SAFETY MANUAL

CHIPPEWA CONCRETE SERVICES, INC.
3030 110TH STREET
CHIPPEWA FALLS, WI 54729

1-1 Policy Statement on Safety

Safety for our employees will always be a prime concern of Chippewa Concrete Services, Inc., and we want to take this opportunity to promote a strong safety program which will provide a safe place for all employees to work.

It is the policy of Chippewa Concrete Services, Inc., to establish and maintain throughout the entire organization the firm and fully accepted concept that people are the most important company asset, and the conservation thereof has management's highest priority, support and participation.

Chippewa Concrete Services, Inc. considers no phase of operation or administration of greater importance than accident prevention. Accidents, which result in personal injury and/or damage to property and equipment, represent needles waste and loss. To mitigate the effect of accidents on company resource, both human and material, all operations will be conducted in a safe manner.

The policies and procedures outlined in the Safety Program are intended to assist employees in minimizing the risks inherent in the styles of work preformed by Chippewa Concrete Services. The objective of the Safety Program is to establish throughout the organization a culture of safety awareness among all employees. To meet this objective, all levels of the organization must work together towards identifying, evaluating and eliminating the hazards facing the employees of Chippewa Concrete Services, Inc.

All employees are encouraged to report unsafe conditions to their immediate foreman, without fear of reprimand. Furthermore, no employee will ever be required to work in an unsafe or questionable condition.

We hope you will share our concern for providing a safe place in which to work, because to make a safety program effective, all of us must work together. Help yourself and your co-employees work toward these goals, which will reflect upon our organization, and most importantly, the health and safety of our employees.

Barry Bohman
Chippewa Concrete Services, Inc.

1-2 Policy Objectives on Safety

The objectives of this safety program are as follows:

1. To provide an attitude of safety consciousness in management and supervisory personnel.

2. To minimize accidents by pre-planning safety into the work to be performed. Such pre-planning will require the identification of present and future hazardous conditions in each operation.

3. To provide a uniform policy of safety management consistent with the requirements of OSHA and our insurance carrier.

4. To provide assignments of specific responsibilities for effective enforcement and control of all safety programs.

5. To provide a means of continuing development and updating of safety education and training.

6. To provide a means for involvement of our subcontractors in a continuing safety program.

1-3 Responsibilities

1.) All Personnel: The responsibility for the Safety Program of Chippewa Concrete Services rest with all its employees. The ultimate responsibility for safety within the organization lies with the owners. Without there support, direction, assignment of responsibility and holding individuals accountable, the program will not work.
   a. Take immediate action(s) to halt unsafe acts and/or conditions.
   b. Report any unsafe working condition to their immediate supervisor.
   c. Keep individual work area in a clean, orderly and safe condition.
   d. Report all incidents to supervisor immediately. Cooperate with any necessary incident investigation.
   e. To treat work-related injury or illness that requiries medical attention and follow any work restrictions prescribed.
   f. Follow all safety and health rules.
   g. Maintain a positive attitude toward safety and cooperate fully to ensure a safe, healthy workplace for all employees.

The owners will serve as the overall coordinator of the company Safety Program and will direct the activities of the supervisors.

2.) Manager Responsibilities:
   a. Coordinate all aspects of the Safety Program and actively support and participate in them.
   b. Ensure adequate training and education programs are in place for all levels of employees.
   c. Conduct incident investigations to identify root causes and initiate corrective actions to prevent recurrence.
   d. Ensure compliance with all Federal, State and Local regulations.
   e. Act as a resource to all levels of the company regarding matters of worker safety and health.
   f. Set a positive example by following all safety and health rules while on job sites.

3.) Supervisor Responsibilities:
   a. Act as a competent person, the one who is capable of identifying existing and predictable hazards in the work environment.
   b. Monitor subcontractors and the performance of subcontractors to insure that all subcontractors are conforming to OSHA requirements, and our Safety Program.
   c. Consider the safety factors in there operational planning and plan to minimize hazards ahead of needs.
   d. Maintain appropriate safety reference materials, first aid supplies and personal protective equipment.
   e. Set a positive example by following the Safety Program.

f. Responsible for ensuring the safety of all employees under their management.
g. Correct all unsafe working conditions immediately upon discovery.
h. Conduct frequent and regular inspections of the job site to identify hazardous conditions.
i. Provide for the protection of the general public with good housekeeping.
j. Investigate any reported incident immediately and complete the appropriate Incident Report.
k. Accommodate work restrictions of the injured / ill employees and to ensure that work restrictions are not exceed.
l. Enforce the Safety Program with a positive attitude and stress the importance of working safely.
m. Issue corrective action notices as necessary to discipline employees in non-compliance with the Safety Program.

4.) Employee Responsibilities: It is the duty of each employee to be familiar with the Safety Program and conduct his/her work in compliance with in. Disregard of the safety rules and procedures shall be grounds for dismissal. It is the duty of each employee to make full use of the safeguards provided for his/her protection.
   a. Act as a competent person, the one who is capable of identifying existing and predictable hazards in the work environment.
   b. Monitor subcontractors and the performance of subcontractors to insure that all subcontractors are conforming to OSHA requirements, and our Safety Program.
   c. Work in a manner which will not cause injury or loss to either themselves or others.
   d. Ensure that proper safeguards or precautions have been arranged, never cut short safety for expediency.
   e. Leave job sites in the safest possible conditions.
   f. Set a positive example by following the Safety Program.
   g. Report all injuries to responsible authority or supervisors immediately.

1-4 Safety Program Disciplinary Action

All employees are required to abide by the provisions of our Safety Program. Violations or disregard of these requirements or other safety instructions shall be grounds for discipline.

1.) Progression of Discipline: This is a typical progression of the disciplinary progress. However, Chippewa Concrete Services reserves the right to initiate the disciplinary process at any point in the sequence depending on the seriousness of the issue(s) concerned.
   a. Verbal warning
   b. Written warning
   c. Suspension or termination

2.) Corrective Action Meeting:
   a. Before the meeting.
      i. Ensure that there is a valid job-related issue for the disciplinary action.
      ii. Investigate the facts and review them objectively.
      iii. Ensure consistency with any prior disciplinary actions.
      iv. Arrange to meet with employee privately.
      v. Review the specific incident and any past discipline.
   b. During the meeting
      i. Meet with employee in a non-confrontational manner.
      ii. Explain to the employee why you've called the meeting.
      iii. Review the Company policy with the employee and explain the steps going further.
      iv. Outline the unacceptable behavior / performance (be specific).
      v. Clearly explain future expectations and consequences.
      vi. Give the employee a change to respond to their actions.
      vii. Document the employee's response of their actions.
   c. After the meeting
      i. Forward the corrective action documentation to the employees file.
      ii. Monitor the employee's performance to ensure the problem has been corrected.
3.) Disciplinary Action:
   a. In the event that the employee's actions of improper conduct require disciplinary action, up to and including discharge.
      i. Consider the facts and circumstances of the individual case.
      ii. Consider the employee's length of services with the Company.
      iii. Evaluate the employee's record to determine what disciplinary action is warranted.

1-5 Code of Safe Practices

1. All persons shall follow these safe practice rules, render every possible aid to safe operations, and report all unsafe conditions or practices to the supervisor.

2. Supervisor(s) shall insist on employees observing and obeying every rule, regulation and order as is necessary to the safe conduct of work, and shall take such action as is necessary to obtain observance.

3. All employees shall be given injury and illness prevention instructions for duties performed.

4. Anyone known to be under the influence of drugs or intoxicating substances which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job while in that condition.

5. Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or wellbeing of the employees shall be prohibited.

6. Work shall be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment.

7. No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness or other causes that it might unnecessarily expose the employee or others to injury.

8. Employees shall be instructed to ensure that all guards and other protective devices are in proper places as adjusted, and shall report deficiencies promptly to the superintendent.

9. Safety glasses shall be worn when necessary and full-face shields are required when grinding, and/or chipping.

10. Workers shall not handle or tamper with any electrical equipment, machinery, air-lines, or water lines in a manner not within the scope of their duties, unless they have received instructions from their superintendent.

11. All injuries shall be reported promptly to the superintendent so that arrangements can be made for medical or first aid treatment.

12. When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back shall be used.

13. Inappropriate footwear shall not be worn.

14. Materials, tools, or other objects shall not be thrown from structures until proper precautions are taken to protect others from the falling objects.

15. Employees shall cleanse thoroughly after handling hazardous substances, and follow special instructions from authorized sources.

16. Workers shall not carry loads while climbing ladders, a hand line shall be used for this purpose.

17. Work shall be so arranged that employees are able to face the ladder and use both hands while climbing.

18. Gasoline shall not be used for cleaning purposes.

19. All electric hand tools and cords must be inspected for defects before each use and tested by a competent person every year.

20. All tools and equipment shall be maintained in good condition.

21. Damaged tools or equipment shall be removed from service and tagged “Defective”.

22. Only appropriate tools shall be used for the job.

23. Wrenches shall not be altered by the addition of handle-extensions or “cheaters”.

24. Files shall be equipped with handles.

25. A screwdriver shall not be used as a chisel.

26. Wheelbarrows shall not be pushed with handles in an upright position.

27. Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used.

28. In locations where the use of a portable power tool is difficult, the tool shall be supported by means of a rope or similar support of adequate strength.

29. Electrical cords shall not be exposed to damage from vehicles.

30. Only authorized persons shall operate machinery or equipment.

31. Loose or frayed clothing, or long hair, dangling items, etc. shall not be worn around moving machinery or other sources of entanglement.

2-1 Education & Training

An effective Safety Program will result only from adequate planning, education and training of all personnel within the company. The following general provisions are outlined to implement this part of the program.

1.) Each employee, prior to first job assignment, shall receive and sign the new employee handbook and be instructed in safe work practices pertaining to their specific assignment.
2.) Within the first year, each new hire shall attend an OSHA 10 hour course from the appropriate Union affiant.
3.) Employee shall be physically capable of performing their assigned duties in a safe manner.
4.) No persons shall knowingly be permitted in the work place whose health or physical condition might be detrimental to their health, safety or the safety of others.
5.) Operators of equipment and / or vehicles shall be qualified and properly trained or licensed for the operation involved.
6.) Previous experience should be taken into consideration when assigning personnel and only those who are qualified by training or experience shall be permitted to operate machinery or equipment.
7.) In operations where more specific training is required by law or regulation, additional training shall be conducted in accordance with the applicable regulations. See (Safety Program Supplements.)
    a. Lock-out
    b. Hazard communication
    c. Confined space
    d. Excavation
    e. Personal protective equipment

2-2 Incident Reporting and Investigation

An incident investigation is to be completed for every incident to identify the cause(s) and recommend appropriate corrective actions.

1.) Reportable Incident: An unplanned event which may produce undesirable effects and is preceded by unsafe, avoidable act(s) or conditions.
   a. Injuries or illnesses requiring medical treatment.
   b. Vehicle incident with injury, property damage or disabled vehicle requiring mechanical repairs.
   c. Damage to public utilities (electric, gas, phone, etc.).
   d. Damage to private property beyond scheduled construction.

2.) Non-Reportable Incident: An incident that does not result in a loss to the company.

3.) Investigation Procedures: All reportable incidents are to be investigated by the appropriate individual(s) as soon as possible after the incident occurs. The investigation should answer the following:
   a. When did the incident happen?
   b. Where did the incident occur?
   c. Who was involved in the incident?
   d. What exactly what happened.
   e. Why did those actions occur and why were they not prevented?

