coming on duty will place his personalized lockout/tagout device in place, and
    2. After the above step has been completed, the employee going off duty will remove his lockout/tagout device.
b. If the energy isolation device will not accept two lockout/tagout devices, both the incoming and outgoing authorized employees will:
    1. ensure that all affected employees are aware that a lockout/tagout change is about to take place, then
    2. ensure that the area is clear of tools and affected employees, then
    3. the outgoing authorized employee will remove his lockout/tagout devices and immediately the incoming authorized employee will install his lockout/tagout devices, and
    4. the incoming authorized employee will inform the affected employees that the change has been completed.

Following the above procedure will ensure the energy isolating device was never disturbed and that complete control of hazardous energy was maintained. The above procedure provides for continuing protection for both incoming and outgoing employees from the potential hazards of the unexpected release of hazardous energy and an orderly transfer of lockout/tagout responsibilities.

Periodic Inspections

The Safety Director will conduct periodic inspections of this control of hazardous energy program at least annually to ensure that the procedures and requirements of our program are being followed. The information gleaned from the periodic inspection will be used to correct any deviations or inadequacies identified. These inspections will be documented and certification will be prepared to identify the machine or equipment on which an energy control procedure was utilized, the date of the inspection, the employees included in the inspection, and the name of the person performing the inspection. It should be noted that all periodic inspections shall be conducted by a competent person designated by the Safety Director **other** than the person who actually used the energy control procedure being inspected.

Training

Control of Hazardous Energy training will be documented giving the name of the trainer, the name of the trainee, and the date. Authorized employees must be familiar with this program and will be trained in the following areas: recognition of all applicable hazardous energy sources, types and magnitude of energy sources, methods and means necessary for energy isolation and control, and changes to our program.

Retraining will be conducted when a periodic inspection reveals inadequacy in an authorized employee's knowledge; there has been a deviation from established policy or procedure; or our procedures are changed.

All training will be interactive with applicable standards readily accessible.

Copy of WAC 296-155-429 Lockout and tagging of circuits

A written copy WAC 296-155-429, Lockout and tagging of circuits, will be made available for inspection by employees and the program director and his/her representative.

> **WAC 296-155-429 Lockout and tagging of circuits.**
>
> (1) Controls. Controls that are deactivated during the course of work on energized or deenergized equipment or circuits shall be tagged and padlocked in the open position.
>
> (2) Equipment and circuits. Equipment or circuits that are de-energized shall be rendered inoperative and have tags and locked padlocks attached at all points where such equipment or circuits can be energized.
>
> (3) Tags. Tags shall be placed to identify plainly the equipment or circuits being worked on.
>
> (4) Lockout and tagging. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both according to the requirements of this section. The requirements shall be followed in the order in which they are presented (i.e., (a) of this subsection first, then (b) of this subsection).

Note 1: As used in this section, fixed equipment refers to equipment fastened in connected by permanent wiring methods.

Note 2: Lockout and tagging procedures that comply with chapter 296-803 WAC, will also be deemed to comply with this subsection provided that:

1. The procedures address the electrical safety hazards covered by this part; and

2. The procedures also incorporate the requirements of (c)(iv) and (d)(ii) of this subsection.

(a) Procedures. The employer shall maintain a written copy of the procedures outlined in this subsection and shall make it available for inspection by employees and by the director and his/her authorized representative.

Note: The written procedures may be in the form of a copy of this section, WAC 296-155-429.

(b) Deenergizing equipment.

(i) Safe procedures for deenergizing circuits and equipment shall be determined before circuits or equipment are deenergized.

(ii) The circuits and equipment to be worked on shall be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, shall not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment shall not be used as a substitute for lockout and tagging procedures.

(iii) Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.

Note: If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated as energized.

(iv) Stored nonelectrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

(c) Application of locks and tags.

(i) A lock and a tag shall be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed, except as provided in (c)(iii) and (v) of this subsection. The lock shall be attached to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools.

(ii) Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.

(iii) If a lock cannot be applied, or if the employer can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.

(iv) A tag used without a lock, as permitted by item (iii) of this subsection, shall be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

(v) A lock may be placed without a tag only under the following conditions:

(A) Only one circuit or piece of equipment is deenergized; and

(B) The lockout period does not extend beyond the work shifts; and

(C) Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.

(d) Verification of deenergized condition. The requirements of this subsection shall be met before any circuits or equipment can be considered and worked as deenergized.

(i) A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.

(ii) A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are deenergized. The test shall also determine if any energized conditions exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately before and immediately after this test.

(e) Reenergizing equipment. These requirements shall be met, in the order given, before circuits or equipment are reenergized, even temporarily.

(i) A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized.

(ii) Employees exposed to the hazards associated with reenergizing the circuit or equipment shall be warned to stay clear of circuits and equipment.

(iii) Each lock and tag shall be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the work place, then the lock or tag may be removed by a qualified person designated to perform this task provided that:

(A) The employer ensures that the employee who applied the lock or tag is not available at the work place; and

(B) The employer ensures that the employee is aware that the lock or tag has been removed before he or she resumes work at that work place.

(iv) There shall be a visual determination that all employees are clear of the circuits and equipment.

[Statutory Authority: Chapter 49.17.010, .040, .050, and .060. 04-15-105 (Order 03-12, § 296-155-429, filed 07/20/04, effective 11/01/04. RCW. 96-17-056, § 296-155-429, filed 8/20/96, effective 10/15/96. Statutory Authority: Chapter 49.17 RCW. 96-17-056, § 296-155-429, filed 8/20/96, effective 10/15/96; 94-15-096 (Order 94-07), § 296-155-429, filed 7/20/94, effective 9/20/94; 88-11-021 (Order 88-04), 296-155-429, filed 5/11/88.]

Machine/Equipment Identification: _____

Location of Machine Equipment:_____

Authorized Person Name:_____ Date: _____

Energy Sources Evaluation & Control Procedures Form

MACHINE OR EQUIPMENT NAME: _____
LOCATION: _____

MODEL: _____ SERIAL NUMBER: _____
PROCEDURE NUMBER: _____

ENERGY SOURCE	MAGNITUDE (Volts; Amps; Phase; HP; Lbs.; RPM; Ft-lbs.; psi.; F/C; Highly Reactive)	LOCATION OF ISOLATING DEVICE	MEANS OF ISOLATION	COMMENTS
CAPACITOR				
CHEMICAL				
COUNTER WEIGHT				
ELECTRICAL				
ENGINE				
FLYWHEEL				
HYDRAULIC				
PNEUMATIC				
SPRING				
THERMAL				
OTHER				
OTHER				

NOTE: This form must be completed by an Authorized Employee.

EVALUATION CONDUCTED BY:

NAME:_____ DATE:_____

(MUST BE AN AUTHORIZED EMPLOYEE)

Machine/Equipment Identification:_____

Location of Machine Equipment:_____

Authorized Person Name:_____ **Date:**_____

These Procedures must be accomplished in the order listed.

1. **PREPARATION FOR SHUTDOWN:** The Authorized Employee will be totally familiar with the first page of this form. The Affected Employees will be notified that the piece of equipment is about to be shut down and locked out.

Specific Instructions:_____

_____

_____

_____

2. **SHUTDOWN:** Affected Employees will be given the reason(s) for the lockout/tagout procedures. If the machine is running, it will be turned off using normal procedures. It may be shut down by either the Authorized Employee or the Affected Employee.

Specific Instructions:_____

_____

_____

_____

3. **MACHINE ISOLATION:** All real or potential hazardous energy listed on the first page of this form will be isolated from their source. The location of the isolation devices and the methods used are also found on the first page of the form.

Specific Instructions:_____

_____

_____

_____

4. **LOCKOUT/TAGOUT DEVICE APPLICATION:** Authorized Employees will (circle appropriate procedure): [lockout] [tagout] [lockout and tagout] the energy isolating devices. Lock and tag devices will be color coded and they will contain the identity of the Authorized Employee actually performing this procedure. The lockout/tagout devices will be applied so that they hold the energy isolating device in a "Neutral" or "Off" position.

Specific Instructions: _____

_____

_____

4a. If a tag is used in lieu of a lock because the energy isolating device will not accept a lock, the following additional safety precautions will be taken [29 CFR 1910.147 c(3)(ii) & 29 CFR 1910.333(2)(b)(iii)((D)]:

_____

_____

_____

_____

Specific Instructions:_____

_____

_____

_____

5. **RELEASE OF STORED ENERGY:** All stored energy will be blocked or dissipated. Reference page one (1) of this form to ensure real or potential stored energy in a system is identified and controlled.

Specific Instructions:_____

_____

_____

_____

6. **VERIFICATION OF ISOLATION:** Prior to starting work on the piece of equipment and after ensuring that no personnel are exposed to the release of hazardous energy, the Authorized Employee shall operate the controls to verify that there has been de-energization and that the equipment will not operate. After this verification, the operating controls will be returned to the "Neutral" or "Off" position.

Specific Instructions:_____

_____

_____

_____

7. **RELEASE FROM LOCKOUT/TAGOUT:** The Authorized Employee shall 1.) Ensure that all Employees have been safely positioned or removed and the work area will be cleared of non-essential items, 2.) Ensure the equipment or equipment components are operationally intact; 3.) Ensure machine guards have been replaced; 4.) Inform the Affected Employees that lockout and or tagout devices are going to be removed; 5.) Remove the lockout and or tagout devices including all energy restraints such as blocks; and 6.) Inform the Affected Employees that the equipment is ready for operation.

Specific Instructions:_____

_____

_____

_____

Highline College Facilities Department

Group Leader Documentation Form

One (1) person shall be designated as Group Leader. The Group Leader will have overall responsibility for a set number of employees.

The Group Leader shall have exclusive control of a Master (Group) Lockout and/or Group Tagout device.

The Group Leader will ascertain the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.

Each individual authorized employee within the group shall affix his personal lockout/tagout device to a group lockout box or comparable device before beginning work and shall remove his/her personal lockout/tagout device upon completion of work.

If there is more than one group of personnel working on a machine or piece of equipment, an employee shall be designated to coordinate and take responsibility for all the individual groups.

NAME OF DESIGNATED GROUP LEADER: _____

EQUIPMENT REQUIRING CONTROL OF HAZARDOUS ENERGY

NAME: _____ SERIAL NUMBER: _____

DATE: _____ MODEL NUMBER: _____

AUTHORIZED (QUALIFIED) EMPLOYEES OF THE GROUP

_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)
_____ (Name)	_____ (Signature)

_____

Jason Huff

Program Administrator

SIGNATURE OF GROUP LEADER: _____

Highline College Facilities Department

Periodic Inspection Documentation Form

EQUIPMENT ON WHICH CONTROL OF HAZARDOUS ENERGY PROCEDURES WERE UTILIZED

NAME: _____ SERIAL NUMBER: _____

DATE: _____ MODEL NUMBER: _____

WERE ALL THE CORRECT PROCEDURES CORRECTLY APPLIED? YES NO

If yes, sign the form and return to Jason Huff.
If no, complete the below section, sign the form and return to Jason Huff.

EMPLOYEES PERFORMING THE PROCEDURE

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

_____ _____
(Name) (Signature)

IMPROPER PROCEDURES NOTED

_____

_____

_____

_____

_____

_____

_____ _____
(SIGNATURE OF INSPECTOR) (Date)

Note: If improper procedures are noted, the above employees must have retraining or the Program must be modified

Outdoor Heat Exposure

WAC 296-62-095, Outdoor heat exposure

Overview

Heat-related illness (HRI) is a potentially serious condition that can strike any of our employees at any time when physical exertion, high temperatures, lack of fluids, excessive humidity, and a host of other biological and environmental factors combine in an adverse manner.

In two years, Washington State experienced three heat-related occupational fatalities. In the last twelve years, there have been more than 580 workers requiring medical treatment for heat-related illness.

It is also apparent that HRI has contributed to occupational accidents and injuries due to fatigue, dizziness, and disorientation.

While the general concepts of this program would be applicable year-round, the standards that govern this program apply only to outside work environments during the time frame of May 1st through September 30th of each year when employees are exposed to outdoor heat at or above the temperatures listed below:

Outdoor Temperature Action Levels

All other clothing	89°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
Nonbreathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°

Note: There is no requirement to maintain temperature records.