4.) Reports: The appropriate incident report needs to be filled out with any supporting documentation or pictures. The following color coded documents shall be used when filing an incident report. Supervisors are responsible for completing the incident report.
   a. Damage/Injury/Loss Report (Blue)
   b. Vehicle Incident Report (Yellow)
   c. Utility Damage Report (Green)

5.) Post Incident Testing: Any employee involved in an incident is subject to the testing requirements of the Substance Abuse Testing Policy.

3-1 Housekeeping

1.) General: All personnel will work towards maintaining their respective job sites in a clean and orderly manner. Housekeeping encompasses all activities related to the cleanliness of project, equipment and materials and the elimination of nonessential materials and hazardous conditions. The following general housekeeping practices must be applied to all areas within the Company and all areas where employees perform maintenance, construction, or other activities.
   a. Garbage, scrap, debris and other trash materials are to be properly disposed of in designated containers and shall be removed on frequent and regular intervals. Containers used for oily, flammable or hazardous wastes shall be equipped with covers.
   b. Material and equipment shall be stored only in appropriate storage locations.
   c. Floors at shop should be maintained clean and as dry as reasonably practicable. Liquid spills are to be cleaned up immediately.
   d. Equipment is to be kept clean and in good working condition.
   e. Job sites are to be kept clean to insure that work activities may precede in an orderly and efficient manner.
   f. Tools, supplies, parts, and equipment shall not be used in a manner that would be hazardous or adversely affect the work quality. Control should be used to insure that the work area is maintained in an acceptable manner.
   g. Compressed air shall not exceed 30 psi when used for cleaning purposes. Eye protection is required during these cleaning operations. The use of compressed air for cleaning an employee's body or clothing is discouraged.
   h. Storage of unnecessary combustibles such as cardboard boxes is discouraged.

2.) Inspections: Job sites will be inspected for deficiencies in cleanliness and good physical appearance. Inspections should be performed at a frequency that will ensure the desired level of cleanliness and appearance are maintained. Supervisors should monitor these areas to insure that housekeeping is acceptable. All deficiencies noted during the inspection should be documented in sufficient detail to allow the use of for corrective action. During inspections, any safety related deficiencies that constitute hazardous conditions should be given priority attention. Hazardous conditions that constitute imminent danger shall be immediately corrected.

3.) Inspection Guidelines:
   a. Housekeeping is being maintained as an integral part of every work operation.
   b. Receptacles are available for waste and debris.
   c. Cleaning and removal of waste and debris is being performed regularly.

d. Passageways are free from loose material and debris and are not used for storage.
e. Tools, cords, and other materials are not strewn about where they may cause tripping or other safety hazards.
f. Deficiencies in physical appearance should be noted during the inspections.
g. Deficiencies in the area of corrective maintenance such as leaking valves or fittings, excessive motor vibrations, etc., should be noted during the inspections.

3-2 Material Storage

1.) General:
   a. Bags, containers, bundles and boxes shall be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding and collapse.
   b. Permanent aisles and passageways shall be appropriately marked where appropriate and provide safe and adequate movement of materials and employees for general and emergency passage.
   c. Access to fire extinguishers, fire fighting equipment, any other safety equipment, electrical breakers and switches, and means of egress shall not be obstructed (a minimum of three feet of either side).
   d. Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage.
   e. Drums shall be stored with bungs or plugs in place to prevent leakage.
   f. Drums that are used as dispensers shall be provided with a drip pan below the valve.
   g. Spills will be cleaned-up immediately by the person responsible and wastes disposed properly.
   h. All refuse and waste materials will be placed in the recognized waste containers for disposal.
   i. Pipe and metal stock stored horizontally on racks and sorted by size
   j. All fittings, etc., stored in bins on shelves and sorted by type and use
   k. All flammables stored in OSHA-approved Fire Cabinets and self-closing cans where necessary
   l. Compressed gas shall be stored up-right and secured to a stationary structure in a shaded and well ventilated area. Cylinder caps shall be securely in place, marked with contents and if empty or full.

2.) Bins, silos, and Tanks:
   a. Shall be equipped with effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials.
   b. Shall be equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.
   c. Where persons are required to move around or over any bins, silos or tanks, suitable walkways or passageways shall be provided.
   d. No person shall enter any bins, silos or tanks until the supply and discharge of materials have ceased, equipment is locked out per Lockout / Tagout Program and all provisions of the Confined Space Entry Program have been followed.

3.) Aggregate Storage Areas:
   a. Permission shall be granted from the supervision prior to walking, driving, or working on aggregated storage areas.

b. If travel is required on top of the storage pile, stay a minimum of 30 feet away from the stacker sides.
c. Do not ascend/descend steep sloping sides of the storage pile. Use the path of a storage pile tractor.
d. Proper means of access onto the pile shall be provided for specific equipment not normally used on the aggregate pile.

3-3 Personal Protective Equipment

The purpose of this is to protect the employees of Chippewa Concrete Services, Inc. from exposure to work place hazards through the use of personal protective equipment (PPE). PPE is not a substitute for more effective control methods and it shall only be considered when other means of protection against hazards are not adequate or feasible and shall be used in conjunction with other control methods unless no other means of hazard control exist.

Personal protective equipment shall be provided, used and maintained when it has been determined that its use is required to ensure the safety and health of our employees and that such use will lessen the possibility of injury and/or illness. Appropriate training on the use and maintenance of PPE shall be provided by or arranged by supervisors, while management will make the selection of PPE to match the hazards.

PPE are designed to protect the worker from injury or harm. However, it is not designed to prevent the occurrence of an incident which might cause injury or harm. Therefore, we must ensure that working conditions are safe and PPE are used as a back-up for additional protection.

1.) Eye and Face Protection:
   a. Employees are required to wear eye protection while working in the field when machines or operations present the potential for injury.
      i. Should fit properly and be reasonably comfortable to wear.
      ii. Should provide unrestricted vision and movement.
      iii. Should be durable and cleanable.
      iv. Should allow unrestricted functioning of any other required PPE.
   b. Cutting and grinding of metals requires the use of a face shield in addition to eye protection.
   c. Arc and gas welding requires the use of welding helmet or goggles with the appropriate shade of lenses.
   d. Liquid splash hazards require the use of a face shield in addition to eye protection.

2.) Head Protection:
   a. Hard hats shall be used by all employees when overhead hazards are present.
      i. Protection from objects that might fall from above and strike them on the head.
      ii. Protection from bumping their head against fixed objects.
      iii. Protection from possibility of accidental head contact with electrical hazards.
   b. Hard hats shall be kept in good repair and worn in accordance with the manufacture's recommendations.

c. Hard hats shall be worn whenever “hard hat” signs are posted, regardless of weather an overhead hazard exists.

3.) Foot Protection:
   a. Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials are required to wear leather over-the-ankle work boots.
   b. Approved footwear has a protective toe and offers impact and compression protection.
   c. Foot protection shall be kept in good condition and free from wear and tears.

4.) Hand Protection:
   a. Hand protection is worn to protect the hands from a mechanical injury due to friction, heat, shearing/cutting actions, and for protection against chemicals (solvents, corrosives, concrete and etc.).
   b. Protective gloves should be inspected before each use to ensure that they are not torn, punctured or made defective in any way.

5.) Body Protection:
   a. Employees who face possible bodily injury of any kind that cannot be eliminated through engineering control, work practice or administrative controls must wear appropriate body protection while performing their jobs.
   b. There are many varieties of protective clothing available for specific hazards; employees shall wear PPE only for the parts of the body exposed to possible injury.
   c. Clothing that may get caught in tools or equipment, such as loose fitting, torn or ragged clothing shall not be allowed on the jobsite.

3-3-1 Hearing Conservation

The purpose of this program is to protect employees from noise induced hearing loss and to comply with all applicable state and federal regulations regarding hearing conservation at all job sites.

1.) Monitoring:
   a. When employee noise exposure may equal or exceed an 8 hour TWA of 80dBA, individual or representative monitoring will be conducted to determine actual employee exposure. Sound level meters will be used for personal or area sampling and dosimeters will be used to measure personal employee exposure. Sound level meters will be used for determining the daily exposure of employees only when noise levels and exposures are continuous. If the employees are highly mobile or if there are signification variations in sound level or impulse noises, dosimeters will be used instead of sound level meters. All continuous, intermittent, and impulse sound levels in the range of (80) dBA to 130 dBA will be integrated into the exposure monitoring.
   b. After the initial noise exposure assessment, monitoring will be repeated annually or whenever a change in production, process, equipment or controls increases the sound level. Employees included in the hearing conservation program will be given an opportunity to observe the monitoring. Employees who are exposed at or above eighty-five (85) dBA will be notified of the monitoring results.

2.) Noise Control:
   a. Whenever employee noise exposures equal or exceed an eight (8) hour TWA of 90 dBA, administrative or engineering controls must be used.
      i. Altering the work process is a simple and effective engineering control.
      ii. Administrative control involves rotating workers out of noisy areas and is of limited use if all work areas are noisy.
      iii. If engineering or administrative controls are not feasible or do not lower the exposure level below 90 dBA, then hearing protective devises must be used.
   b. Hearing protectors will be made available to all employees at no cost to the employee. These hearing protectors must be worn by employees. Supervisor will ensure that employees wear their hearing protection when it is needed.
   c. Hearing protectors must be assessed for each noise environment and must attenuate employee exposure to at least an eight (8) hour TWA of 90 dBA.

3.) Training:

a. A training program will be initiated for those employees exposed to noise at or above eight (8) hours TWA of 85 dBA. Training will be repeated annually and include updated information on protective equipment and work processes.

i. The effects of noise on hearing.

ii. The purpose and value of hearing protectors.

iii. Advantages and disadvantages of the different types of hearing protectors available.

1. Ear plugs
2. Ear muffs

iv. Care, use and fitting of various types of hearing protectors.

b. Permissible Noise Exposures:

Duration per day, In hours	**Sound level in dBA**
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

4.) Record Keeping: Noise exposure monitoring records shall be retained for two years for each employee and equipment represented by sample.

3-3-2 Respiratory Protection

The purpose of this program is to provide work environment free from exposure to concentrations of harmful airborne contaminants. This plan is developed as a guideline to identify and reduce the employee's exposure against silica and other nuisance dusts. When natural means or feasible engineering controls do not provide adequate control of harmful airborne contaminants, appropriate respiratory protection shall be used to provide a personal form of protection for the employee.

1.) General: Whenever project management identifies potentially poor air quality or believes a work operation may cause poor air quality, a supervisor shall be consulted for assistance in identifying the potential hazard. The responsibility for monitoring air quality is the responsibility of the superintendent or management.

2.) Responsibilities:
   a. Management
      i. Develop respiratory protection guidelines
      ii. Provide necessary respiratory equipment and insure that employees know how to properly use and care for respiratory equipment.
      iii. Periodically survey work areas requiring respiratory and evaluating the respiratory protection program no less than once per year.
      iv. Maintain files of inspection results, training, fit test results, and other pertinent information and evaluate contractors work for respiratory protection needs.
   b. Employees
      i. Know how to properly select, care for, and use respiratory equipment necessary for their work.
      ii. Inspect and maintain equipment they use.
      iii. Inform their supervisor of personal changes potentially influencing the respirator fit.

3.) Hazard Assessment: An exposure assessment of the work area shall be completed to identify conditions that may require the use of respiratory protection. The assessment shall be coordinated between the supervisor and management to determine the need and to what level of respiratory protection is required.

Once a potential exposure has been recognized, its impact to employees should be determined. Air monitoring may be used to characterize contaminant concentration. All monitoring shall be conducted by management and samples shall be analyzed at certified laboratories. Monitoring results shall be compared to permissible exposure levels to determine the need for reducing exposure. Engineering and administrative controls shall be reviewed as priority means of exposure reduction. Respirators shall only be used as an intermediate step while other controls are being implemented, as a last resort, or as required by regulations.

4.) Respiratory Equipment Selection: When selecting the proper respirator, several elements shall be considered. First is that respirators shall only be used when practical engineering controls fail to prevent harmful exposure to employees. The appropriate respirator shall be selected based on the respiratory hazard(s) to which the employee is or will be exposed to. To determine this, an evaluation of the respiratory hazard(s) in the workplace shall be completed by management. The nature and extent of the hazard, work requirements and the conditions shall be considered when making proper selection of respirators.
    a. Respiratory protection equipment shall be chosen and assigned for a specific task upon the assurance that:
        i. The respirator is appropriate for the contaminant;
        ii. The concentration of the contaminant can be safely handled by the respirator.
        iii. All of the contaminants present are identified so that the proper respirator can be selected.
    b. Other factors to be considered include:
        i. Facial hair that comes between the sealing surface of the respirator and the face.
        ii. Corrective glasses or goggles or other personal protective equipment worn in a manner that interferes with the seal of the respirator and the face.

5.) Medical Evaluation: The required use of any type of respirator may impose some physiological stress on the user. Consequently, state and federal regulations require that, prior to the required use of a respirator; the potential user is required to have a medical evaluation to determine whether they can tolerate the physiological burden imposed by the respirator.

6.) Fit Testing: In order to obtain adequate respiratory protection, a proper match between the respirator and the wearer must be established by performing a fit tested to assure selection of the best fitting respirator. The fit testing shall be performed by management or an authorized trainer and shall follow the procedures outlined later in this section. Testing shall occur before a respirator is assigned. Self tests shall be performed by the employee in accordance with this section each time before a respirator is worn. Anything that may compromise the seal of the face piece may render the respirator useless. All employees required to wear a respirator shall obtain a physical in accordance the OSHA standard and provide a physician's written approval to wear a respirator prior to the initial fit test.
    a. Test subjects shall be asked to select the best fitting respirator from a variety of models and sizes.
    b. Subjects shall be allowed to smell the challenge substance to familiarize them with the smell.

c. The selected respirator shall be put on and worn for at least 10 minutes before the test starts. Respirator straps shall be pulled snug, but not so tight as to create discomfort.
d. The test conductor shall review the test procedures.
e. The subject shall perform the positive and negative pressure self fit tests. If one of the tests fails, the subject shall check and readjust straps and fitting and redo the test. If either test again fails, a new respirator shall be selected and the test sequence shall be repeated.
f. Following successful self tests by the subject, the conductor shall introduce the challenge substance into the test chamber.
g. The test conductor shall direct the challenge substance around the face seal beginning at about 12 inches away and moving to within about 1 inch, moving around the whole perimeter of the mask.
h. The subject shall perform the following exercises for one minute each while being challenged by the smoke:
    i. Breathe normally.
    ii. Breathe deeply. Breaths should be deep and regular.
    iii. Turn head all the way from one side to the other. Movement should be complete. Inhale on each side. Do not bump the respirator against the shoulders.
    iv. Nod head up and down. Motions should be complete and made every second. Inhale when looking toward the ceiling and while looking at the floor. Do not bump respirator against the chest.
    v. Talk aloud and slowly for several minutes.
    vi. Jogging in place.
    vii. Breathe normally.

i. The subject shall indicate if the challenge substance was detected during the test. If it was, the subject shall recheck the straps and fitting and redo the test. If the retest fails the respirator used shall be rejected for the subject's use and a new one will be selected. The test shall then be repeated.
j. Respirators successfully tested by the protocol may be used in contaminant atmospheres up to their rated capacity.
k. The test shall not be conducted if there is any hair growth between the skin and face piece sealing surface.
l. If hair growth or apparel interferes with a satisfactory fit, then they should be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is not attained, the test subject must use a positive-pressure respirator such as a powered air-purifying respirator, supplied air respirator, or self contained breathing apparatus.
m. If a test subject experiences difficulty in breathing during the fit test, the individual shall be referred to a physician trained in respiratory diseases or pulmonary medicine to determine if the test subject can wear a respirator while performing work duties.

n. Qualitative fit testing should be repeated at least once a year.

7.) Self Fit Test Procedures: Workers shall check the fit of their respirators before each use according to the procedures outlined below. Management or an authorized trainer shall train workers in these procedures during qualitative fit testing sessions.

a. **Negative Pressure Tes**t: The user closes the inlet of the cartridge or filters by covering them with the hands or squeezing the breathing tube so air is not allowed to pass. The user inhales gently so the face piece collapses slightly, while breath is held for about 10 seconds. If the face piece remains slightly collapsed and no inward leakage is detected, the respirator probably has a good fit. This test should only be used for snug fitting respirators. It also has potential drawbacks such as hand pressure affecting the face piece seal and causing false results.

b. **Positive Pressure Test:** The user closes or covers the exhalation valve and gently exhales into the face piece. The respirator fit is considered acceptable if slight positive pressure can be built up inside the face piece without any evidence of outward leakage on the outside. For some respirators, this test requires that the wearer remove the exhalation valve cover. This removal often disturbs the respirator fit if not done before the respirator is put on. The test is simple for respirators that have a valve cover with a single small port that can be covered with the hand or a finger.

8.) Cleaning and disinfection: Respirators shall be regularly cleaned and disinfected. Respiratory equipment shall be washed with detergent in warm water using a brush. If possible, detergents containing a bactericide will be used. Organic solvents will not be used because they cause deterioration of the face piece. If bactericide detergent is not available, the detergent wash shall be followed with a disinfecting rinse. Two types of disinfectants may be made from readily available household solutions. A hypochlorite solution (50 ppm) can be made by adding two tablespoons of chlorine bleach to one gallon of water. An aqueous solution of iodine (50 ppm) can be made by adding one teaspoon tincture of iodine to one gallon of water. A two minute immersion of the respirator into either solution will be sufficient for disinfection.

Respiratory equipment shall be thoroughly rinsed in clean warm water (120 F maximum) to remove all traces of detergent, cleaner and sanitizer, and disinfectant. Respiratory equipment shall be allowed to air dry on a clean surface or hung from a horizontal wire.

9.) Storage: When not in use, respiratory equipment shall be sealed in plastic bags and stored with nothing lying on top of it. Respirators must be completely dry before being stored. The face piece and exhalation valve must be in a non-

distorted position. Each employee is responsible for their respirator. Respirators shall be stored in a location protected against dust, sunlight, extreme heat and cold, excessive moisture, or damaging chemicals.

10.) Inspection: Users shall inspect their respirators for defects and elasticity before and after each use. Inspection for defects in respiratory equipment must be done before and after each use and during cleaning. The primary defects to look for during the inspection of component parts of the respirator and corrective actions where appropriate.

3-4 Stairs and Ladders

1.) General: All temporary stairs and ladders shall be properly designed for their intended use and in accordance with the requirements of the State and federal safety standards.
    a. A stairway or ladder is required at any point of access where there is a break in elevation greater than nineteen (19) inches and no ramp, sloped embankment or other means of access is provided.
    b. Stairway, ladders and their landings must be kept clear at all times.
    c. If a stairway or ladder has to be blocked, another means of access must first be provided.
2.) Stairways:
    a. Riser heights and tread depths must be uniform within each other.
    b. Where door or gates open onto a stairway, a landing must be provided. The landing must be at least twenty (20) inches wider than the swing of the door.
    c. Stairways having four (4) or more risers or rising more than thirty (30) inches, whichever is less, shall be equipped with at least on handrail and one mid-rail along each unprotected side.
        i. Handrail height should be thirty-six (36) inches measured from the front of the tread.
        ii. Mid-rail height is midway between the top rail and the stair surface.
        iii. Stair landings must be protected the same as stairways.
3.) Ladders:
    a. When portable ladders are used for access to an upper landing surface, the ladder side rails shall extend at least three (3) feet above the upper landing surface to which the ladder is used to gain access.
    b. Ladders shall be maintained free of oil, grease and other slipping hazards.
    c. Ladders shall be inspected frequently. Any defects shall be reported to the supervisor to be removed from service.
    d. Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity.
    e. Ladders should not be moved or adjusted while occupied.
    f. Use a hoist line to raise or lower larger objects at ladder ways.
    g. Ladders placed in any location where they can be displaced by workplace activities or traffic shall be secured to prevent accidental movement or a barricade shall be used to keep the activities or traffic away from the ladder.
    h. Ladders shall have a nonconductive side rails if they are used where the employee or ladder could contact exposed energized electrical equipment.
    i. Ladders shall be used only for the purpose for which they were designed.
        i. Extension Ladder: A non-self-supporting portable ladder that is adjustable in length. It consists of two or more sections in guides or brackets that permit length adjustment. When used extension

ladder use the 1:4 rule, this means if you are using a twelve (12) foot ladder, the base should be three (3) foot from the structure.

ii. **Straight Ladder:** a single section non-self supporting portable ladder, nonadjustable in length. When used straight ladder use the 1:4 rule, this means if you are using a twelve (12) foot ladder, the base should be three (3) foot from the structure.

iii. **Stepladder:** A self-supporting portable ladder, nonadjustable in length that has flat steps and a hinged back. Length is measured along the front edge of a side rail. Ladder is not designed to lean against a wall. Stepladders shall only be used on surfaces that are firm and level. Do not stand on or above the top two treads on the stepladder. Cross-bracing on the rear section of stepladders shall not be used for climbing unless the ladders are designed and provided with steps for climbing on both sides.

j. When ascending or descending a ladder, the user shall face the ladder.

k. Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.

l. If your work position requires that your shoulders to be outside the side rails, you're in an unsafe position, move the ladder.

4.) Training: The employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall allow each employee to recognize hazards related to ladders and stairways and shall train each employee in the procedures to be followed to minimize these hazards.

3-5 Fall Protection

Fall protection is a broad concept that includes training, procedures, rules, systems and methods, intended to protect workers from fall hazards.

1.) Fall Protection Requirements:
   a. **Unprotected sides or edges:** Employees on walking/working surfaces with an unprotected side or edge which is six feet or more above a lower level shall be protected from falling by the use of guardrails, safety net systems or personal fall arrest systems.
   b. **Hoist areas:** If a guardrail system must be removed to facilitate landing material from the hoist and employees are required to lean out over the opening, personal fall arrest systems shall be used.
   c. **Excavations:** Each employee at the edge of an excavation six feet or more in depth shall be protected from falling by guardrail systems, fences or barricades when the excavations are not readily seen.
   d. **Not otherwise addressed:** Employees on any other work surface with a fall potential of greater than six (6) feet shall be protected by guardrail systems, safety net systems or personal fall arrest systems.

2.) Falling objects:
   a. Toeboards and screens shall be used in conjunction with standard guardrail systems to prevent objects from falling from higher levels.
   b. Potential fall objects shall be kept far enough away from the edge of the higher level so that in the event of an accidental displacement they would not fall to a lower level.
   c. Areas below higher levels where objects may reasonably be expected to fall shall be protected to prevent employees and other personnel from entering these areas.