Note: These requirements do not apply to incidental exposure which exists when an employee is not required to perform a work activity outdoors for more than fifteen minutes in any sixty-minute period. This exception may be applied every hour during the work shift.

Definitions

Heat-related illness (HRI) is a potentially serious condition that can strike any of our employees at any time when physical exertion, high temperatures, lack of fluids, excessive humidity,

Acclimatization	the body's temporary adaptation to work in heat that occurs as a person is exposed to it over time.
Double-layer woven clothing	clothing worn in two layers allowing air to reach the skin. For example, coveralls worn on top of regular work clothes.
Drinking water	potable water that is suitable to drink. Drinking water packaged as a consumer product and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain caffeine are acceptable.
Engineering controls	the use of devices to reduce exposure and aid cooling (i.e., air conditioning, shade, misting machines).
Environmental factors for heat-related illness	working conditions that increase susceptibility for heat-related illness such as air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload (i.e., heavy, medium, or low) and duration, and personal protective equipment worn by employees. Measurement of environmental factors is not required by WAC 296-62-095.
Heat-related illness	a medical condition resulting from the body's inability to cope with a particular heat load, and includes, but is not limited to, heat cramps, heat rash, heat exhaustion, fainting, and heat stroke.

Outdoor environment	an environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls. Construction activity is considered to be work in an indoor environment when performed inside a structure after the outside walls and roof are erected.
Vapor barrier clothing	clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of nonbreathing clothing.

Heat Exhaustion/Heat Stroke

All employees are to understand and be able to recognize the symptoms of Heat Exhaustion and Heat Stroke. n

To lessen the possibility of heat exhaustion or heat stroke, keep your body well hydrated with water; wear light clothing that allows for perspiration; and reduce exertion on extremely hot [if possible, perform heavy work during the cooler hours of the day], moist days, and allow for air circulation.

If the below symptoms present themselves, immediate notify a supervisor and treat the victim as indicated below. Depending on the seriousness of the condition, an emergency responder may have to be called.

Heat Exhaustion: Fatigue; weakness; profuse sweating; pale, clammy skin; headache; cramps; vomiting; fainting

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

Heat Stroke: Dizziness; nausea; severe headache; hot, dry skin; confusion; delirium, coma

1. Remove victim from hot area.
2. Remove clothing.
3. Have victim lay down.

Cool the body: Cold moist applications applied to the body and air circulation to increase evaporation are recommended.

1. Do not give stimulants.

All employees must understand that if HRI symptoms present themselves, the person displaying these symptoms MUST BE REMOVED FROM DUTY AND ACTIONS MUST BE TAKEN TO REDUCE BODY TEMPERATURE.

The employee will be monitored and if the above actions do not produce positive results, the provisions of the next section, responding to Serious Signs and Symptoms, apply.

Responding to Serious Signs and Symptoms

In the event that heat stroke or heat exhaustion cannot be controlled by the above first aid procedures, the senior supervisor on the job site is to immediately take charge and the following will occur in the order given.

1. Supervise and administer first aid as you wish **(Good Samaritan Law applies)**.
2. Arrange for transportation (ambulance, helicopter, company vehicle, etc.), depending on the seriousness of the condition. Protect the injured person from further injury.
3. Notify senior management, if not already present.
4. Do not move anything unless necessary, pending investigation of the incident.
5. Accompany or take the employee suffering from HRI to a doctor, hospital, or clinic **or** call for an emergency responder and provide for easy access to the employee.
6. Remain with the injured person until relieved by other authorized persons (manager, EMT, doctor, etc.).
7. If the heat stroke or heat exhaustion is of a serious nature, the person's immediately family should be promptly notified by the supervisor, in person, if possible.

Preventing Heat Related Illness

All employees must understand the factors and procedures to prevent HRI.

Environmental factors that contributed to HRI: high temperature; high humidity; high altitude. These contribute to the risk of heat-related illness;

Personal factors that may increase susceptibility to heat-related illness: an individual's age; degree of acclimatization; medical conditions; drinking water consumption; alcohol use; caffeine use; nicotine use, and use of medications that affect the body's responses to heat.

It is important to remove heat-retaining personal protective equipment such as nonbreathable chemical resistant clothing during all breaks; to frequently consume small quantities of drinking water or other acceptable beverages; to practice acclimatization; to understand the types of heat-related illness; and to understand and recognize the common signs and symptoms of heat-related illness.

The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate emergency response procedures.

Acclimatization, Water, & Clothing

In an effort to reduce HRI, there are a number of things that an individual employee can do. The three (3) primary things, among others are: acclimatization, water consumption, and proper clothing.

Acclimatization — the body's temporary adaptation to work in heat that occurs as a person is exposed to it over time.

For example, if one were to get out of an air-conditioned vehicle into 100 F, high humidity air and proceed to exert large amounts of energy, the likelihood of HRI is strong.

If, on the other hand, one were to start work in the cool of the day and slowly adjust to the rising temperature and adjusting the work load accordingly, the risk of HRI is greatly reduced.

Double-layer woven clothing clothing worn in two layers allowing air to reach the skin. For example, coveralls worn on top of regular work clothes.

Wearing clothing that can breathe is best. If this is not possible because of job function, at least during breaks, try to get in the shade and remove outer clothing or PPE that does not allow air to circulate.

Under no circumstances are shirts to be removed because, 1) it is against Washington standards, and, 2) you would expose yourself to the possibility of disabling sun-burn.

Drinking water potable water that is suitable to drink. Drinking water packaged as a consumer product and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain caffeine are acceptable.

This is the key and the most important step of all. Drink plenty of fluids.

When the provisions of this program are in affect, at least one quart of drinking water per employee per hour will be made readily available and employees not only will have the opportunity to drink at least one quart of drinking water per hour, it will be encouraged.

Employees are reminded that they are responsible to monitoring their own water consumption as well as monitoring their own personal factors for heat related illnesses.

As a reminder of the importance of water to the human system, the following information is supplied which was extracted from one of our safety meetings:

FLUIDS

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.

On construction sites, exertion and heat dictate 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 98.6ºF and 100.4ºF. If your body temperature reaches 105.8ºF, convulsions may occur. Your whole central nervous system is impaired when your body temperature rises 9ºF above normal. At 106.0ºF, 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 107.6ºF, 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.

Training

Prior to work outdoors where the provisions of this program apply, training will be given to all employees and supervisors and at least annually, thereafter.

Interactive training will include:

a. reading, and/or discussing the provisions of this program.

b. discussing other methods of controlling HRI such as providing shade, mechanical ventilation, modifying personal behaviors, etc.

Further, using this program as a source of information, as well as other sources deemed appropriate, employees must understand:

a. The environmental factors that contribute to the risk of heat-related illness;
b. General awareness of personal factors that may increase susceptibility to heat-related illness including, but not limited to, an individual's age, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, caffeine use, nicotine use, and use of medications that affect the body's responses to heat. This information is for the employee's personal use;
c. The importance of removing heat-retaining personal protective equipment such as nonbreathable chemical resistant clothing during all breaks;
d. The importance of frequent consumption of small quantities of drinking water or other acceptable beverages;
e. The importance of acclimatization;
f. The different types of heat-related illness, the common signs and symptoms of heat-related illness; and
g. The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate emergency response procedures.

In addition to the above, supervisors will be trained in implementing this program; the procedures to be followed if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate emergency response procedures; procedures for moving or transporting an employee or employees to a place where the they can be reached by an emergency medical service provider, if necessary.

Personal Protective Equipment (PPE)

WAC 296-155 Part C - Personal Protective Equipment (PPE) Summary

Minimum WISHA PPE Requirements

Per WAC 296-155-200, all employees involved in construction activities must wear **at least**:

a. A short-sleeved shirt; that covers the top of the shoulder and has material extending down the arm. If a short-sleeved shirt has a seam at the end of the shoulder, the material must extend down the arm from the seam.

b. Long pants that have legs that extend past the knee when the wearer stands and leaves no exposed skin on the lower leg.

c. Traditional tennis shoes, shoes with canvas tops, or thin or soft soled athletic shoes, open toed sandals, slippers, dress shoes or other similar type shoes **are not to be worn**. Soft or athletic-type soles with uppers of leather or other substantial material **may be used** where firm footing is desired and where minimal danger of injury to feet from falling or moving objects.

d. Where there is danger of contact with moving parts of machinery, or the work process is such that a hazard exists:

   1. the clothing of employees must fit closely about the body.
   2. dangling neck wear, bracelets, wristwatches, rings, or similar articles may not be worn by employees.

Overview

This Personal Protective Equipment (PPE) Program has been prepared to inform our employees of potential hazards in the workplace and to identify the proper PPE to be used to reduce or eliminate these hazards. This Program relies on a cooperative effort by all personnel to understand the reasons for PPE and to protect themselves from harm.

The use of PPE does not lessen an employee's obligation to use safe work practices and procedures. Employees are expected to be aware of the hazards within their area of responsibility and properly use prescribed PPE.

Our operations, work methods and individual job sites present specific hazards which must be identified, analyzed, and matched with the appropriate PPE through a continuing hazard assessment process.

A Certificate of Hazard Assessment will be kept on the job site for inspection purposes.

Duties of the PPE Program Administrator

The primary duties of the Program Administrator include: hazard assessment; PPE selection; PPE training; and monitoring of our PPE Program. Certain types of PPE may require hands-on training before on the job use (primarily for sizing and fitting) and this training may be further delegated to competent persons.

Hazard Assessment and PPE Selection

A careful, systematic personal protective equipment selection process is used to identify what, if any, protection is required to reduce or eliminate the possibility of eye, hand, foot, limb, or head injury.

Hazard assessment, performed by the PPE Program Administrator or a designated competent person, starts with a thorough knowledge of our job sites, work procedures and methods of operation as well as the hazards that may be created by other contractors working in the vicinity of our employees. The basic hazard categories are: impact; penetration; compression; chemical; heat; harmful dust; and light radiation.

Identifying the source of the above hazards allows for consideration of administrative or engineering controls to eliminate the hazard as opposed to providing protection against it. Examples would include: redirecting traffic flow, ventilation, temporary weather barriers, non-slip surfaces, etc.

Because administrative and engineering controls are passive -- no employee involvement is required -- they are preferable to PPE.

A PPE selection is made by analyzing the above information and evaluating the type of risk, the level of risk, the potential for injury and the possible seriousness of that injury. PPE, which is compatible with the above risks and work situation, is considered. Actual selection involves all the above factors plus an attempt to provide a level of protection greater than the minimum required.

In all situations where it has been determined that a particular type of PPE is to be used, it will be used. There will be no exceptions by virtue of position or rank to this policy. Within an area on a job site where the possibility of falling objects exists, hard hats will be worn. It follows that once an item of PPE (hard hat, in this case) is selected, it must be used by all persons in the identified area regardless of job title or function.

Having the PPE Program Administrator or designated competent person on a job site determine the PPE requirements allows for knowledgeable selection and consistency, and eliminates chaos that would result if each individual were to decide when, where, and if PPE should be used.

Dissemination of PPE Selection Information

Employees must understand when PPE is necessary and what type(s) of PPE are necessary. All persons for whom PPE will provide a measure of safety will be given appropriate training on that item of PPE as well as an explanation of the importance of its use.

ANSI Standards and PPE

Most items of PPE are manufactured in accordance with a specific American National Standards Institute (ANSI) standard.

PPE safety products are tested to ensure they meet ANSI standards. Because products are tested in the manner in which they are designed to be used, ANSI certification is valid only if the user follows the manufacturer's instructions for proper sizing, fitting, wearing, and adjusting. For example, a hard hat worn with the bill toward the rear may provide adequate protection from impact, however, because it is tested with the bill toward the front, this improper use is cause for a safety violation.

Prior to purchase, items of selected PPE will be checked to ensure they were manufactured in accordance with the proper ANSI standard.

The importance of hazard assessment takes on added significance when judgments are made matching the hazard to the protection desired in cases where ANSI certification is not available. What matters most is: does the selected PPE do what it is intended to do?

Employee owned PPE must be approved for use by the PPE Program Administrator. Further, such equipment must be properly maintained and cleaned in accordance with the manufacturer's instructions.