3.) Fall Protection Systems:
   a. **Guardrail Systems:** Shall have a top rail forty-two (42) inches above the working surface and a mid rail located between the top rail and the working surface.
   b. **Safety Net Systems:** Shall be installed as close as possible to the working surface and be installed with sufficient clearance beneath them to prevent contact with any surface.
   c. **Personal Fall Arrest Systems:** Shall be used when other means for fall prevention are not involved, not feasible to use or a part of a fall protection plan.
      i. The only form of body wear acceptable for fall arrest is the full body harness.
      ii. Employees will inspect their full body harness, lanyards and retractable lifelines prior to use for any defects or damages (Replace the harness if any defects or damage are found)
      iii. All straps must be drawn snugly on the employee's body.

iv. Lanyards must not be tied around sharp edges or corners where breakage could occur.
v. At no time will two separate lanyards be attached to create longer lanyards.
vi. Retractable lifelines will be located to avoid swing fall hazards as much as practical.
vii. Shock absorbing lanyards must not be attached to retractable lifelines.
viii. Anchorage's should be located eye level or higher and at no time will an employee be allowed to free fall more than six feet.
ix. Anchorage's should be located to minimize the possibility of a swing fall hazard.
x. Anchorage points need to be capable of supporting 5,000 pounds for each employee attached to it.

4.) Training: the employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.

3-6 Hand and Power Tools

1.) General:
   a. All tools shall be maintained in a safe condition, if tools are found to be defective or unsafe, they should be taken out service.
   b. Power tools equipped with guards shall only be used with the guards in place.
   c. Appropriate personal protective equipment shall be used by employees who use hand and power tools and are exposed to the hazards of falling, flying, abrasive, and splashing objects, or to harmful dusts, fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment.
   d. Hand and power tools shall be used only for the purpose for which they are intended.
   e. Only trained employees should be allowed to use hand and power tools.

2.) Hand Tools: Employees should be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.
   a. Keep all tools in good condition with regular maintenance.
   b. Use the right tool for the job.
   c. Examine each tool for damage before use and do not use damaged tools.
   d. Operate tools according to the manufacturers' instructions.
   e. Provide and use properly the right personal protective equipment.

3.) Power Tools: Power tools must be fitted with guards and safety switches; they are extremely hazardous when used improperly. The types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.
   a. Never carry a tool by the cord or hose.
   b. Never yank the cord or the hose to disconnect it from the receptacle.
   c. Keep cords and hoses away from heat, oil, and sharp edges.
   d. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
   e. Keep all people not involved with the work at a safe distance from the work area.
   f. Secure work with clamps or a vise, freeing both hands to operate the tool.
   g. Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
   h. Maintain tools with care; keep them sharp and clean for best performance.
   i. Follow instructions in the user's manual for lubricating and changing accessories.
   j. Be sure to keep good footing and maintain good balance when operating power tools.
   k. Wear proper apparel for the task. Loose clothing or jewelry can become caught in moving parts.

l. Remove all damaged portable electric tools from use and tag them: “Do Not Use.”

3-7 Cutting and Welding

1.) Gas Welding and Cutting:

a. **Transporting / Storing:**

i. Valve protection caps shall be in place and secured in the vertical position when cylinders are not in use.
ii. Cylinders shall be moved by tilting them and rolling them on their bottom edges.
iii. When transporting cylinders in a vehicle, they shall be secured in a vertical position.
iv. Cylinders should only be moved on a cart specifically designed for them, secured by chain or other means and the valve in the closed position.
v. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials and stored in well ventilated, well protected and dry locations.
vi. Cylinders shall be kept far enough away from the actual cutting or welding process so that sparks, hot slag or flames will not reach them.

b. **Use of Cylinders:**

i. Before connecting a regulator to a cylinder valve, crack the valve slightly to clear any dirt or debris.
ii. Cylinder valves should be opened slowly to prevent damage to the regular and not open more than 1 ½ turns so they may closed quickly in emergency.
iii. Cylinders containing oxygen, acetylene or other fuel gas shall not be taken into confine spaces.
iv. Employees shall not attempt to mix gases in a cylinder, refill a cylinder or used a cylinder in a matter not intended by the supplier.
v. Cylinders found to be leaking shall be removed from the work area.

c. **Hoses:**

i. Hoses shall be inspected frequently for defects.
ii. Hoses stored in boxes or cabinets shall be ventilated.
iii. Hoses shall be kept clear of passageways, ladders and stairs.

d. **Torches:**

i. Clogged torch tips shall be cleaned with suitable cleaning wires, drills or other devices designed for that purpose.
ii. Torches shall be inspected frequently for defects, leaking valves and tip connections.
iii. Friction devices and not matches shall light torches.

2.) Arc Welding and Cutting:

a. **Welding Cables and Connectors:**
    i. All cables shall be of the flexible type and fully insulated and capable of handling the maximum current requirements of the work in progress.
    ii. Welding leads must be free of repair or splice.

b. **Grounding:**
    i. A ground return cable shall be sized to carry a capacity equal to or exceeding the specified maximum output capacity of the welding machine.
    ii. Pipelines containing gases or flammable liquids or electrical conduits shall not be used as a ground return.
    iii. Grounding to a structure that causes an arc or spark at any point shall be relocated.

3.) Fire Prevention:

a. When possible, welding, cutting or heating should be done in a designated area free of combustible materials or all movable combustible materials shall be moved to a safe place or otherwise guarded.
b. Suitable fire extinguishing equipment shall be immediately available and shall be maintained in a state of readiness for instant use.
c. When the welding, cutting or heating operation is such that normal fire prevention precautions are not sufficient, a person shall be posted as a "firewatch" while the actual welding, cutting or burning are being conducted and for thirty (30) minute period afterward to ensure that no possibility of fire exists.

4.) Ventilation:

a. Before heat is applied to a drum, container or hollow structure, a vent or opening shall be provided for the release of any built-up pressure.
b. Contaminated air exhaust shall be discharged into the open air or otherwise clear of the source of the intake.
c. Oxygen shall not be used for ventilation purposes, cooling, blowing dust off clothing or cleaning the work area.
d. Ventilation shall be provided whenever welding, cutting or heating is conducted within a confined space.

3-8 Fire Protection and Prevention

1.) Fire Exits:
   a. Exits are to be clearly marked with signs designating them as such.
   b. Exits shall remain clear and free of obstructions.
2.) Portable Fire Extinguishers:
   a. For every 3000 sq ft of protected building there must be one fire extinguisher rated at least 2A.
   b. Wherever 5 gals of flammable or combustible liquids are being used there shall be a fire extinguisher rated at least 10B within 50 feet.
   c. Fire extinguishers shall be inspected periodically and maintained in operating condition. Any extinguisher not passing inspection should be removed from service and replaced promptly.
   d. Every field trailer shall be equipped with at lease one fire extinguisher.
   e. Employees should receive training on the use and limitations of different types of fire extinguishers.

3.) Ignition Hazards:
   a. Internal combustion engines shall have their exhaust pointed well away from combustible material.
   b. Smoking is prohibited in areas that constitute a fire hazard and shall be posted "No Smoking or open flame."

4.) Storage:
   a. **Yard Storage:**
      i. Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.
      ii. Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other articles or materials.
      iii. The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular procedure provided for the periodic cleanup of the entire area.
      iv. No combustible material shall be stored outdoors within 10 feet of a building or structure.
      v. Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.
   b. **Indoor Storage:**
      i. Storage shall not obstruct or adversely affect means of exit.
      ii. Material shall be piled to minimize the spread of fire internally.

iii. Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.
iv. A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided. Material shall not be stored within 36 inches of a fire door opening.

5.) Flammable and Combustible Liquids:

Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved metal safety cans shall be used for the handling and use of flammable liquids in quantities greater than one gallon. For quantities of one gallon or less, only the original container or approved metal safety cans shall be used for storage, use, and handling of flammable liquids.

a. **Storage:** Quantities of flammable and combustible liquid in excess of 25 gallons shall be stored in an acceptable or approved cabinet meeting the following requirements:
    i. Acceptable wooden storage cabinets shall be constructed in the following manner, or equivalent: The bottom, sides, and top shall be constructed of an exterior grade of plywood at least 1 inch in thickness, which shall not break down or delaminate under standard fire test conditions. All joints shall be rabbeted and shall be fastened in two directions with flathead wood screws. When more than one door is used, there shall be a rabbeted overlap of not less than 1 inch. Steel hinges shall be mounted in such a manner as to not lose their holding capacity due to loosening or burning out of the screws when subjected to fire. Such cabinets shall be painted inside and out with fire retardant paint.
    ii. Approved metal storage cabinets will be acceptable.
    iii. Cabinets shall be labeled in conspicuous lettering, "Flammable-Keep Fire Away."
b. Not more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one storage cabinet. Not more than three such cabinets may be located in a single storage area.
c. A portable fire extinguisher having a rating of at least 20-B:C shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable or combustible liquids.

6.) Service and Refueling Areas:

a. Fueling areas should be located at least 25 feet away from other operations.
b. Flammable or combustible liquids shall be stored in approved aboveground portable tanks.
c. Fuel tanks shall be protected against collision damage.
d. Signs shall be conspicuously placed prohibiting smoking and open flames.
e. All motors shall be shut off during fueling.

f. Each area shall have at least one fire extinguisher, with a rating of at least 20 B:C, located within 75 feet of each service and fueling area.
g. Clearly identified switch shall be provided at a location remote from dispensing devices to shut off the power to all dispensing devices in the event of an emergency.

7.) Liquefied Petroleum (LP) Gas:
   a. Welding is prohibited on containers.
   b. Every container and every vaporizer shall be provided with one or more approved safety relief valves or devices.
   c. Temporary heaters should be located at least six (6) feet away from LPG containers.

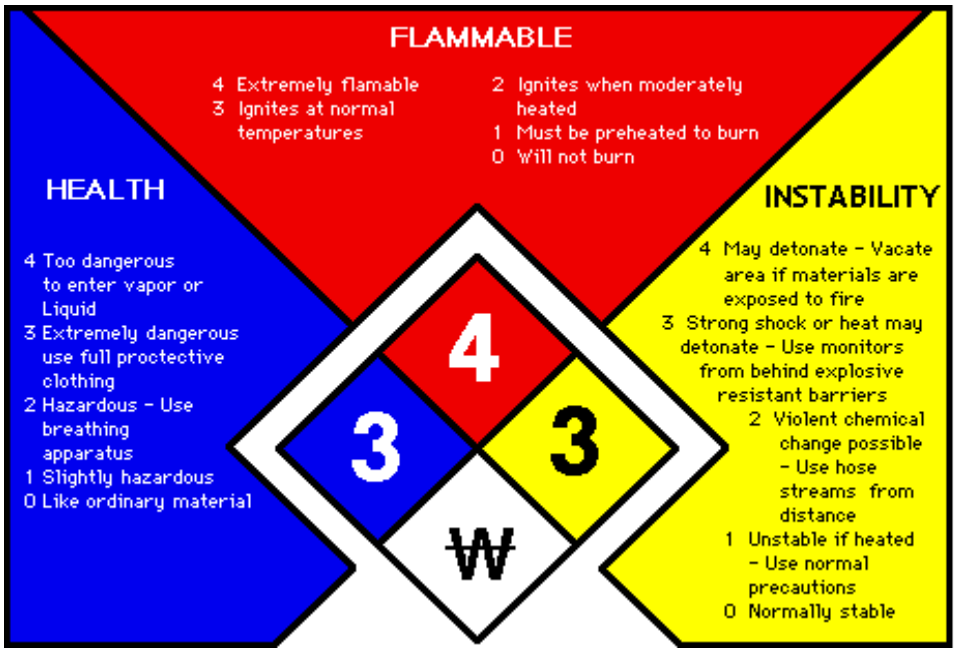
4-1 Hazard Communication

The purpose of this program is to ensure that information on the hazards of the chemicals used by employees is transmitted by means of container labeling, material safety data sheets and employee training. This program applies only to those chemicals known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

1.) Labels: The chemical products inventory is the foundation of this Hazard Communication Program. In order to inform employees about any hazards that may be associated with products they use on the job, it is necessary to know what those products are. The inventory should involve all liquids, solid and gaseous chemical products including such items as paint, oils, glues , primers, compressed gases, solvents, acids, welding rods, coated pipe, fluxes, inks, metal stock, (steel, iron, etc.) cleaning products, etc. It is also necessary to note the name and emergency phone number of the manufacture and vendor and the department(s) in which the products are used.
   a. Each container of hazardous chemicals shall be labeled, tagged or marked with the following information:
      i. Labels are designed to provide information to employees concerning the hazards of various chemicals.
      ii. Identity of the hazardous chemicals contained.
      iii. Appropriate hazardous warnings (words, pictures, symbols or combinations of) which provide at least general information regarding the hazards of the chemicals.
      iv. Important that no hazardous chemicals are placed in an improperly labeled container and that all containers are properly labeled.
   b. Labels are not required when the hazards material is transferred into a portable container immediate use.

2.) Material Safety Data Sheets:
   a. The manufacture provides Material Safety Data Sheets (MSDS) to identify chemicals in products presenting physical or chemical hazards.
   b. Copies of Material Safety Data Sheets (MSDS) which employees or subcontractors may be exposed shall be kept at the appropriate work site with the written Hazard Communication Program.
   c. Material Safety Data Sheets (MSDS) shall be readily available to all employees in their work site for review and non-emergency situations and immediately available for emergency situations.
   d. Anytime a new material is bought into a work site, Material Safety Data Sheets (MSDS) shall be obtained and placed in the Material Safety Data Sheets (MSDS) book.
   e. An index of all Material Safety Data Sheets (MSDS) shall be kept current with the common name of the material, the name found on the MSDS and a description of the material.

f. The MSDS master file will be updated and stored at the Companies main office located at 3030 110th Street, Chippewa Falls, WI and copies will be sent out to work sites to update their reference list of material.



3.) Employee Information and Training:

All employees shall be provided with information and training on hazardous or toxic substances utilized in their work area at the time of the initial assignment, whenever a new hazardous or toxic is introduced into their work area, or when new or revised information concerning a hazardous or toxic substance is received. Refresher employee training sessions will be conducted annually to review procedures for hazardous or toxic substances with which they work.

a. Information on requirements of Hazard communication Regulation 29 CRR 1910.1200.
b. Information on safety and operating procedures in the work site where hazardous chemicals are present.
c. Methods employees can use to protect themselves such as work practices, personal hygiene practices, and use of personal protective equipment when necessary.

d. The location and availability of this hazard communication manual including all applicable Material Safety Data Sheets (MSDS).
    i. How to read container labels and review Material Safety Data Sheets (MSDS) to obtain appropriate hazard information.
    ii. First aid and safety emergency procedures to follow if an employee is exposed to hazard materials.
e. After attending the training class, employee will be required to sign a form to verify that they have attended the training, received the written material and understand the Company's policies on Hazard Communications.

4.) Hazardous Non-routine Tasks:

Periodically, employees may perform hazardous non-routine tasks. Before starting work on such a project, the affected employee(s) will be given specific instruction as to the hazards involved by his/her supervisor, or their designee.

a. Instruct the employee(s) about the specific chemical hazards involved.
b. Provide the necessary safety measures to employee(s).
    i. Personal Protective Protection equipment
    ii. Ventilation
    iii. Other emergency procedures.

4-2 Lockout / Tagout

This program protects employees who must do service or maintenance on machines or equipment and who could be injured by an unexpected start-up or release of stored or applied energy. Service or maintenance includes erecting, installing, constructing, repairing, adjusting, inspecting, trouble-shooting, testing, cleaning, and dismantling machines, equipment or processes. This program will ensure that machines, equipment or processes are stopped and isolated from all stored or applied energy sources, and properly locked or tagged out.

1.) Preparation:
   a. Exposure Survey: An initial survey shall be made to locate and identify all energy isolating devices to be certain which switch, valve or other energy isolating devices apply to the machine, equipment, or processes to be locked out. More than one energy source (electrical, hydraulic, pneumatic, chemical, thermal or others) may be involved.
   b. Before the machine or piece of equipment is turned off, the type and magnitude of the energy to be controlled and the methods or means to control the energy shall be known.
   c. Energy-isolating devices are the primary means for protecting employees who service machinery or equipment and must be designed to accept a lockout device. Energy isolating devices must clearly identify their function.

2.) Procedure de-energize:
   a. Inform all affected employees of the machine or equipment shutdown and that the machine or equipment will be out-of-service.
   b. Shut down equipment.
   c. De-activate the energy device(s) so that the machine or equipment is isolated or blocked from hazardous energy source(s).
   d. Stored or residual energy (capacitors, springs, elevated machine members, flywheels, hydraulic and air systems) shall be dissipated or restrained to remove any potential (stored) energy.
   e. Lockout or tagout the energy sources.
      i. Lockout / tagout devices shall work in the environment in which they are used (wet, damp or corrosive).
      ii. Lockout / tagout devices shall be designated by color, shape or size.
      iii. Tagout devices shall have a standardized print and warning format.
      iv. Lockout / tagout devices shall be strong enough that they can't be removed inadvertently.
      v. Tagout devices shall be attached with a single-use, self-locking material such as a nylon cable tie.
      vi. Lockout / tagout devices shall be able to be recognized as to who attached it and its purpose.

vii. Each lockout lock must have a unique key or combination.

f. Ensure that the machine or equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the machine or equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

3.) Procedure re-energize:

a. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are all reinstalled.
b. Check the work area to ensure that all employees have been safely positioned or removed from the area.
c. Verify machine or equipment power controls are off or in a neutral position.
d. Remove the lockout devices and reenergize the machine or equipment.
    i. The removal of some forms of blocking may require re-energizing the machine before safe removal.
    ii. Replace the lockout / tagout devices back to there correct location.
e. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

4.) Training:

a. Employees who may be exposed to hazardous energy will receive training before assignment to ensure that they understand energy-control policy and have skills to apply, use, and remove energy controls. The training will include the requirements of 1910.147
b. Affected employees will be trained in the purpose and use of energy-control procedures. An affected employee uses equipment that is being serviced under lockout or tagout procedures or works in an area where equipment is being serviced.
c. Authorized employees will be trained to recognize hazardous energy sources, the type and magnitude of energy in the work site, the methods and means necessary for isolating and controlling energy, and the means to verify that the energy is controlled.
    i. An authorized employee locks out or tags out equipment to do service work.
    ii. An affected employee becomes an authorized employee when that employee's duties include service or maintenance work on equipment.
d. Employees whose jobs are in areas where energy-control procedures are used will be trained about the procedures and the prohibition against starting machines that are locked or tagged out.

e. Employees shall be retrained annually to ensure they understand energy-control policy and procedures.
    i. Authorized and affected employees shall be retrained whenever their job assignments change, energy-control procedures change, machinery or equipment work processes present new hazards.
    ii. Employee(s) shall be trained when they don't follow energy-control procedures.
f. Current training records will be maintained for each authorized and affected employee including the employee's name and the training date.

5.) Specific Lockout Procedure:
a. **Plant Area:**
    i. Lockout the plant following the procedures above.
    ii. Bleed off air pressure if working around pneumatic equipment.
b. **Cold Feed Bins:**
    i. Each cold feed bin is controlled from control room and receives air pressure from the main plant. Lockout the plant following the procedures above.
    ii. Place a magnetic DANGER sign on the loader side of the bins to warm the loader operator not to load bins while work is in progress.
    iii. Bleed off pressure in the airlines. Lock the gates in the closed position to prevent accidental opening if work must be done inside the bins.
c. **Conveyors:**
    i. Each conveyor leading to the bins has a switch. Turn the switch to the off position. Apply a lockout device to the switch or remove the key to prevent the power from being reset.
d. **Bins:**
    i. Lockout the plant following the procedures above.
    ii. Bleed off pressure in the airlines. Lock the gates in the closed position to prevent accidental opening if work must be done inside the bins.
    iii. Follow appropriate confine space procedure.
e. **Weigh Hopper:**
    i. Empty the bins prior to shutdown.
    ii. Lockout the plant following the procedures above.
    iii. Bleed off pressure in the airlines. Lock the gates in the closed position to prevent accidental opening if work must be done inside the hopper.
    iv. Follow appropriate confined space procedure.
f. **Drum:**
    i. Lockout the plant following the procedures above.
    ii. Install a lockout bracket or wedge over one of the rollers to prevent drum rotation.

iii. Follow appropriate confine space procedure.

g. **Cement Silo:**
   i. Lockout the plant following the procedures above.
   ii. Bleed off pressure in the airlines.
   iii. Follow appropriate confine space procedure.

h. **Dust Collector:**
   i. Throw the disconnect switch in the open (closed) position. Apply a hasp, lock(s) and Tag(s) to the switch to lock it out.
   ii. Follow appropriate confined if dust collector must be entered.

i. **Mixer Trucks:**
   i. Park the truck in an appropriate, level area and set the brake. Position the drum so the hatch is in an easily accessible location. Set the drum control in neutral.
   ii. Shut the truck off and remove the ignition key. Roll up the windows, lock the door and place the key in our pocket. Chock the truck wheels.
   iii. Place a magnetic DANAGER sign on both cab doors.
   iv. Remove the control valve arm and place a lock and tag through the bolt hole.
   v. Install a lockout bracket or wedge over one of the rollers to prevent drum rotation.
   vi. Open the hatch and ventilate the drum with a fan.
   vii. If the drum must be repositioned, close the hatch, remove the roller lockout bracket, remove the lock from the mixer pump control valve and reconnect. Check truck for employees and tools and then start the truck.

4-3 Confined Space Entry

Many workplaces contain spaces that are considered to be "confined" because their configurations hinder the activities of employees who must enter into, work in or exit from them. In many instances, employees who work in confined spaces also face increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment and hazardous atmospheric conditions. Confinement itself may pose entrapment hazards and work in confined spaces may keep employees closer to hazards such as machinery components than they would be otherwise. For example, confinement, limited access and restricted airflow can result in hazardous conditions that would not normally arise in an open workplace.

1.) Definitions:
   a. **Confined Space:**
      i. Large enough and so configured that a worker can physically enter and perform assigned work.
      ii. Limited or restricted means of entry or exit.
      iii. Not designed for continuous worker occupancy.
   b. **Permitted Confined Space:**
      i. Contains or has the potential to contain a hazardous atmosphere.
      ii. Contains a material with the potential to engulf someone who enters the space.
      iii. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
      iv. Contains any other recognized serious safety or health hazards.
   c. **Non-permit Confined Space:**
      i. If it can be demonstrated with monitoring and inspection data that the only hazard is an actual or potential hazardous atmosphere that can be made safe for entry using continuous forced air ventilation.
      ii. To test the internal atmosphere of the space for oxygen content, flammable gases and vapors, and the potential for toxic air contaminants before any employee enters it.