Sizing & Fitting

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.

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

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

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. Each person who is required to use any type of PPE will be taught, before initial issue, the specific procedures for properly donning, adjusting, using, and removing the specific PPE. This instruction will generally be given by the employee's Supervisor. When available, the manufacturer's instructions will be issued with the PPE.

Care & Maintenance of PPE

PPE will be visually inspected before each use and if defects are noticed, it will not be used. Some types of PPE are expendable (cotton gloves) and have a limited life span after which they are discarded and new PPE is reissued. Plastic safety glasses become scratched and they too must be exchanged for new ones when vision is impaired. Other types of safety equipment consist of both non-expendable and expendable components. A hard hat is non-expendable, yet the head band does wear out and becomes expendable. PPE will be maintained in accordance with the manufacturer's instructions and, where appropriate, kept in a sanitary condition.

Cleanliness takes on an added importance when dealing with PPE designed to protect the eyes and face. Dirty or fogged lenses can impair vision and, rather than offer protection from a hazard, actually becomes a contributory factor in causing an accident.

Lastly, should PPE become contaminated with a chemical substance and decontamination is impossible, the PPE will be properly disposed of following the disposal instructions on the Material Safety Data Sheet for that substance.

Training

Affected employees will be given an understanding of:

a. when PPE is necessary;

b. what PPE is necessary;

c. how to properly put on, take off, adjust, and wear PPE;

d. the limitations of the PPE; and,

e. the proper care, maintenance, useful life and disposal of the PPE.

Retraining will be given in situations when changes in PPE requirements render the previous training obsolete or it is noticed that an employee is not following our PPE policies -- specifically, not properly wearing the selected PPE in identified locations or work situations.

Most PPE requirements are obvious and PPE wear is so simple that training is almost unnecessary.

What is important -- vitally important -- is actually using the proper PPE when it is required.

To ensure employee compliance with PPE requirements, we have opted to treat all employees as intelligent, responsible persons who, when reminded of what PPE actually protects, will enthusiastically endorse PPE use.

Eye & Face Protection

Your 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. Bony eye sockets in the skull protect the eye from many mechanical injuries. Orbital fluids and tissues cushion direct blows. Eyelids close reflexly from visual or mechanical stimuli. Eyes reflexly rotate upward with the lid closing to protect the cornea. Tears can flush away chemicals and foreign bodies. We all come with these safeguards. Sometimes, they are not enough.

Eye protection is required 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 them. Different hazards require different types of protection.

Eye (and face) protection is required when one is exposed to flying particles, chemicals, or injurious light radiation. Types of eye protection include: impact resistant safety glasses; safety glasses with side shields; goggles; goggles with a face seal; face masks; and shaded goggles with varying degrees of darkness.

Affected employees who wear prescription lenses will wear eye protection over the prescription lenses without disturbing the proper positioning of the prescription lenses, or will wear eye protection that incorporates their prescription into the design.

All prescription glasses should 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.

All employees who wear contact lenses must also wear appropriate eye and face protection in hazardous environments. Welding helmets and faceshields, if required, should be worn over primary eye protection (spectacles or goggles). An inexpensive pair of safety glasses can save your priceless eyesight. Table C-1, WAC 296-155-215, will be used as a guide in selecting eye and face protection for specific applications.

Head Protection

Talking about head protection 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.

Head protection is required when there is a possibility of injury to the head from falling objects and when working near exposed electrical conductors which could contact the head.

Brain injury is the second most common cause of major neurologic deficits and causes more deaths 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. Just because there is no external visible injury to the skull does not preclude the possibility of brain injury.

Wearing head protection (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 destructing and this destruction may be unnoticeable.

A head injury may occur after a blow to the head and the following symptoms may be present: unconsciousness or disorientation, confusion, nausea, vomiting, and/or double vision. Get medical help immediately. Cover open wounds lightly with sterile dressing. Keep victim still, warm, and reassured. DO NOT move the victim unless he/she would be in greater danger if you did not. DO NOT apply pressure to a head wound. DO NOT try to stop blood or clear fluid coming from ears, nose, or mouth.

Hearing Protection

Per WAC 296 817-20015, employees must use hearing protection when their noise exposure equals or exceeds 85 dBA TWA. Hearing protectors must provide sufficient protection when exposure equals or exceeds:

85 dBA TWA (noise dosimetry, providing an average exposure over an 8-hour time period)

115 dBA (slow response sound level meter, identifying short-term noise exposures)

140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).

Employees will select from at least 2 distinct types of hearing protectors (such as molded earplugs, foam earplugs, custom-molded earplugs, earcaps, or earmuffs). The hearing protector must be able to reduce noise exposure to a level below 85 dBA TWA.

Ear protectors, which are provided at no cost to the employee, will be selected taking into consideration comfort, communication needs, medical needs and noise reduction capability.

Ear protective devices inserted in the ear shall be fitted or determined individually by competent persons.

Plain cotton is not an acceptable protective device.

Hearing damage is caused by noise level and duration of exposure to the noise. If, after using the formula below, the equivalent noise exposure exceeds unity (1), then a Hearing Conservation Program will be initiated.

F(e)=(T(1)divided by L(1))+(T(2)divided by L(2))+ ... + (T(n) divided by L(n)) where:

F(e) = The equivalent noise exposure factor.

T = The period of noise exposure at any essentially constant level.

L = The duration of the permissible noise exposure at the constant level

(from Table D-2).

If the value of F(e) exceeds unity (1) the exposure exceeds permissible levels.

A sample computation showing an application of the formula in paragraph (d)(2)(ii) of this section is as follows. An employee is exposed at these levels for these periods:

110 db A 1/4 hour.

100 db A 1/2 hour.

90 db A 1 1/2 hours.

F(e) = (1/4 divided by 1/2)+(1/2 divided by 2)+(1 1/2 divided by 8)

F(e) = 0.500+0.25+0.188

F(e) = 0.938

Since the value of F(e) does not exceed unity, the exposure is within permissible limits.

Understanding some interesting facts about your hearing will emphasize the need for hearing protection.

Your outer ears on the side of your head 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.

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.

Protect your hearing. If you are issued hearing protection, use it!

Foot Protection

When purchasing new protective footwear, ensure that it complies with ANSI Z41-1991, “American National Standard for Personal Protection-Protective Footwear”.

Specific hazards require specific types of protective footwear. Certain types of footwear can offer traction, crush protection, penetration protection, electrical protection, chemical resistance, heat and/or fire resistance, dryness, cushion, or ankle-protection. Further, certain activities may require a combination of these features.

Your foot is a remarkable piece of engineering which is composed of 26 bones, muscles, fatty tissue, nerves, tendons, skin and joints. The foot itself can absorb a tremendous amount of punishment without damage. But there are limits and it would be a shame to lose a foot, or part of a foot, because of failure to wear the prescribed protective footwear.

Hand Protection

Your hand is composed of 20 muscles, 3 major nerves, 27 bones

(14 of which are in your fingers) plus skin, fatty tissue, tendons, and joints. 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.

Try to pick up something while holding your thumb still. It is very difficult. If the nerve to the small muscles of the thumb is severed, 80% of the total hand function is lost.

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, abrasions, cuts and lacerations, temperature extremes, germs, radiation, impact, punctures, electricity, and other hazards in the workplace. Specific job requirements determine the type of hand protection needed. Proper hand protection must do more than protect your hand; it must allow you to accomplish your job assignment with efficiency as well as safety.

Wearing hand protection could prevent your hand and/or fingers from being severed, burned, crushed, punctured, lacerated, cut, or generally abused.

Miscellaneous Personal Protection

PPE immediately brings to mind eye, head, hand, and foot protective equipment. However, there may be other types of protective equipment which are readily available and which have the capability of protecting employees from identified hazards in the workplace. Some of these items may not fall under a specific OSHA standard or may not be ANSI approved or disapproved, however, in the judgment of our PPE Program Administrator, they may be appropriate for use in our operations.

Respiratory Protection

Employees who, by nature of their work, are exposed to harmful aerosols, vapors, gases, contaminated air, or non-breathable air will be provided air purifying or air supplying respirators after training, medical evaluation, and fit testing per our Respiratory Protection Program. The one exception is dust masks worn solely for comfort and not for respiratory protection.

Summary

The true beneficiary of PPE utilization is the user. The whole thrust of this Program is to protect our employees from injury. This is accomplished by, among other things, explaining the process of hazard assessment; the reasons for PPE use; and the necessity of using the PPE selected.

What possible justification could there be for maiming, losing, or even slightly injuring a body part because available (and required) PPE was not used? “I forgot”; “I was in a hurry”; “I misplaced my PPE”; “I felt silly wearing PPE”; or “I really didn’t believe PPE was necessary” will not undo what could be a lifetime of regret.

Highline College Facilities Department

Certificate of Job Site Hazard Assessment

I certify, this date, that I have performed a hazard assessment of the job site for Highline College Facilities Department and our methods of operations.

This hazard assessment was accomplished to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE).

Identified hazards which cannot be eliminated through engineering controls or changes in procedures will be addressed by the use of selected PPE.

All affected employees will be informed of the required PPE for specific work locations or specific types of work to be performed and will receive initial training or retraining, if necessary, before being allowed to perform work requiring PPE.

If conditions or procedures change, a reassessment will be made.

_____ _____

Jason Huff Date

Personal Protective Equipment Program Administrator

WAC 296-817 - Hearing Loss Prevention

Hearing Loss Prevention

This Hearing Loss Prevention Program is designed for one purpose -- to prevent hearing damage caused by occupational noise exposure.

Most forms of personal protective equipment (PPE) are a response to an obvious hazard and are easy to understand. A hard hat will protect your head from falling objects, for example.

Hearing protection is different from most other types of PPE because loss of hearing generally occurs painlessly over a period of time and, when finally realized, the damage is permanent.

Because of the above, it is vital that cooperation between all affected employees and management be established to prevent occupational hearing loss. To achieve this goal, our program focuses on the effects of noise on hearing as well as the selection and use of hearing protectors. Information is provided on how sound is transmitted to your brain, and lastly, the actual application of our program.

Individual employees are required to wear appropriate hearing protection when so directed and to understand the importance of protecting their hearing from damage. If job site noise bothers you and those noises are below the threshold for required ear protection, you should bring this to the attention of the Hearing Loss Prevention Administrator for resolution.

Noise Measurement and Computation

We will measure occupational noise levels using dosimetry equipment (Type 2) that is ANSI S1.25-1991 approved and meet the below requirements:

1. Uses slow integration and A-weighting of sound levels.
2. Has the **criterion level** set to 90 dB, so the dosimeter will report a constant 8-hour exposure at 90 dBA as a 100% dose.
3. Has the **threshold level** set at 80 dB, so the dosimeter will register all noise above 80 dB.
4. Uses a 5 dB **exchange rate** for averaging of noise levels over the sample period.

A noise dosimeter is necessary to measure employee noise dose.

A sound level meter is used to evaluate continuous and impulse noise levels.

We will identify all employees whose exposures equal or exceed the Noise Evaluation Criteria as follows:

Criteria	Description	Requirements
85 dBA TWA	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must have a hearing loss prevention program	– Hearing protection – Training – Audiometric testing
90 dBA TWA	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must reduce employee noise exposures in the workplace	Noise controls (in addition to the requirements for 85 dBA TWA)
115 dBA measured using slow response	Extreme noise level (greater than one second in duration)	– Hearing protection – Signs posted in work areas warning of exposure
140 dBC measured using fast response	Extreme impulse or impact noise (less than one second in duration)	Hearing protection

We must compute the employee's full-day noise exposure by using the appropriate equations from Table 3 "Noise Dose Computation" **when** using a sound level meter to estimate noise dose.

Table 3

Noise Dose Computation

Description	**Equation**
Compute the noise dose based on several time periods of constant noise during the shift	The total noise dose over the work day, as a percentage, is given by the following equation where Cn indicates the total time of exposure at a specific noise level, and Tn indicates the reference duration for that level. $$D = 100 \times \left(\frac{C_1}{T_1} + \frac{C_2}{T_2} + \ldots + \frac{C_n}{T_n} \right)$$
The reference duration is equal to the time of exposure to continuous noise at a specific sound level that will result in a one hundred percent dose	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must reduce employee noise exposures in the workplace **See Table HT-1**
Given a noise dose as a percentage, compute the equivalent 8-hour time weighted average noise level	Extreme noise level (greater than one second in duration) **See Table HT-2**

When a Hearing Loss Prevention Program is Needed

A hearing loss prevention program is needed when an employee noise exposure equal or exceeds the following:

85 dBA TWA8 (noise dosimetry, providing an average exposure over an 8-hour time period

115 dBA (slow response sound level meter, identifying short-term noise exposures)

140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).