2.) General:
   a. **Entry Procedures:**
      i. Identify and evaluate permit space hazards.
      ii. Control hazards and specify acceptable entry conditions.
      iii. Allow authorized entrants or employee authorized representative observe monitoring and testing.
      iv. Isolation of the permit space.
      v. Purge, inert, flush, or ventilate the permit space as necessary to eliminate or control atmospheric hazards.
      vi. Provide barriers to confined spaces that protect entrants from hazards created by pedestrians, vehicles, or other external factors.

vii. Verify that conditions within the permit space are acceptable throughout the duration of the authorized entry.
viii. After authorized entry has concluded, or entry operations have been completed, the permits shall be cancelled and the permit space isolated from unauthorized entry.

b. **Equipment:**
   i. Personal protective equipment
   ii. Testing, monitoring, ventilating, communications and lighting equipment
   iii. Barriers and shields
   iv. Equipment necessary for safe entry and egress.
   v. Rescue and emergency equipment.

c. **Detection of Hazards:**
   i. If hazardous conditions are detected during entry, employees must immediately leave the space. The space shall be evaluated to determine the cause of the hazardous atmosphere and modify the program as necessary.
   ii. When entry to permit spaces is prohibited, effective measures shall be taken to prevent unauthorized entry.
   iii. Non-permit confined spaces shall be reevaluated when changes occur in their use or configuration and could be reclassified as permit spaces.
   iv. A space with no potential to have atmospheric hazards may be classified as a non-permit confined space only when all hazards are eliminated in accordance with the standard.

d. **Entry Permit:**
   i. Name of permit space to be entered, authorized entrant(s), eligible attendants and individuals authorized to be entry supervisors.
   ii. Test results and tester's initials or signature.
   iii. Name and signature of supervisor who authorizes entry.
   iv. Purpose of entry and known space hazards.
   v. Measures to be taken to isolate permit spaces and to eliminate or control space hazards.
   vi. Name and telephone numbers of rescue and emergency services and means to be used to contact them.
   vii. Date and authorized duration of entry.
   viii. Acceptable entry conditions.
   ix. Communication procedures and equipment to maintain contact during entry.
   x. Special equipment and procedures, including personal protective equipment and alarm systems; and any other information needed to ensure employee safety.

3.) Duties:

a. **Authorized Entrants:**
   i. Know space hazards, including information on the means of exposure such as inhalation or dermal absorption, signs of symptoms and consequences of the exposure.
   ii. Use appropriate personal protective equipment properly.
   iii. Maintain communication with attendants as necessary to enable them to monitor the entrant's status and alert the entrant to evacuate when necessary.
   iv. Exit from the permit space as soon as possible when:
      1. Ordered by the authorized person.
      2. Recognizes the warning signs or symptoms of exposure.
      3. A prohibited condition exists or an automatic alarm is activated.
   v. Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

b. **Attendant:**
   i. Remain outside the permit space during entry operations unless relieved by another authorized attendant.
   ii. Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences and physiological effects.
   iii. Maintain communication with and keep an accurate account of those workers entering the permit space.
   iv. Order evacuation of the permit space when.
      1. A prohibited condition exists.
      2. A worker shows signs of physiological effects of hazard exposure.
      3. An emergency outside the confined space exists.
      4. The attendant cannot effectively and safely perform required duties.
   v. Summon rescue and other services during an emergency.
   vi. Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered the permit space.
   vii. Inform authorized entrants and the entry supervisor if any unauthorized person enters the permit space.
   viii. Perform no other duties that interfere with the attendant's primary duties.

c. **Supervisor:**
   i. Know space hazards including information on the mode of exposure, signs or symptoms and consequences.
   ii. Verify emergency plans and specified entry conditions such as permits, tests, procedures and equipment before allowing entry.
   iii. Terminate entry and cancel permits when entry operations are completed or if a new condition exists.

iv. Verify that rescue services are available and that the means for calling for them are in place.
v. Take appropriate measures to remove unauthorized entries.
vi. Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

d. **Rescue Services:**
i. Ensure that responders are capable of responding to an emergency in a timely manner.
ii. Provide rescue service personnel with personal protective and rescue equipment, including respirators and training in how to use them.
iii. Rescuers shall have one trained member in first aid and CPR.
iv. Rescuers shall perform training exercises yearly and that rescue services are provided access to permit spaces so they can practice rescue operations.
v. Rescuers also must be informed of the hazards of the permit space.

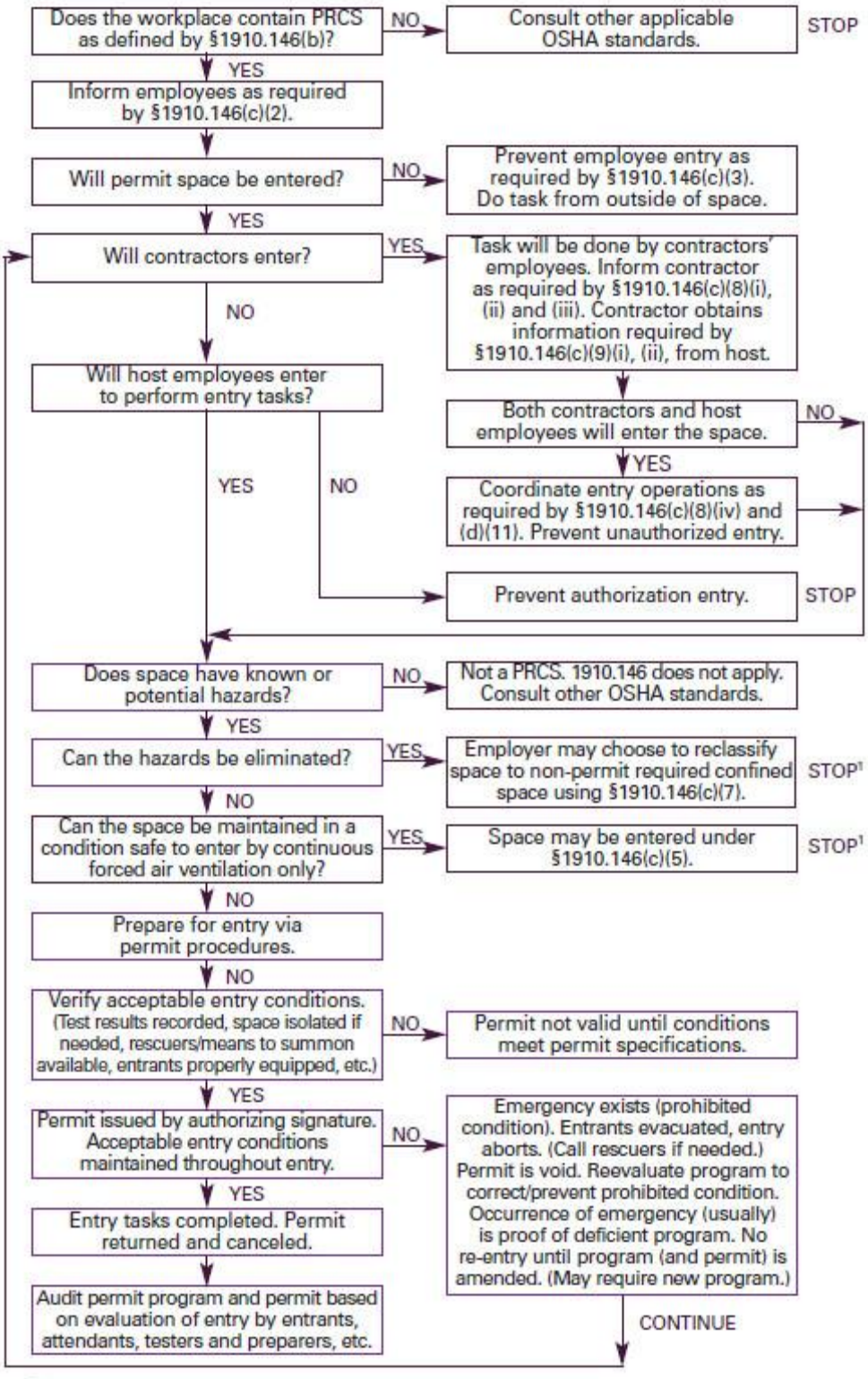
4.) Training:
a. Understand the hazards associated with confined spaces.
i. General hazards and the specific hazards for each confined space that will be entered.
ii. Recognition of the signs and symptoms of exposure to a hazard and the consequences of the exposure.
b. How communications will be maintained between the attendant and the workers in the confine space.
c. Emergency entry and exit procedures.
d. Use of respirators and other protective equipment.
e. Lockout and isolation procedures.
f. Rescue procedures.
g. Permit System.

5.) Specific Confined Space Procedure:
a. **Permitted Confined Space:**
i. Specific permitted confine space:
1. Cement Silo (when erected)
ii. Obtain a permit from supervisor.
iii. Make sure silo has been emptied.
iv. Conduct atmospheric monitoring using a multi-gas meter to measure the oxygen concentration ($19.5\% < O_2 < 23.5\%$), percent lower explosive limit (<10% LEL), carbon monoxide (<35 ppm)
1. In vertical spaces, conduct monitoring at six foot intervals.
2. Ventilate the space with a manhole blower if acceptable entry conditions are not meet.
v. Dust masks, coveralls and safety goggles may be necessary in dusty conditions.

vi. Complete the permit and have the supervisor review and sign the permit to authorize entry.
vii. Entrant is to wear a full body harness and be tied off to a retrieval device.
viii. Provide adequate lighting inside and on top of the silo.
ix. Provide communications equipment if verbal communication cannot be maintained.

b. **Non-permit Confined Space:**
   i. Specific non-permitted confine space:
      1. Cold Feed Bins
      2. Bins
      3. Weight Hopper
      4. Drum
      5. Cement Silo (when in transport and inspection holes open)
      6. Mixer Truck Drum
   ii. Follow lockout / tagout procedures before entering.
   iii. Designate an attendant to work with the entrant(s) to monitor the activities inside and outside of the confined space and ensure their safety.
   iv. Provide ventilation if activities will generate large amounts of dust, smoke or fumes.

Permit-Required Confined Space Decision Flow Chart



[1] Spaces may have to be evacuated and reevaluated if hazards arise during entry.

Source: 29 CFR 1910.146 Appendix A.

4-4 Excavation

1.) General: An excavation is any man made cut, cavity, trench or depression in the earth's surface, formed by earth removal
    a. All surface inconveniences, such as signs, utility poles, etc. shall be removed or supported prior to excavating adjacent to them.
    b. The locations of all utilities shall be determined prior to excavation.
        i. Mark the proposed dig area with white boundaries.
        ii. Contact "Diggers Hotline" three (3) days prior to excavating for utility locates.
            1. Notify location(s) with cross streets.
            2. Notify reason for excavation.
            3. Notify approximate depth of excavation.
        iii. An eighteen (18)-inch tolerance zone must be maintained on either side of any markings.
        iv. Hand dig test pits until the utility is located.
            1. If line must be exposed, it shall be supported and protected while excavation is continued.
    c. A means of egress such as a ladder, ramp, stairway or other safe means must be provided in every trench type.
        i. Excavation four (4) feet or more in depth.
        ii. Within twenty five (25) feet of lateral travel within excavation
    d. Employees exposed to vehicular traffic shall be protected by the use of highly visible reflective vests and any necessary traffic control devices.
    e. No employee shall work underneath loads being handled by lifting equipment.
    f. Employees working in excavation where water is accumulating need to take extra precautions.
    g. The stability of adjacent structures such as buildings shall be ensured prior to excavation.
        i. Shoring, bracing or underpinning may be required.
    h. Spoil piles shall be kept back at least two feet from the edge of the excavation. Loose rock and soil shall be kept off the face of the excavation walls.
    i. Excavations and surrounding areas shall be inspected daily by a competent person to identify hazardous situations or changing conditions.
    j. Any excavation not back filled and without direct supervision, shall be protected with the use of barricades.

2.) Protective Systems: All employees in excavations shall be protected from cave-ins unless the excavation is made entirely in stable rock or is less than five (5) feet in depth and its determined that there is no hazard of potential cave-ins.
    a. **Benching** means a method of protecting workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal

levels or steps, usually with vertical or near vertical surfaces between levels.

i. Benching cannot be done in Type C soil.

b. **Sloping** involves cutting back the trench wall at an angle inclined away from the excavation.
   i. Sloped excavation must be sloped back at an angle not steeper than one and one half horizontal to one vertical.

c. **Shoring** requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.

d. **Shielding** protects workers by using trench boxes or other types of supports to prevent soil cave-ins. Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity.
   i. Shielding systems shall be built and used in accordance with manufacture's certification. Certification shall be on site.
   ii. Shields may be placed up to two feet from the bottom of the trench.
   iii. When a combination sloping-shielding system is being used, the excavation must be sloped back to at least eighteen (18) inches below the top of the shield.
   iv. Employees are not allowed to be in the shield when installed, moved or removed.

3.) Soil Classification: Classification of soil and rock deposits shall be classified by a competent person.

a. **Stable Rock** means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

b. **Type A** means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:
   i. The soil is fissured.
   ii. The soil is subject to vibration from heavy traffic, pile driving, or similar effects.
   iii. The soil has been previously disturbed.
   iv. The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater.
   v. The material is subject to other factors that would require it to be classified as a less stable material..

c. **Type B**

i. Cohesive soil with an unconfined compressive strength greater han0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa);
ii. Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
iii. Previously disturbed soils except those which would otherwise be classed as Type C soil.
iv. Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration.
v. Dry rock that is not stable.
vi. Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

d. Type C

i. Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less.
ii. Granular soils including gravel, sand, and loamy sand.
iii. Submerged soil or soil from which water is freely seeping.
iv. Submerged rock that is not stable.
v. Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

TABLE B-1
MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V)(1) FOR EXCAVATIONS LESS THAN 20 FEET DEEP(3)
STABLE ROCK	VERTICAL (90º)
TYPE A (2)	3/4:1 (53º)
TYPE B	1:1 (45º)
TYPE C	1 ½:1 (34º)

(1) Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

(2) A short-term maximum allowable slope of 1/2H:1V (63º) is allowed in excavations in Type A soil that are 12 feed (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53º).

(3) Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

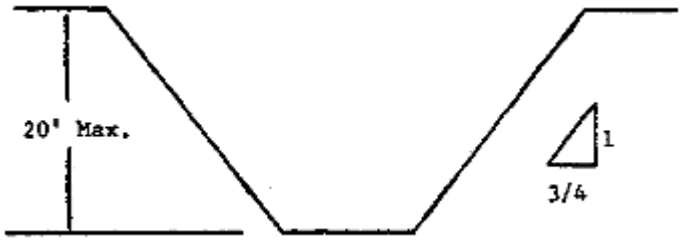
Figure B-1

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

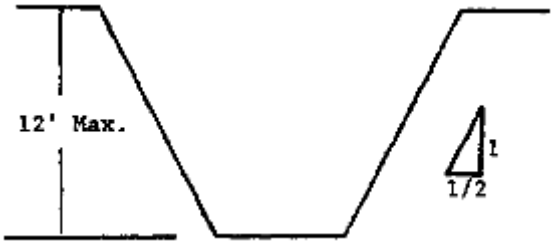
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾:1.



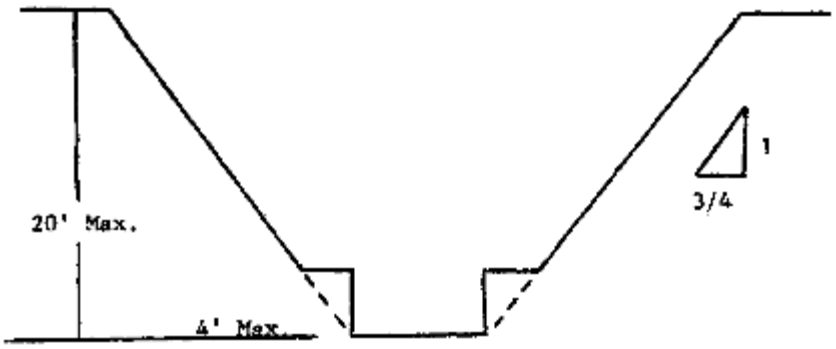
SIMPLE SLOPE -- GENERAL

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.

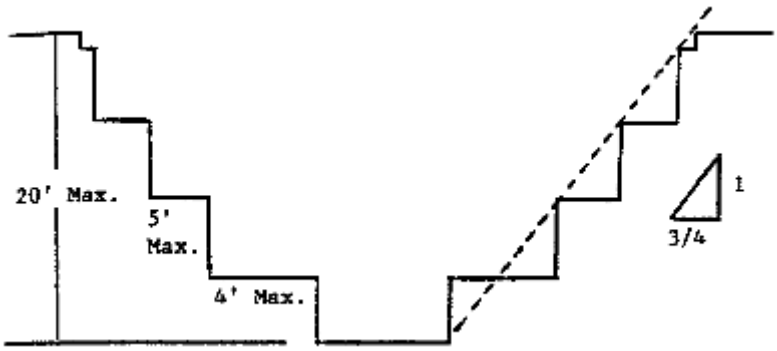


SIMPLE SLOPE -- SHORT TERM

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:

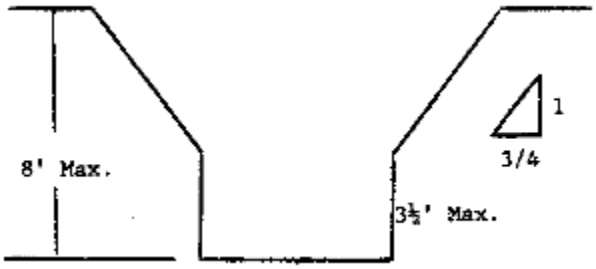


SIMPLE BENCH



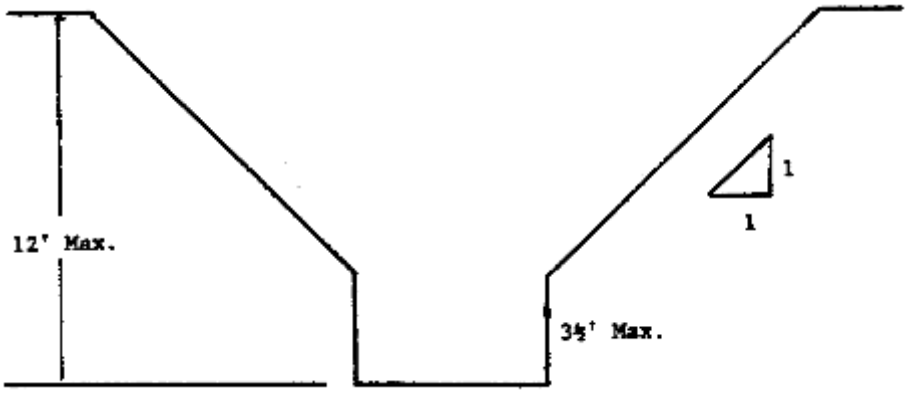
MULTIPLE BENCH

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



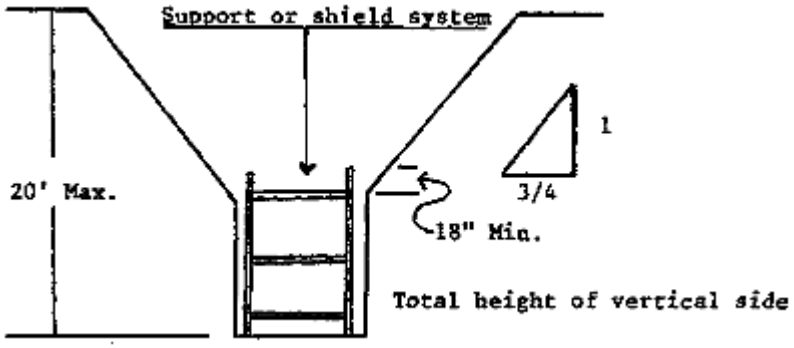
UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 8 FEET IN DEPTH)

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



UNSUPPORTED VERTICALLY SIDED LOWER PORTION -- MAXIMUM 12 FEET IN DEPTH)

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

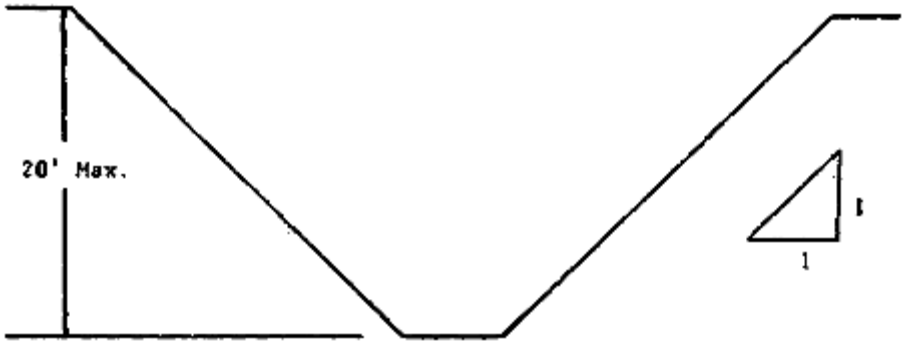


SUPPORTED OR SHIELDED VERTICALLY SIDED LOWER PORTION

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

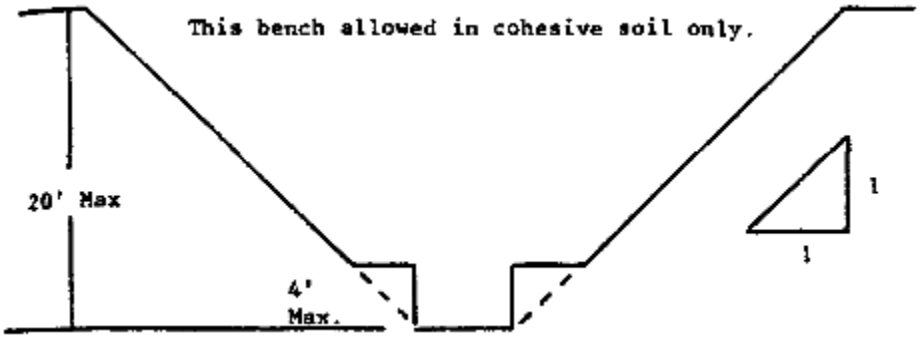
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