Exposed employees and their representatives will be provided with an opportunity to observe any measurements of employee noise exposure that are conducted.

We will notify each employee whose exposure equals or exceeds 85 dBA TWA of the monitoring results within 5 working days of when we receive the results.

We will conduct additional noise monitoring whenever a change in production, process, equipment or controls, may reasonably be expected to result in:

1. Additional employees whose exposure equals or exceeds 85 dBA TWA.
2. Employees exposed to higher level of noise requiring more effective hearing protection

Definitions

There are certain words in our Hearing Loss Prevention Program which are not used in everyday life. So that all may have a clearer understanding of this program, the below definitions are presented:

ATTENUATE	To lessen the intensity.
AUDIOGRAM	A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.
AUDIOLOGIST	A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.
BASELINE AUDIOGRAM	The audiogram against which future audiograms are compared.
CRITERION SOUND LEVEL	A sound level of 90 decibels. An 8-hour exposure to constant 90 dBA noise is a 100% noise dose exposure.
DECIBEL (dB)	Unit of measurement of sound level.
DOSIMETER	An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
HERTZ (HZ)	Unit of measurement of frequency, numerically equal to cycles per second.

MEDICAL PATHOLOGY	A disorder or disease which should be treated by a physician specialist.
NIHL	Noise Induced Hearing Loss.
NOISE DOSE	The ratio, expressed as a percentage, of: (1) the time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and (2) the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).
OTOLARYNGOLOGIST	A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.
SOUND LEVEL	Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals. Unit: decibels (dB). For use with OSHA standard 29 CFR 1910.95, SLOW time response is required.
SOUND LEVEL METER	An instrument for the measurement of sound level.
TIME-WEIGHTED AVERAGE	That sound level, which if constant over an SOUND LEVEL 8-hour exposure, would result in the same noise dose as is measured.

Monitoring Plan

All continuous, intermittent and impulsive sound levels from 80 dB to 130 dB will be integrated into the noise measurements.

All instruments to measure employee noise exposure will be calibrated to ensure measurement accuracy.

Representative personal sampling will be used, in lieu of area sampling, when there is high employee mobility, significant variations in sound levels, or a significant component of impulse noise.

Area sampling will be used when sound levels are relatively constant and employees have a constant exposure to them.

When there is a change in job site activity or equipment which would likely increase noise levels, additional monitoring will be undertaken.

a. All persons found to be exposed to sound levels at or above the action level will be notified.
b. Affected employees or their representatives will be allowed to observe the noise monitoring process.

Noise Level Monitoring Records

All noise level monitoring records will be kept for a period of two (2) years.

Audiometric testing program

Audiometric testing will be made available at no cost to affected employees within 180 after first assigned to work involving noise exposures that equal or exceed 85 dBA TWA_8.

Audiometric tests will be performed by a licensed or certified audiologist, otolaryngologist, physician, technician who is certified by the Council of Accreditation in Occupational hearing loss prevention, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

Baseline audiogram

Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram will be established against which subsequent audiograms can be compared. Hearing loss can occur as a result of age, trauma, drug reaction, and exposures that are not work related. However, with a baseline audiogram -- which measures the frequency (125 or 250 Hz to 8000 Hz) and loudness (-10 or 0 dB to 110 dB) -- it is possible from subsequent audiograms to determine with accuracy if hearing loss is due to occupational noise exposure or some other cause.

For the purposes of this program, audiograms must measure, in each ear, at least the frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz.

Occupational hearing loss occurs within the inner ear in the cochlea. By using a bone-conduction vibrator, sounds can be carried directly to the inner ear and bypass the outside and middle ear areas.

An annual audiogram may be substituted for the baseline audiogram if the audiologist, otolaryngologist or physician who is evaluating the audiogram determines:

a. the standard threshold shift revealed by the audiogram is persistent; or

b. the hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

To ensure an accurate test, employees must not be exposed to occupational noises for at least 14 hours prior to the establishment of a baseline audiogram. To meet this requirement, if needed, hearing protectors may be worn during the preceding work shifts. This procedure is to factor out temporary hearing changes from the test.

Annual Audiogram

At least annually, after obtaining the baseline audiogram, a new audiogram will be obtained for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a standard threshold shift has occurred, the employee will be notified in writing within 21 days of this determination.

A standard threshold shift would be a change in hearing of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

While audiograms may be compared by a technician, problem audiograms will be referred to an audiologist, otolaryngologist, or physician for further evaluation.

The person performing this evaluation will be provided the following:

a. a copy of this program including all standards.
b. the baseline audiogram and most recent audiogram of the employee to be evaluated.
c. measurements of background sound pressure levels in the audiometric test room as required in WAC 296-817-40035.
d. records of audiometer calibrations.

Note: If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be re-tested within 30 days and these results will be considered the annual audiogram.

If the physician determines that the threshold shift is work related, then the following will take place:

a. those employees not using hearing protectors will wear them and be trained in their use and care.
b. those employees using hearing protectors will be refitted and provided with hearing protectors that offer greater attenuation. They will also be retrained using this program with emphasis on the need for hearing protection.
c. the employee shall be referred for a clinical audiological evaluation or an otological examination if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
d. the employee will be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

Audiometric Test - Recordkeeping

Audiometric test records will be retained for the duration of the affected employees' employment.

These records will include:

a. the employee's name and job classification.
b. the date of the audiogram.
c. the examiner's name.
d. the date of the last acoustic or exhaustive calibration of the audiometer.
e. the employee's most recent noise exposure assessment.
f. accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Upon request, employees may have access to these records.

Hearing Protectors

At no cost, and replaced as necessary, hearing protectors will be provided to all affected employees.

Appropriate hearing protectors will be available in a variety of styles from which to choose from to provide a comfortable fit; employees will be made aware of the proper use and care of the protectors selected.

In selecting appropriate hearing protectors, the Program Administrator will consider the below factors:

a. the hearing protector's noise reduction rating (Subject Fit) [NRR(SF)].

Note: The NRR(SF), measured in dB and found as a number on the hearing protector, can be used by subtracting that number from an A-weighted sound level or a time-weighted average noise exposure to determine the level of protection for most (84%) of the users.

Note: The NRR(SF) is based on tests of continuous noise and may not be an appropriate indicator for protection against impulse or impact noise.

b. the user's daily equivalent noise exposure.
c. variations in noise levels.
d. user preference.
e. communication needs.
f. hearing ability.
g. compatibility with other safety equipment.
h. user's physical limitations.
i. climate and other working conditions.
j. replacement, care, and use requirements.

Instead of using the NRR, we may evaluate the adequacy of hearing protector attenuation by using one of the three methods developed by the National Institute for Occupational Safety and Health (NIOSH), which are described in the List of Personal Hearing Protectors and Attenuation Data, HEW Publication No. 76-120, 1975, pages 21-37. These methods are known as NIOSH Methods No. 1, No. 2 and No. 3. The NRR described here is a simplification of NIOSH Method No. 2. The most complex method is NIOSH Method No. 1, which is probably the most accurate method since it uses the largest amount of spectral information from the individual employee's noise environment.

Training

Affected employees (those exposed noise exposures that equals or exceeds 85 dBA TWA8) will receive training in our Hearing Loss Prevention Program and this training will be repeated annually. Training will be updated to be consistent with changes in the PPE and work processes. An employee who is required to wear hearing protectors and fails to do so will be retrained with emphasis on the needless and permanent damage to hearing caused by careless exposure to hazardous noises in the work environment.

Interactive training will include, but not be limited to:

1. The effects of noise on hearing (including both occupational and non-occupational exposures).
2. Noise controls used in your workplace
3. The purpose of hearing protectors: The advantages, disadvantages, and attenuation of various types
4. Instructions about selecting, fitting, using, and caring for hearing protection

Process of Hearing

Hearing involves, in its simplest terms, conducting sounds from outside your body to your brain. The ear is divided into three main sections:

EXTERNAL EAR	collects sounds and directs them to the tympanic membrane (ear drum).

Major Components:

Pinna:	the visible part of the ear.
External auditory canal:	approximately 1¼ inch tube to direct sound to the eardrum.
Tympanic membrane:	vibrates as it is hit with incoming sounds.
MIDDLE EAR	air filled space that connects outer ear to inner ear.

Major Components:

Ossicles:	three bones commonly called the “hammer”, the “anvil”, and the “stirrup”. These bones collect the sound, amplify it, and transfer it to the fluid in the inner ear.
Eustachian tube:	small tube connected to the throat that brings air into the middle ear allowing pressure equalization of both sides of the ear drum.
INNER EAR	transfers sound vibrations to nerve impulses and sends them to the brain.

Major Components:

Vestibule:	helps maintain balance.
Cochlea:	takes vibrations of the middle ear bones and transfers them into nerve impulses that go the brain. The stirrup, in the middle ear, vibrates through a small opening in the cochlea. This opening is connected to fluid filled canals. The pressure waves in the fluid cause small hair type cells to bend. As they bend, they release a nerve impulse which is sent to the brain. The brain perceives these impulses as sound. This is where noise induced hearing loss occurs.

Semicircular canals:	involved with equilibrium (balance)
Acoustic nerve:	a. cochlear nerve: connects the cochlea to the brain.
	b. vestibular nerve: connects the semicircular canals to the brain.

Noise Induced Hearing Loss (NIHL)

Moderate exposure to loud noise (over 90 dB for one or more hours) may cause **reversible** changes within the inner ear such as: subtle intracellular changes in the hair cells or swelling of the auditory nerve endings. These temporary changes present themselves as temporary threshold shifts (TTS) 10 dB or more at various frequencies in either ear. This temporary hearing loss will go away within hours -- 16 hours maximum.

How this loss may occur is as follows: continued sound may decrease the stiffness in the hair bundles at the top of the hair cells in the inner ear. This in turn would cause less vibration at a given sound level and an accompanying loss in hearing.

However, continued exposure to loud noise over time will result in permanent threshold shift (PTS) and the resultant permanent, **non-reversible** hearing loss.

Additionally, the most common cause of tinnitus (an annoying ringing in the ears) is damage to the ear from noise exposure resulting in hearing loss.

Because the loss of hearing is so gradual, so painless, so unnoticeable, there may be a tendency to not take Hearing Loss Prevention seriously until it is too late and you have lost one of your major contacts with the world around you -- your hearing.

Why bother with a Hearing Loss Prevention Program? Why not, instead, just require hearing protectors at all times, in all situations?”

This misses the point. Your hearing -- just as your sight, touch, and smell -- is your means of contact and placement in the world around you. By wearing hearing protectors when not needed, you lessen your ability to hear and be in touch with your environment.

You certainly wouldn’t want to save your hearing and lose your life because you didn’t hear the warning “Watch out!”, “Stop!” or you missed the sound of approaching danger.

Hearing Loss Prevention Program Recordkeeping

The below records will be retained.

1. All noise level monitoring records.
2. All employee exposure measurements.
3. All employee audiometric test records which will include:
    a. The employee’s name and job classification.
    b. The date of the audiogram.
    c. The examiner's name.
    d. The date of the last acoustic or exhaustive calibration of the audiometer.
    e. The employee's most recent noise exposure assessment.
    f. Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Record Retention:

The below records will be retained at least for the period indicated:

Noise exposure measurement records will be retained for two years.

Audiometric test records will be retained for the duration of the affected employee's employment.

Access to Records:

All the above records will be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary.

Transfer of Records:

If we cease to do business, we will transfer to the successor employer all above records and the successor employer will retain them for the remainder of the period noted above.

Personal Protective Equipment - Respiratory Protection Program

WAC 296-842, Respirators

Overview

The best respiratory protection one can have is clean, breathable air. Engineering controls are our first line of defense against contaminated or oxygen deficient air. These controls include, but are not limited to, using measures such as enclosure or confinement to keep atmospheric hazards away from employees, general or local ventilation to exhaust hazardous atmospheres, and/or substitution of less toxic materials to avoid hazardous atmospheres in the first place. When effective engineering controls are not feasible, or during the time frame they are being instituted, appropriate respirators will be used.

The concept of respiratory protection is quite simple. Certain types of atmospheric hazards are merely particles that can be filtered out of the air through the use of an air-purifying respirator. Air-purifying respirators force the harmful particles into a filter specifically designed for the hazard(s) where they are trapped or absorbed. The air reaching the employee's lungs is essentially free of the hazard.

a. If the action of inhalation causes the ambient air to be sucked through the filter, the respirator is considered a negative pressure respirator.

b. If the ambient air is forced through the respirator filter (with a blower, for example), the respirator is considered a positive pressure respirator.

A respirator that removes harmful contaminants is of no value in an oxygen deficient (less than 19.5% oxygen) or oxygen enriched (more than 23.5 % oxygen) atmosphere.

An atmosphere-supplying respirator will be used in oxygen deficient atmospheres or in atmospheres where a filter cannot reduce the particulate hazard to an acceptable level. This type of respirator provides clean, breathable air from a source independent of the ambient atmosphere.

Different types of respirators provide different levels of protection. **Never** may an air-purifying respirator be substituted for a required atmosphere-supplying respirator.

Unfortunately, respiratory protection is more complicated than it first appears. Because of the variety and severity of respiratory hazards, the types of respirators and their limitations, the methods for fitting and testing, and, most importantly, the detrimental ramifications of respirator misuse, this respiratory protection program is required.

Proper respirator selection and use can prevent occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays and vapors. In atmospheres that are immediately dangerous to life or health, proper respirator selection and use will save your life.

When required, employees will be supplied appropriate respirators and all incidental costs associated with respirator use (fit testing, repair parts, filters, medical examinations, cleaning supplies, etc.) will be borne by the company.

Respiratory Program Administrator

Our designated program administrator is Jason Huff.

The administrator will make sure voluntary use of respirators is safe.

The program administrator has overall responsibility for our program and has sufficient training or experience to oversee program development, coordinate implementation, and conduct required evaluations of program effectiveness outlined in WAC 296-842-12005.

Specifically, develop and maintain a written program that includes the following:

a. Medical evaluation provisions as specified in WAC 296-842-14005.

b. Procedures to properly clean and disinfect respirators, according to WAC 296-842-22015, if they are reused.

c. How to properly store respirators, according to WAC 296-842-17010, so that using them does not create hazards.

d. Procedures to make sure there is a safe air supply, according to WAC 296-842-20010, when using air-line respirators and SCBAs.

e. Effective training to ensure respirator use does NOT create a hazard.

Our program administrator will keep respiratory program records which include:

a. a written copy of our current respirator program.

b. each employee's current fit test record, if fit testing is conducted, until the next fit test is administered. Fit test records must include:

    1. employee name;

    2. test date;

    3. type of fit-test performed;

4. description (type, manufacturer, model, style, and size) of the respirator tested;
5. results of fit tests, for example, for quantitative fit tests include the overall fit factor AND a print out, or other recording of the test.

c. training records that include employees' names and the dates trained.

d. written recommendations from the LHCP.

Definitions

There are a number of terms and phrases, not used in ordinary everyday life, which must be understood by affected employees.

Air-purifying respirator: a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF) indicates the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when a continuing, effective respiratory protection program is implemented. For example, an effective program makes sure the respirator is:

a. Functioning properly;

b. Fitted to the user;

c. Worn by trained individuals; and

d. Used with the limitations specified on the NIOSH-approval label.

Atmosphere-supplying respirator: a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge: a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator: an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation: any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure: exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI): a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator: a respirator intended to be used only for emergency exit.

Filter or air-purifying element: a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask): 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.

Fit factor: a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test: the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Helmet: a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter: a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood: a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH): an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Licensed health care professional (LHCP) means an individual whose legally permitted scope of medical practice allows him or her to provide some or all of the health care services required for respirator users' medical evaluations.

Loose-fitting facepiece: a respiratory inlet covering that is designed to form a partial seal with the face.

Negative pressure respirator (tight fitting): a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere: an atmosphere with an oxygen content below 19.5% by volume.

Positive pressure respirator: a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR): an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator: a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT): a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT): an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering: that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA): an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life: the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator: an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-fitting facepiece: a respiratory inlet covering that forms a complete seal with the face.

User seal check: an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

Respirator Selection

Respirators will be selected on the basis of hazards to which the employee will be exposed. Using an inappropriate respirator is just as bad, if not worse, than using no respirator at all because it can evoke a false sense of security while offering no protection to the hazard at hand.

All respirators will be NIOSH approved.

Work area surveillance will be made by the competent person taking into consideration the actual work area conditions, the degree of exposure and employee stress. Per WAC 296-841-20005 we will **identify and evaluate respiratory hazards** by:

a. Making sure employees are protected from potentially hazardous exposure while the evaluation is being performed.

b. Performing the evaluation without considering the protection provided to the employees by a respirator.

c. Determining the form of the hazard, such as dust, mist, gas, oxygen deficiency, or biological agent.

Respirator Selection Process

Step 1: If your only respirator use is for escape, skip to **Step 8** to select appropriate respirators.

Step 2: If the respiratory hazard is a biological aerosol, such as TB (tuberculosis), anthrax, psittacosis (parrot fever), or hanta virus, select a respirator appropriate for **nonemergency** activities recognized to present a health risk to workers AND skip to **Step 8.**

If respirator use will occur during **emergencies,** skip to **Step 8** and document the analysis used to select the appropriate respirator.

Use Centers for Disease Control (CDC) selection guidance for exposures to specific biological agents when this guidance exists. Visit http://www.cdc.gov.

Step 3: If the respiratory hazard is a pesticide, follow the respirator specification on the pesticide label AND skip to **Step 9.**

Step 4: Determine the expected exposure concentration for each respiratory hazard of concern. Use the results from the evaluation required by chapter 296-841 WAC, Airborne contaminants.

Step 5: Determine if the respiratory hazard is classified as IDLH; if it is NOT IDLH skip to **Step 7.**

The respiratory hazard **is** classified as IDLH if:

The atmosphere is oxygen deficient or oxygen enriched;

or

You CANNOT measure or estimate your expected exposure concentration;

or

Your measured or estimated expected exposure concentration is greater or equal to the IDLH value in the NIOSH *Pocket Guide to Chemical Hazards*.

Note: DOSH uses the IDLH values in the 1990 edition of the NIOSH Pocket Guide to Hazardous Chemicals to determine the existence of IDLH conditions. You may use more recent editions of this guide. Visit www.cdc.gov/niosh for more information

Step 6: Select an appropriate respirator from one of the following respirators for IDLH conditions and skip to **Step 8:**

Full-facepiece, pressure demand, self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes; **or**

Full-facepiece, pressure demand air-line respirator equipped with an auxiliary self-contained air supply.

Exception: If the respiratory hazard is oxygen deficiency AND you can show oxygen concentrations can be controlled within the ranges listed in Table 4 under ALL foreseeable conditions, you are allowed to select any type of SCBA or air-line respirator.

Table 4 - Concentration Ranges for Oxygen Deficiency

Altitude (as ft. above sea level)	**Oxygen Concentration Range** (as percent oxygen)
Below 3,001	16.0 - 19.5
3,001 - 4,000	16.4 - 19.5
4,001 - 5,000	17.1 - 19.5
5,001 - 6,000	17.8 - 19.5
6,001 - 7,000	18.5 - 19.5
7,001 - 8,000	19.3 - 19.5
Above 8,000 feet the exception does not apply. Oxygen-enriched breathing air must be supplied above 14,000 feet.	

Step 7: Select respirator types with assigned protection factors (APFs) from Table 5 that are appropriate to protect employees from the expected exposure concentration.

Note: Appendix B, using assigned protection factors (APFs) for respirator selection, found in this chapter, uses the hazard-ratio approach established by ANSI Z88.2-1992 to determine which respirator types can provide a sufficient level of protection.

If no permissible exposure limit (PEL) is established for an airborne contaminant, use relevant available information and informed professional judgment to determine an acceptable exposure limit value to use for calculating hazard ratios. For example, you may use exposure limit values established by the American Conference of Governmental Industrial Hygienists (ACGIH).

Step 8: Consider hazards that could require selection of specific respirator types. For example, select full-facepiece respirators to prevent eye irritation or abrasive blasting helmets to provide particle rebound protection.

Note: Rules for specific substances have additional selection specifications that apply to escape and other types of respirators. Make sure you follow those additional requirements before finalizing your selection.

Step 9: Evaluate user and workplace factors that might compromise respirator performance, reliability or safety.

Examples:

High humidity or temperature extremes in the workplace.

Necessary voice communication.

High traffic areas and moving machinery.

If respirator use is for escape only, follow this step and then skip to **Step 11.**

If the respiratory hazard is a pesticide, follow the requirements on the pesticide label and skip to **Step 11.**

Time or distance for escape.

Step 10: Follow Table 6 requirements to select an air-purifying respirator.

If Table 6 requirements cannot be met, you must select an appropriate air-line respirator or an SCBA.

Step 11: Make sure respirators you select are certified by the National Institute for Occupational Safety and Health (NIOSH).

• Respirators provided exclusively for escape from IDLH atmospheres must be NIOSH-certified for escape from the atmosphere in which they will be used.

• To maintain certification, make sure the respirator is used according to cautions and limitations specified on the NIOSH approval label. This includes manufacturer restrictions on cartridges and canisters.

For SCBAs, use only the respirator manufacturer's NIOSH-approved breathing gas containers, marked and maintained in accordance with the Quality Assurance 68 provisions of the NIOSH approval for the SCBA as issued in accordance with the NIOSH respirator certification standard at 42 C.F.R. Part 84.

Note: While selecting respirators, you will need to select a sufficient number of types, models or sizes to provide for fit testing. You can also consider other respirator use issues, such as accommodating facial hair with a loose fitting respirator.

Use Table 5 to identify the assigned protection factor for different types of respirators.

These assigned protection factors are only effective when the employer implements a continuing, effective respirator program as required by this chapter, including training, fit testing, maintenance, and use requirements.

You may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required use is independent of concentration.

Table 5 - Assigned Protection Factors (APF) for Respirator Types

If the respirator is a(n)	Then the APF is:
Air-purifying respirator with a:	
• Quarter-mask	5
• Half-facepiece. This category includes filtering facepiece and elastomeric facepiece models	10
• Full-facepiece	50

Powered air-purifying respirator (PAPR) with a:	
• Loose-fitting facepiece	25
• Half-facepiece	50
• Full-facepiece	1000
• Hood or helmet	25/1000 (see note)
Note: PAPRs with helmets/hoods may receive an APF of 1000 only when you have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater. Such evidence must be provided by the respirator manufacturer. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or simulated workplace protection factor (SWPF) study or equivalent testing.	
Air-line respirator with a:	
• Half-facepiece and designed to operate in demand mode	10
• Loose-fitting facepiece and designed to operate in continuous flow mode	25
• Half-facepiece and designed to operate in continuous-flow mode	50
• Half-facepiece and designed to operate in pressure-demand or other positive-pressure mode	50
• Full-facepiece and designed to operate in demand mode	50
• Full-facepiece and designed to operate in continuous-flow mode	1000
• Full-facepiece and designed to operate in pressure-demand or other positive-pressure mode	1000
• Helmet or hood and designed to operate in continuous-flow mode	25/1000 (see note)
Note: Air-line respirators with helmets/hoods designed to operate in continuous-flow mode may receive an APF of 1000 when you have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater. Such evidence must be provided by the respirator manufacturer. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or simulated workplace protection factor (SWPF) study or equivalent testing.	

Self-contained breathing apparatus (SCBA) with a tight fitting:	
• Half-facepiece and designed to operate in demand mode	10
• Full-facepiece and designed to operate in demand mode	50
• Full-facepiece and designed to operate in pressure-demand or other positive pressure mode (e.g., open/closed circuit)	10,000
• Helmet or hood and designed to operate in demand mode	50
• Helmet or hood and designed to operate in pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	10,000
Combination respirators:	
• When using a combination respirator, such as an air-line respirator with an air-purifying filter, you must make sure the APF is appropriate to the mode of operation in which the respirator is used	
Escape respirators:	
• APFs in this table do not apply to respirators used solely for escape. To select escape respirators, go to Step 8 of this section	

Use Table 6 to select air-purifying respirators for particle, vapor, or gas contaminants.

Table 6 - Requirements for Selecting Any Air-purifying Respirator

If the contaminant is a	Then
Gas or Vapor	• Provide a respirator with canisters or cartridges equipped with a NIOSH-certified, end-of-service-life indicator (ESLI); or
	• If a canister or cartridge with an ESLI is NOT available, develop a cartridge change schedule to make sure the canisters or cartridges are replaced before they are no longer effective; or
	• Select an atmosphere-supplying respirator
Particle, such as a dust, spray, mist, fog, fume, or aerosol	• Select respirators with filters certified to be at least 95% efficient by NIOSH. For example, N95s, R99s, P100s, or High Efficiency Particulate Air (HEPA) filters

Service Life of Filters

If the selected filters have an end-of-service-life indicator (ESLI), the filters will be used until the indicator shows that it is time to be replaced.

In the absence of an ESLI, the following is our policy of service life of filters:

All HEPA filters manufactured under 30 CFR part 11 (for PAPR's) will be replaced at least daily (once each work shift) or if breathing resistance becomes excessive or if the filter suffers physical damage (tears, holes, etc.) If PAPR filters become available under 42 CFR part 84 standards, they will be used and fall under the below schedule:

All filters will be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.

N-series filters may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the workplace to be exceptionally dirty, the filters will be changed each work shift.

R-series filter will be changed every work shift if oil is present. If oil is not present, they may be used and reused subject only to considerations of hygiene, damage, and increased breathing resistance. If the competent person determines the workplace to be exceptionally dirty, the filters will be changed each work shift.

P-series filters will be used and reused in accordance with the manufacturer's time-use limitations when oil aerosols are present.

P-series filters can be used and reused subject only to consideration of hygiene, damage, and increased breathing resistance if oil aerosols are not present.

Medical Approval for Respirator Use

Before respirator use -- even before fit testing -- it must be determined that one is physically capable to wear the type of respirator to be assigned. Wearing negative pressure respirators can place an increased strain on one's respiratory system, and, depending on the task and the environmental conditions (especially heat and cold), respirators can put an additional strain on your whole body. Prior to respirator use, an employee must have a medical examination. The actual medical tests, if any, depend on the hazards involved, the condition of the employee, and the judgment of the physician or other licensed health care professional (LHCP). If respirators are used to prevent exposure to certain toxic and hazardous substances (for example, lead or asbestos), then additional medical tests and surveillance procedures are required appropriate for the hazard.

A LHCP will be identified to perform medical evaluations using the medical questionnaire found in WAC 296-842-22005, Table 10. The LHCP will be given a copy of this program as well as the appropriate standards.

The medical questionnaire and examinations will be given confidentially, and at no expense to the employee, during normal working hours or at a time and place convenient to the employee. The employee will be given the opportunity to discuss the questionnaire and examination results with the LHCP.

The LHCP will be provided the following information to be used in determining an employee's ability to use a respirator:

a. the type and weight of the respirator to be used by the employee.
b. the duration and frequency of respirator use.
c. the expected physical work effort.
d. additional protective clothing and equipment to be worn.
e. temperature and humidity extremes that may be encountered.

An annual review of medical status is not required and additional medical evaluations are required only if:

a. an employee reports medical signs or symptoms that are related to ability to use a respirator.
b. a PLHCP, supervisor, or the respirator program administrator determines that the employee needs to be reevaluated.
c. fit testing and work area program evaluation indicates a need.
d. a change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

A negative pressure respirator may place an undue burden on an employee’s system and the PLHCP may recommend a PAPR be used instead.

Medical records will be retained for 30 years.

Once medical approval is received allowing the respirator use, fit testing may proceed. The employee will be provided with a copy of this determination.

Respirator Fit Test

There are various protocols for fit testing respirators and they can be found in WAC 296-842-22010. One (1) of the four (4) qualitative protocols listed below will be used:

Protocol/Fit Test Procedure	WAC 296-842-22010
a. Isoamyl Acetate Fit Test Procedure	Table 12
b. Saccharin Solution Aerosol Fit Test Procedure	Table 13
c. BitrexTM Solution Aerosol Fit Test Procedure	Table 14
d. Irritant Smoke (Stannic Chloride) Fit Test Procedure	Table 15

The purpose of fit testing is to ensure that the respirator selected will actually do the job for which it was intended. Different manufacturers make different sizes of each model. Fit testing, following the OSHA approved protocols, will ensure that the specific make, model and size is appropriate for the user. An employee may only use the specific respirator(s) on which he/she has passed a fit test.

Eye glasses and contact lenses pose special problems when dealing with respirators. Contact lenses will not be worn during the fit test or during respirator use. Normal eye glasses, while they do not interfere with the skin to facepiece seal of a ½ face respirator, will prevent a proper seal on a full face respirator and thus will not be worn. If glasses are needed, special adapters can be provided to hold lenses within the respirator.

Upon successful completion of respirator fit testing, a Record of Respirator Fit Test form will be completed and maintained with the employee's records. Only the latest fit test record need be retained. The Respirator Fit Test will be repeated at least annually or when:

a. a different respirator facepiece (size, style, model or make) is used.
b. there has been a weight change of at least 20 pounds.
c. there has been significant facial scarring in the area of the face-piece seal.

d. there has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.

e. reconstructive or cosmetic surgery.

f. any other condition that may interfere with facepiece sealing.

As explained in the protocols, the fit tests shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface. Further, there shall not be mustaches that are so long as to interfere with the inlet or exhaust valves in the respirator. Of course, these requirements apply not only to fit testing procedures, they apply to actual on the job use where the seal between face and respirator must be maintained.

User seal Check

A user seal check, performed in accordance with the manufacturer's instructions, will be made prior to each use by the wearer of a tight-fitting respirator.

A user seal check is solely for respiratory protection of the employee and without this check there is no way of knowing if the selected respirator is actually working. Failure to perform a seal check may result in the use of a respirator which is of little or no value.

Hazard Communication & Emergency Procedures

One would not be wearing a respirator in the first place if there were not some detrimental health consequences of non-use. Often, these consequences are chronic (long term) and immediately unnoticeable.

If respirator failure would lead to noticeable physical or mental impairment, then, in these situations, two (2) employees will be assigned in the same area and in view of each other. If one employee presents symptoms of physical or mental distress, the second employee will remove the first employee from the area. If there is not an immediate, total recovery, the affected employee will be provided medical care by emergency responders.

In the event work is being performed in an IDLH atmosphere, a safety harness and safety lines will be used so that the employee may be pulled to safety. Suitable rescue equipment will be available and a standby man or men with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency rescue.

All personnel should be aware of the appropriate SDS for the products they are working with, and particular attention should be given to health hazards, both acute and chronic; symptoms of overexposure; first aid measures; emergency procedures; and exposure limits.

Work Area Surveillance

The competent person at the work area where respirator use is required will maintain appropriate surveillance of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the Program Administrator or competent person will reevaluate the continued effectiveness of the respirator.

Employees are to leave the respirator use area:

a. to wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use.

b. if they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.

c. to replace the respirator or the filter, cartridge, or canister elements.

Defective respirators will be repaired or replaced before returning to the respirator use area.

Air Quality

Atmosphere-supplying respirators, depending on the type (supplied-air or SCBA) use compressed air, compressed oxygen, liquid air or liquid oxygen. Compressed and liquid oxygen must meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen. Compressed breathing air must meet the requirements of Grade "D" breathing air including: oxygen content (v/v) of 19.5-23.5%; hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; carbon monoxide content of 10 ppm or less; carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor. Compressed oxygen shall not be used in supplied-air respirators or open circuit self-contained breathing apparatus that have previously used compressed air. Oxygen must never be used with air line respirators.

Breathing air may be supplied to respirators from cylinders or air compressors. If cylinders are used, they will be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 178).

If a compressor is used for supplying breathable air by way of air line hoses to a respirator mask, it is a Type "C" system. The hose couplings used on these systems must not be compatible with any other gas systems. Breathable air -- not pure oxygen -- is used in these systems. All safety and standby devices will be maintained in working order such as alarms to warn of compressor failure or overheating.

Compressors will be located so that contaminated air does not enter the system and suitable in-line filters will be installed. A receiver of sufficient capacity to enable the respirator wearer to escape from a contaminated atmosphere in the event of a compressor failure shall be in place. If an oil lubricated system is used, it shall have a high temperature and carbon monoxide alarm.

Cleaning, Inspection, & Maintenance

Respirators issued for the exclusive use of one worker will be cleaned and disinfected after each day's use or more often, if necessary. A respirator used by more than one person will be cleaned and disinfected after each use by the employee who used it. Cleaning should be done using the manufacturer's recommendations or the guidelines in Table 8, WAC 296-842-17005. Remove or protect the filters/cartridges before cleaning because moisture can defeat the effectiveness of a filter. During cleaning, an inspection of the respirator will be made to ensure it retains its original effectiveness. Valves, straps, canisters, elasticity, facepieces, if applicable, will be inspected per the manufacturer's instructions. Defective parts will be replaced before reuse.

Employees who use respirators will be instructed in the replacement of parts as allowed by the manufacturer (such as valves and straps). Respirators that require a higher level of repair will be returned to the manufacturer. All replacement parts will be of the same manufacture as the respirator and all replacement parts will be NIOSH approved. Maintenance will be limited to replacing parts (straps, filters, valves, etc.) allowed by the manufacturer. Only respirators in 100% working order will be used.

Cleaning supplies and replacement parts will be provided at no cost. In the event a respirator is not used for thirty (30) days, it will be inspected by a competent person. Particular attention will be paid to SCBA apparatus and Type "C" connections. SCBA apparatus shall be inspected monthly and air and oxygen cylinders will be fully charged according to the manufacturer's instructions. All warning devices will be checked to ensure they are properly functioning.

Maintenance of Emergency/Unassigned Respirators

Emergency and unassigned respirators (respirators used by more than one person) will be cleaned and inspected for defects every thirty (30) days and after each use. Particular attention will be given to the elasticity of the respirator and ensuring that the respirator is defect free. Only the latest record of this inspection will be maintained. A tag showing the name of inspector, the date, and condition of the respirators will be attached to the respirator.

Storage of Respirators

Respirators will be stored in a convenient, clean, and sanitary location in such a manner as to protect them from dust, heat, sunlight, extreme cold, excessive moisture, and damaging chemicals. On a job site, a plastic bag can help protect a respirator from dust and moisture. Respirators will not be stored in lockers or tool boxes unless they are in cases or cartons. Respirators will be stored with the facepiece and exhalation valve resting in a normal position. This will also prevent the soft, pliable material of which respirators are made from setting in an abnormal position, changing shape, and reducing face to mask seal.

Program Evaluation

This Program will be evaluated on a continual basis and updated if the need arises. Reasons for upgrading would include new atmospheric hazards; new respiratory protection equipment; new or altered work procedures; the introduction of new engineering controls; the failure of employees to follow standard operating procedures.

Often, the effects of breathing contaminated atmospheres are chronic in nature and thus some employees may tend to become lax in using their respirators properly. Supervisors must be on alert for this tendency.

Employees must realize that they must use the provided respiratory protection in accordance with the instructions and training received.

Training

Training will be given by a competent person, prior to use, to ensure each affected employee can demonstrate knowledge of at least the following:

a. why a respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
b. what the limitations and capabilities of the respirator are.
c. how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
d. how to inspect, put on and remove, use, and check the seals.
e. the procedures for maintenance and storage of the respirator.
f. how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
g. the general concepts of this program.

Retraining will be given annually and when:

a. changes in the workplace or the type of respirator render previous training obsolete.
b. inadequacies in the employee's knowledge or use of the respirator indicates that the employee lacks the required understanding or skill.
c. a situation arises in which retraining appears necessary to ensure safe respirator use.

Dusk Masks

DU**ST MASKS - USE OF RESPIRATORS WHEN NOT REQUIRE**D

The Program Administrator or competent person in the work area will determine when respirator use is **required**. Dust masks may be used at any time to reduce annoying particles in the air on a job site.

An employee who wants to wear an actual respirator on the job site for comfort or an additional level of safety that is **not required** for health reasons according to standards must obtain medical approval for respirator use according to the procedures outlined in this program.

Additionally, that employee should read this program (formal training is not required) and:

a. read and heed all manufacturer's instructions on use, maintenance, cleaning and care, and 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 your 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 interchange the respirator with another employee.

<u>Disposable Respirators:</u>

WISHA requires that employees who voluntarily use disposable respirators in situations where respiratory protection is not specifically required by standard (in atmospheres where exposures are below the permissible exposure limit) essentially for personal comfort or additional, though not required, respiratory protection be informed of the contents of Table 2, WAC 296-842-11005, printed below.

All disposable respirators, such as Moldex, 3M, Willlson, North Safety, etc. must be marked with the manufacturer's name, the part number, the protection provided by the filter, and "NIOSH".

Though disposable filters cannot be fit-tested in the traditional sense, they must be fit-tested in accordance with the manufacturer's instructions.

Under no circumstances may any respirator other than the above disposable respirators be used without compliance with a respiratory protection program.

Table 2, WAC 296-842-1105

Advisory Information for Employees Who Voluntarily Use Respirators

Respirators protect against airborne hazards when properly selected and used. Respirator usage that is required by WISHA or your employer is not voluntary use. With required use, your employer will need to provide further training and meet additional requirements in this chapter. WISHA recommends voluntary use of respirators when exposure to substances is below WISHA permissible exposure limits (PELs) because respirators can provide you an additional level of comfort and protection.

If you choose to voluntarily use a respirator (whether it's provided by you or your employer) be aware that respirators can create hazards for you, the user. You can avoid these hazards if you know how to use your respirator properly and how to keep it clean. Take these steps:

a. Read and follow all instructions provided by the manufacturer about use, maintenance (cleaning and care), and warnings regarding the respirator's limitations.

b. Choose respirators that have been certified for use to protect against the substance of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. If a respirator isn't certified by NIOSH, you have no guarantee that it meets minimum design and performance standards for workplace use.

c. A NIOSH approval label will appear on or in the respirator packaging. It will tell you what protection the respirator provides.

d. Keep track of your respirator so you don't mistakenly use someone else's.

e. Do not wear your respirator into:

f. Required use situations when you are only allowed voluntary use.

Highline College Facilities Department

Respiratory Protection Program Evaluation Form

Jason Huff, or a designated competent person, will conduct work area and administrative evaluations to ensure the provisions of our respiratory protection program are being properly implemented. Discrepancies noted will be immediately corrected.

A random sampling of affected personnel addressed the below listed concerns and the responses are indicated below:

	Yes	No
Is the respiratory protection program understood?	☐	☐

Problem areas: _____

Corrective action: _____
_____

Do respirators fit without interfering with job performance?	☐	☐

Problem areas: _____

Corrective action: _____
_____

Are respirators being properly maintained?	☐	☐

Problem areas: _____

Corrective action: _____
_____

Are appropriate respirators selected for the hazard?	☐	☐

Problem areas: _____

Corrective action: _____
_____

_____ _____
(Signature of Person performing evaluation) (Date)

Note: Retain only the latest evaluation.

Highline College Facilities Department

Report of Medical Examination

_____
(Date)

_____
(Applicant's Name)

_____
(Applicant's SSN)

Job for which person is being examined: _____

Reason for medical examination: Respirator use.

Type(s) of respirator to be used: _____

Atmospheric hazards for which the above respirators will be used: _____
_____ _____ _____

NOTE: Circle the appropriate paragraphs and subparagraphs.

1. Based on the information available to me, it is my opinion that the above named person may be placed in the job position with no restrictions in work assignments.
2. Based on all the information available to me, it is my opinion that the above named person has a detected medical conditions(s) or finding(s) which:
    a. Places this person or others at increased risk of material impairment of health from anticipated or potential occupational exposures or activities.
    b. May be aggravated by occupational exposures or activities.
    c. May interfere with safe and/or effective performance.
    d. Needs follow-up. This includes changes which may be with "normal limits" based on the current assessment and/or comparison with previous results. Based on available data, the casual relationship of these findings to occupational exposures appears to be positive/negative/ill defined.
    e. Other: (Explain) _____
3. On the basis of the above, I recommend:
    a. No restrictions in work assignments for the above job.
    b. Restricted activities: (List) _____
    c. Limited exposure: (Note) _____
    d. Special protective measures: (Note) _____
    e. Medical follow-up: (Note) _____
    f. Limitation on the use of a negative pressure or air purifying respirator: (Explain) _____
_____
    g. Other: (Note) _____

4. I have advised the employee of any detected medical condition of finding which dictates further medical examination or treatment and have appropriate recommendations regarding medical follow-up and exposure. This will be documented in writing.

5. Additional comments: _____

_____

_____

_____

_____

6. I understand that a copy of this report will be given to the examinee by the person receiving it.

DATE: _____ _____
(Physician's Signature)

_____
(Address)

_____
(City, State, ZIP)

_____
(Telephone Number)

Return this form to:

Highline College Facilities Department
Jason Huff
2400 S. 240th St.
Des Moines, WA 98198
206-592-3260

Highline College Facilities Department

Medical Opinion for Respirator Wear

_____
(Date)

_____
(Applicant's Name)

_____
(Applicant's SSN)

TO: Return this form to:

Highline College Facilities Department
Jason Huff
2400 S. 240th St.
Des Moines, WA 98198
206-592-3260

RE: Medical Opinion for Respirator Use

On this date, based on the employee medical questionnaire and/or further medical examination, the above named applicant is found to be:

a. Eligible to use a respirator. _____
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

_____
_____
_____

b. Eligible to use a respirator with the following restrictions:

_____
_____

_____
(Respirator type, i.e., ½ face; full face; PAPR; SCBA)

c. Not eligible to use a respirator.

_____
(Signature of physician or licensed healthcare professional)

_____
(Typed or Printed Name)

_____
(Street Address)

_____
(City, State, ZIP)

Highline College Facilities Department

Respirator Fit Test Summary

Name of employee: _____ SSN: _____

Date of Testing: _____ Test Conducted By: _____

Respirator(s) Selected: _____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ ____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Respirator(s) Selected: _____ ____ _____
(Manufacturer) **(Model/Series)**

☐ Pass

_____ ____ _____
☐ Fail **(Respirator Size)** **(NIOSH Certification #)**

Testing Agent (Protocol): Circle One

a. Isoamyl Acetate Protocol. (Banana Oil)
b. Saccharin Solution Aerosol Protocol. (Saccharin Taste)
c. BitrexTM Solution Aerosol Protocol (Denatonium Benzoate)
d. Irritant Smoke Protocol. (Irritant Smoke)

Signature of Person Conducting the Test: _____

Signature of Employee: _____

The Respirator Fit Test will be repeated at least annually or when:

a. A different respirator facepiece (size, style, model or make) is used.
b. There has been a weight change of at least 20 pounds.
c. There has been significant facial scarring in the area of the face-piece seal.
d. There has been significant dental changes; i.e., multiple extractions without prosthesis or acquiring dentures.
e. Reconstructive or cosmetic surgery.
f. Any other condition that may interfere with facepiece sealing.

Highline College Facilities Department

Record of Inspection

EMERGENCY/UNASSIGNED RESPIRATORS

All emergency and unassigned respirators were inspected and cleaned on the date indicated. Any defects found were corrected or the respirator was removed from service. This inspection was performed after each use and/or monthly.

DATE	SIGNATURE OF INSPECTOR	NOTES

Note: Only the latest record must be retained.

Scaffold

Scaffold Standards:
WAC 296-874, Scaffolds

Overview

Scaffolds and ladders are everyday items on most construction sites and their use presents specific hazards -- the most common being electrical shock, falls and falling objects. This program addresses these hazards and provides safety rules for the use of this type of equipment.

Affected individuals must be aware of the specific hazards applicable to their work situation and the proper safety procedures for avoiding these hazards.

All scaffold and ladder applications require a knowledge of: equipment inspection, load capacities, ground conditions, effects of weather, fall protection, potential electrical hazards, and protection from falling objects. It is expected that all personnel understand how to perform work in a safe manner while on a scaffold or ladder, recognize unsafe work situations, and effectively deal with them. If you are aware of a ladder or scaffold hazard (or any safety hazard), immediately bring it to the attention of your immediate Supervisor or the competent person on the job site.

Scaffold Safety

A scaffold, by definition, is any temporary elevated platform and its supporting structure used for supporting employees or materials or both. Because of the numerous types of scaffolds, the infinite possible combinations of uses, the various surface features on which the scaffold may rest, and the varying conditions in which scaffolds may be used, it would be impossible to detail what to do in every situation. The goal of any safety program - including scaffold safety - is to eliminate the possibility of harm to employees while they are performing their duties.

Only safety harnesses, not belts, will be used in fall protection.

Leading causes for scaffold accidents and injuries are plank slippage, being struck by falling objects, and the actual collapse of the support structure or plankage.

Definitions

There are a number of terms and phrases which must be understood by all employees when dealing with scaffolds. Below are listed important definitions to aid in the understanding of this Program, however they are not all-inclusive.

BODY HARNESS: a design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.

COMPETENT PERSON: one who is capable of identifying existing and predictable hazards in the surrounding or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

EXPOSED POWER LINES: electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.

FAILURE: load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

GUARDRAIL SYSTEM: a vertical barrier consisting of, but not limited to, toprails, midrails, and posts erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

LANDING: a platform at the end of a flight of stairs.

LIFELINE: a component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

LOWER LEVELS: areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.

MAXIMUM INTENDED LOAD: the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

OPEN SIDES AND ENDS: the edges of a platform that are more than 14 inches away horizontally from a sturdy, continuous, vertical surface (such as a building wall) or a sturdy, continuous, horizontal surface (such as a floor), or a point of access. Exception: For plastering and lathing operations, the horizontal threshold distance is 18 inches.

PERSONAL FALL ARREST SYSTEM: a system used to arrest an employee's fall. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

PLATFORM: a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

QUALIFIED PERSON: one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

RATED LOAD: the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold equipment.

SCAFFOLD: any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage) used for supporting employees or materials or both.

UNSTABLE OBJECTS: items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees. Examples include, but are not limited to, barrels, boxes, loose brick, and concrete blocks.

Guidelines for Scaffold Use

All Scaffolds:

Employees who work on any type of scaffold must follow the below listed guidelines:

a. scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

b. scaffolds and scaffold components will be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.

c. damaged or weakened parts will be immediately replaced.

d. scaffolds shall be erected, moved, dismantled or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

e. work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and these employees are protected by a personal fall arrest system or wind screens.

f. personnel may not work on scaffolds covered with snow, ice or other slippery material except to remove the material with extreme care.

g. where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.

h. debris shall not be allowed to accumulate on platforms.

i. make-shift devices on top of scaffold platforms shall not be used to increase the working level height of employees.

j. guardrails should have smooth surfaces to prevent puncture, laceration, or snagging injuries.

k. make-shift parts will not be used. A nail is not a substitute for a pin.

Supported Scaffolds:

Employees who work on supported scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

a. Each platform unit on all working levels of a scaffold shall be fully planked or decked between the front uprights and the guardrail supports and each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide (where feasible.)

b. Supported scaffolds must have a height to base (including outrigger supports, if used) width ratio of no more than 4:1 unless restrained from tipping by guying, tying, bracing, or equivalent means. The competent person will direct the procedures for prevention of tipping.

c. Supported scaffold poles, legs, posts, frames and uprights must rest on **base plates AND** mud sills or other adequate firm foundation.

Note: Base plates must always be used on supported scaffolds

1. Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
2. Unstable objects cannot be used to support scaffolds or platform units.
3. Unstable objects shall not be used as working platforms.
4. Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.
5. Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.

d. Supported scaffold poles, legs, posts, frames and uprights shall be plumb and braced to prevent swaying and displacement.

e. Scaffolds shall not be moved horizontally while employees are on them unless they have been designed by a registered professional engineer specifically for such movement or, in the case of mobile scaffolds:

1. the surface on which the scaffold is being moved is within 3 degrees of level and free of pits, holes, and obstructions.
2. the height to base width ratio of the scaffold during movement is two to one or less.
3. outrigger frames, when used, are installed on both sides of the scaffold.
4. when power systems are used, the propelling force is applied directly to the wheels and does not produce a speed in excess of 1 foot per second.
5. no employee is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
6. before the scaffold is moved, each employee on the scaffold must be made aware of the move.

SUSPENDED SCAFFOLDS:

Employees who work on suspended scaffolds must follow the below listed rules and guidelines. These guidelines cover most, but not all situations. The competent person will address unusual situations.

a. All suspension scaffold devices shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).

b. Direct connections on suspension scaffolds must be evaluated before use by a competent person who shall confirm that the supporting surfaces are capable of supporting the loads to be imposed.

c. Counterweights shall be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated may not be used as counterweights.
    1. Only items specifically designed as counterweights shall be used as counterweights. Construction material shall not be used as counterweights.
    2. Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.
d. The use of repaired wire rope as suspension rope is prohibited.
e. Wire ropes shall not be joined together except through the use of eye splice thimbles and secured by eye splicing or equivalent means.
f. Wire ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a wire rope's integrity. Wire ropes will be **replaced** if any of the following conditions exist:
    1. any physical damage which impairs the function and strength of the rope.
    2. kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
    3. six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
    4. abrasion, corrosion, scrubbing, flattening or peeling causing loss of more than one third of the original diameter of the outside wires.
    5. heat damage caused by a torch or any damage caused by contact with electrical wire.
    6. evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.
g. Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.
h. Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.
i. Manually operated hoists shall require a positive crank force to descend.

Guidelines for the Control of Electrical Hazards

To prevent the possibility of electrical shock, neither the scaffold nor any conductive material handled on the scaffold shall come closer to exposed and energized power lines as noted below:

INSULATED POWER LINES		
Voltage	Minimum Distance	Alternatives
Less than 300 volts	3 feet	
300 volts to 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

UNINSULATED POWER LINES		
Voltage	Minimum Distance	Alternatives
Less than 50 kV	10 feet	
More than 50 kV	10 feet plus 0.4” for each 1 kV over 50 kV	2 X’s the length of the line insulator, but never less than 10 feet

Scaffolds may be closer to power lines if it is necessary to accomplish the work, but only after the utility company or electrical system operator has been notified of the need to work closer, and the utility company or electrical system operator has deenergized or relocated the lines or installed protective coverings to prevent accidental contact with the lines.

When using 110 volt electrical power tools or lights, ground fault circuit breakers must be used. Electrical extension cords must be inspected for cuts or cracks in the insulation before use.

Guidelines for the Control of Fall Hazards

Each employee working on a scaffold more than 10 feet above a lower level must be protected from falling to that lower level as noted below:

SCAFFOLD TYPE	FALL PROTECTION REQUIREMENTS
Boatswains' Chair, Catenary Scaffold, Float Scaffold, Needle Beam Scaffold, Ladder Jack Scaffold	Personal Fall Arrest System
Single-Point Adjustable, Suspension Scaffold, and a Two-Point Adjustable Suspension Scaffold	Personal Fall Arrest System and a *Guardrail System
Crawling Board (Chicken Ladder)	Personal Fall Arrest System; *Guardrail System or a ¾" diameter grabline or equivalent handhold securely fastened beside each crawling board.
Self-Contained Adjustable Scaffold	*Guardrail System when the platform is supported by the frame structure; by both a Personal Fall Arrest System and a *Guardrail System when the platform is supported by ropes.
Walkway Located within a Scaffold	*Guardrail System installed within 9½" of and along at least one side of the Walkway.
Supported Scaffolds used while performing Overhand Bricklaying	Personal Fall Arrest System or a *Guardrail System (except at the side next to the wall being laid.)
All Other Scaffolds not specified above	Personal Fall Arrest System and a *Guardrail System
*Guardrail Systems must have a minimum 200 pound toprail capacity.	

PLANKING REQUIREMENTS:

Plank slippage causes falls and falls cause injuries. Below are requirements for platforms and/or planks used on scaffolds and walkways:

a. each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide.

    1. Exceptions to the above:

        when a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform). In this instance, the platform must be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 9½", or when planking or decking is used solely for walkways or solely for use by personnel erecting or dismantling the scaffold. In these instances, only the planking the competent person establishes as necessary to provide safe working conditions is required.

b. Each scaffold platform and walkway shall be at least 18 inches wide.

    1. Exceptions to the above:

        Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least 12 inches wide.

        There is no minimum width for boatswain's chairs.

        Where working areas are so narrow that platforms and walkways cannot be at least 18 inches wide, the platforms and walkways shall be as wide as feasible. In these instances, personnel shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems regardless of the height.

c. The front edge of all platforms shall not be more than 14 inches from the face of the work unless guardrail systems are erected along the front edge and/or fall arrest systems are used.

   1. Exceptions to the above:

      for outrigger scaffolds, the maximum distance from the face of the work shall be 3 inches.

      for plastering and latching operations, the maximum distance from the face of the work shall be 18 inches.

d. Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support by at least 6 inches and not more than:

   1. twelve (12) inches for a platform 10 feet or less in length unless the platform is designed and installed so that the cantilevered* portion of the platform is able to support personnel and/or material without tipping, or has guardrails which block access to the cantilevered end.
   2. eighteen (18) inches for a platform greater than 10 feet in length unless it is designed and installed so that the cantilevered* portion of the platform is able to support personnel without tipping or has guardrails which block access to the cantilevered end.

Note: Cantilevered portion of the platform is the portion of the platform which extends beyond the support by 12 or 18 inches.

e. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. The use of common support members such as “T” sections to support abutting planks or hook on platforms designed to rest on common support is acceptable.

f. Where platforms are overlapped to create a long platform, the overlap shall occur only over supports and shall not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.

g. At points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first; platforms which rest at right angles over the same bearer shall be laid second on top of the first platform.

h. With the exception that the edges may be marked for identification, wood platforms shall not be covered with opaque finishes. Platforms may be coated with wood preservatives, fire-retardant finishes, and slip-resistant finishes as long as the coatings allow the actual wood to be seen. This is so the wood platforms may be inspected for damage and/or deterioration.

i. Scaffold components manufactured by different manufacturers cannot be intermixed unless the components fit together without force and the scaffold's structural integrity, as determined by a competent person, is maintained.

j. Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component below acceptable levels.

Fall Protection during Erection & Dismantling of Supported Scaffolds

Supported Scaffolds: The competent person must determine the feasibility and safety of providing fall protection for employees erecting and dismantling supported scaffolds.

Suspended Scaffolds: Fall protection for those erecting and dismantling suspended scaffolds is possible because the anchorage points used for supporting the scaffold would certainly support a fall protection system. Therefore, fall protection will be utilized for personnel erecting or dismantling supported scaffolds.

Guidelines for the Control of Falling Objects

All personnel working on a scaffold must wear hard hats. Further protection from falling objects will be provided, if needed, by toeboards*, screens, or guardrail systems; or through the erection of debris nets, catch platforms, or canopy** structures that contain or deflect the falling objects.

Objects that are too heavy or massive to be prevented from falling by the above measures will be kept away from the edge of the scaffold and secured as necessary to prevent their falling.

Where there is a possibility of falling objects (tools, materials, or equipment), the below safeguards must be implemented:

a. the area below the scaffold to which objects can fall shall be barri-caded and employees shall not be permitted to enter the hazard area, **or**

b. a toeboard will be erected along the edge of platforms more than 10 feet above lower levels for a distance sufficient to protect employees below.

When tools, material, or equipment are piled to a height higher than the top edge of the toeboard, the below listed safeguards must be implemented:

a. paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below, **or**

b. a guardrail system shall be installed with openings small enough to prevent passage of potential falling objects, **or**

c. a canopy structure, debris net or catch platform strong enough to prevent passage of potential falling objects shall be erected over the employees below.

Note: Toeboards must be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction and be at least 3½" high from the top edge of the walking/working surface. Further, toeboards must be secured to the outermost edge of the platform and not have more than ¼" clearance above the walking/working surface. Toeboards must either be solid or have openings not over 1" in the greatest dimension.

Note: Canopies used for falling object protection must be installed between the falling object hazard and the employees below.

Access

Two feet -- 24 inches -- is the height at which some sort of access is required to reach a scaffold platform. When a scaffold platform is two (2) feet above or below the point of access (often the ground level), portable ladders, hook-on ladders, ramps, walkways, ladder stands, etc. must be used. Never use a crossbrace as a means of getting on or off a scaffold.

Hook-on and attachable ladders must:

a. be positioned so they do not tip the scaffold.
b. have the bottom rung within 24 inches of the supporting level.
c. have rest platforms at least at 35-foot vertical intervals when used on supported scaffolds.
d. be designed for use with the scaffold being used.
e. have a minimum spacing between rungs of 16 ¾ inches and a minimum rung length of 11 ½ inches.

Stairway type ladders have essentially the same requirements except that:

a. the rest platforms must be at the 12 foot (maximum) vertical level.
b. the minimum step width is 16 inches (mobile scaffold stairway-type ladders: 11 ½ inches).
c. slip-resistant treads are required on all steps and landings.

Stairtowers, if used, must have the bottom step within 24 inches of the supporting level and have

a. a toprail and midrail (stairrail) on each side.
b. a landing platform at least 18 inches by 18 inches at each level.
c. a width of 18 inches between stairrails.
d. resistant surfaces on treads and landings.

Employees must be able to safely get on and off a scaffold platform and, at 24 inches, you will need a specific method of access.

General versus Specific Scaffold Safety Guidelines

General safety guidelines apply to all situations. In all situations, employees must be aware of:

a. potential electrical hazards, fall hazards, and falling object hazards and how to eliminate them.
b. the proper use of scaffolds and the proper handling methods of materials on the scaffold being used.
c. the maximum intended load and the load-carrying capacities of the scaffold being used and never exceeding these limits.

Within the broad categories of suspended and supported scaffolds, there are many specific types of scaffolds -- each with its own limitations and special characteristics. Each job site has its own unique ground composition on which a supported scaffold is erected, or unique attachment points for suspended scaffolds. The competent person on the job site will instruct affected employees on any unusual or unique items that must be known about a specific circumstance.

Training

Interactive training will be given to all employees who will be performing work on scaffolds by a competent person; it will focus on the hazards associated with the type(s) of scaffolding used on our job site, as well as the methods to minimize or eliminate those hazards.

For those employees who will be erecting, disassembling, moving, operating, repairing, inspecting, or maintaining our scaffolds, the competent person will provide additional training applicable to their job requirements.

Retraining will be provided should new types of scaffolding be introduced, standards change, or on-the-job performance indicate that a particular employee has not retained the required proficiency in scaffold safety.

Training will be given, as necessary, to all employees who will be performing work using ladders by a competent person. Issues addressed will include:

a. the nature of fall hazards in the work area.
b. the correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
c. the proper construction, placement, care and handling of all ladders.
d. the maximum intended load-carrying capacities of ladders used.
e. the availability of the ladder standards which are contained within this program.

Retraining will be provided, as necessary. Observation of failure to follow established ladder safety procedures would be a cause for retraining.

Highline College Facilities Department

Scaffold Fall Protection Work Plan

Instructions: For every area of the work place where employees are installing suspension scaffold or support systems on floors, roofs, and other elevated surfaces where there is a free fall distance of 10 feet or more to a lower level or are associated with the scaffold are working anywhere else, such as accessing the scaffold through the building, or installing fall protection anchors or scaffold ties while standing on a building or structure a Fall Protection Work Plan will be prepared [and maintained on the job site] that includes the following:

Job Site Identification: _____

Prepared by: _____ Date: _____

Identity of all fall hazards in the work area

Methods of Fall Arrest or Fall Restraint

Description of the correct procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used.

Procedures for the handling, storage, and securing of tools and materials

Method of providing overhead protection for workers who may be in, or pass through the area below the work site.

Method for prompt, safe removal of injured workers.

Highline College Facilities Department
Safety Program Addendum

Highline College Facilities Department

Company Specific Safety Requirements

We currently do not have any company specific safety requirements.