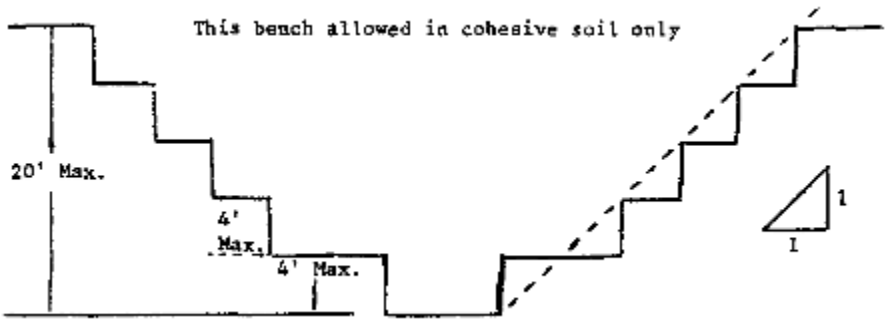


SIMPLE SLOPE

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

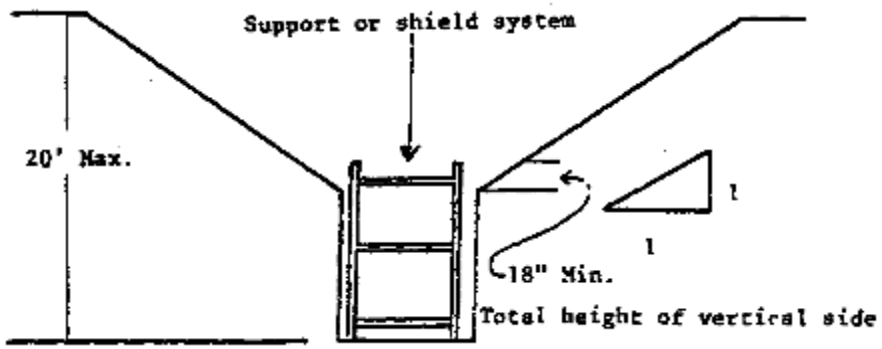


SINGLE BENCH



MULTIPLE BENCH

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

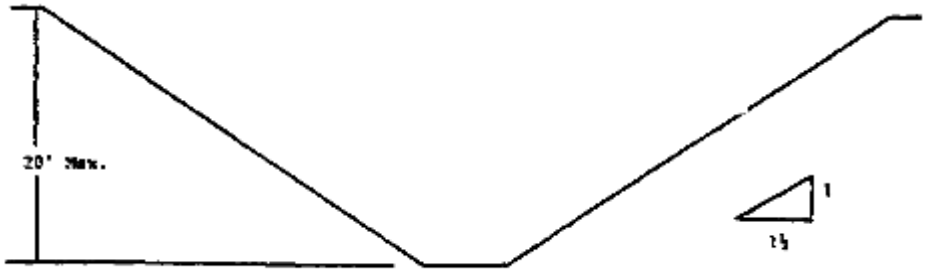


VERTICALLY SIDED LOWER PORTION

4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

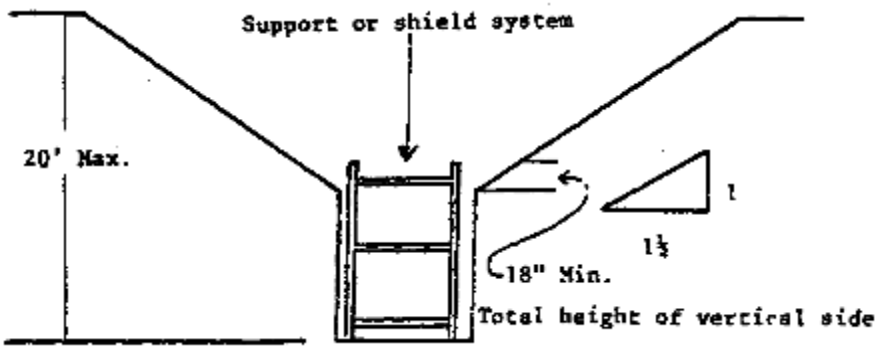
B-1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



SIMPLE SLOPE

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

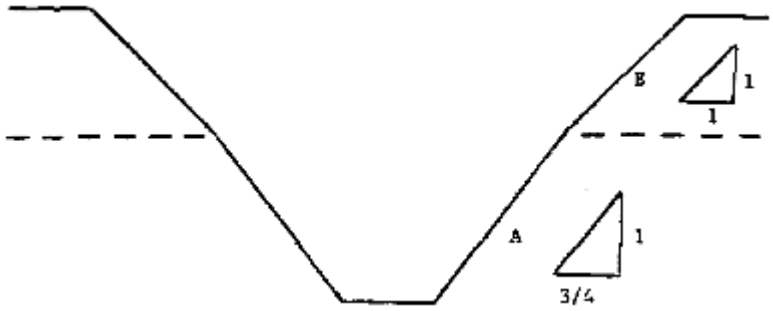


VERTICAL SIDED LOWER PORTION

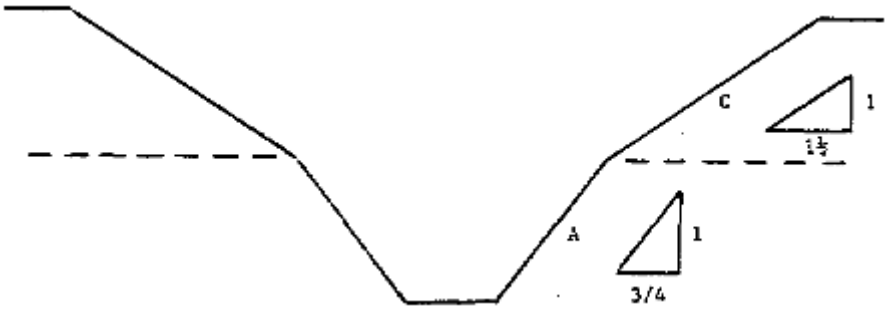
3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B-1.4 Excavations Made in Layered Soils

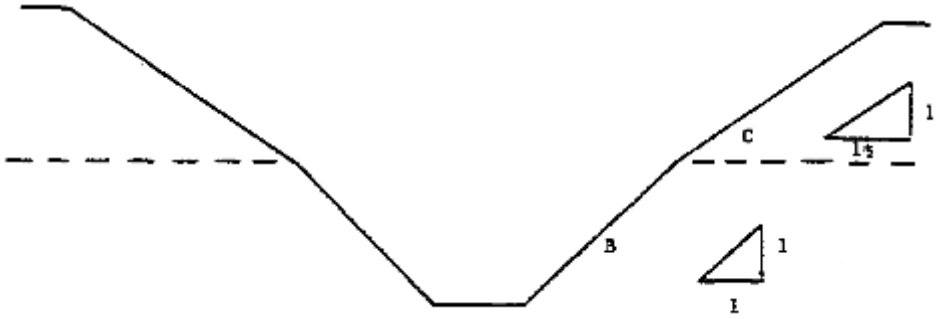
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



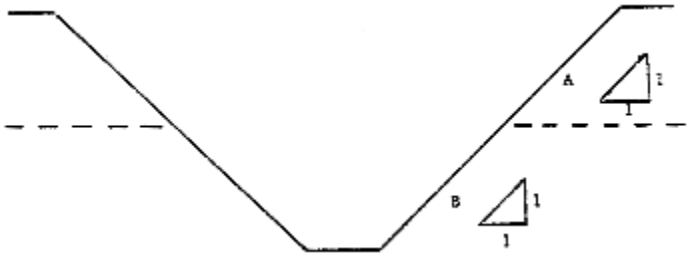
B OVER A



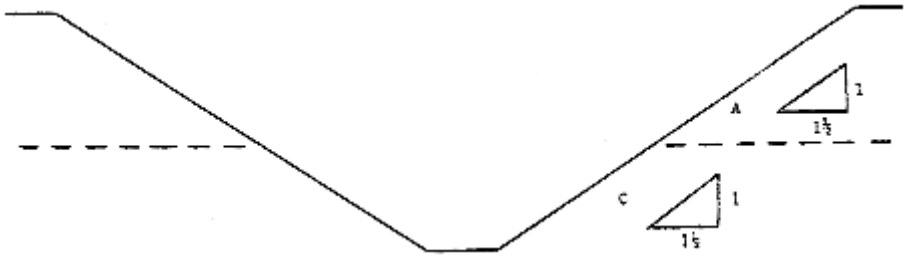
C OVER A



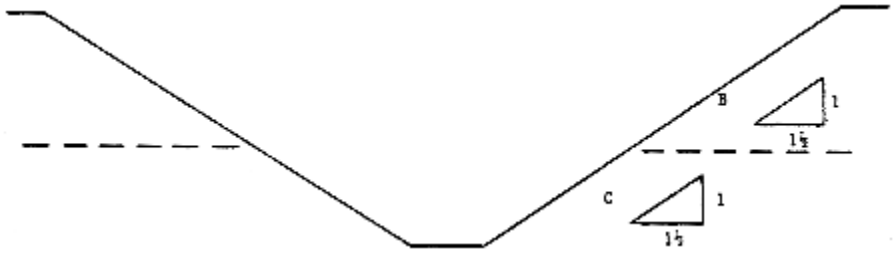
C OVER B



A OVER B



A OVER C



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

APWA Uniform Color Codes

for temporary marking of underground utilities

RED – Electric Power Lines, Cables, Conduit, and Lighting Cables

YELLOW – Gas, Oil, Steam, Petroleum, or Gaseous Material

ORANGE – Communication, Alarm or Signal Lines, Cables, or Conduit

BLUE – Potable Water

GREEN – Sewers and Drain Lines

WHITE – Proposed Excavation Limits or Route

PINK – Temporary Survey Markings, Unknown / Unidentified Facilities

PURPLE – Reclaimed Water, Irrigation, and Slurry Lines

4-5 Railway Safety

1.) Definitions:
   a. **Flagman** a designated person by the railroad to direct or restrict the movement of trains past set points on a track to provide on-track safety for roadway workers.
   b. **Fouling a Track** is when an individual or equipment is positioned so that they may be struck by a moving train or on-track equipment (within four (4) feet of the track).
   c. **Job Briefing** is a meeting to communicate the activities happening throughout the day while working on railroad property.
   d. **Place of Safety** is a designated safe location at least thirty (30) feet from the tracks for workers to retreat to within fifteen seconds when notified by a flagman / watchman.
   e. **Train Approach Warning** is a method of establishing on-track safety by warning roadway workers of the approach of trains in ample time for them to move to or remain in a place of safety in accordance with the requirements of this part.
   f. **Watchman / Lookout** is a qualified person who has been trained to provide warning to roadway workers of approaching trains or on-track equipment.
   g. **Work Limits** are segments of track established in accordance with the railroad owner where trains and engines may move only as authorized by the flagman having control over that segment of track.

2.) Training: Rail systems are controlled by the Federal Railroad Administration (FRA). The FRA mandates that rail system owners provide training to all workers on or near tracks.
   a. Recognition of railroad tracks and understanding of the space around them within which on-track safety is required.
   b. The functions and responsibilities of various persons involved with on-track safety procedures.
   c. Proper compliance with on-track safety instructions given by persons performing or responsible for on track safety functions.
   d. Signals given by watchmen / lookouts and the proper procedures upon receiving a train approach warning from a lookout.
   e. The hazards associated with working on or near railroad tracks, including review of on-track safety rules and procedures.

3.) Job Briefing: A job briefing must be held with all individuals on the project before work commences on railroad property each day or whenever work condition or activities have changed.
   a. Who is responsible for On-Track protection?
   b. Which type of On-Track protection is in use?
   c. Is this protection appropriate?

d. Will other machines or personnel be involved?
e. Where is the designed place of safety?
f. What are the track limits?
g. When do these limits expire?
h. Where can I find a copy of the On-Track protection rules?

4.) <u>On-Track Protection:</u>
   a. **Working Limits:**
      i. A flagman creates set boundaries and times limits for the work.
      ii. Trains may only proceed within the boundaries after the flagman clears the tracks of contractors and equipment and signals the train through.
      iii. Working limits are used when occupying or fouling track with equipment.
      iv. Only the flagman can set these boundaries.
      v. Always obey the flagman.
   b. **Train Approach Warning:**
      i. A watchman / lookout cannot do anything but monitor for trains and warn employees.
      ii. The watchman / lookout shall warn workers when a train is approaching to vacate tracks in time to a place of safety.
      iii. The watchman / lookout shall use a whistle and white flag to warn employees.
   c. **Individual Train Detection:**
      i. Used for lone worker
      ii. Relies on the conditions that the worker can see and hear an oncoming train.
      iii. Must have visibility enough to leave the track in time.
      iv. Cannot use power tools
      v. Must complete a statement of On-Track safety Form.

4-6 Crane and Rigging

1.) General:
   a. The operator must know the weight of the load.
   b. The operator must know the pick and set radius of the load to be picked.
   c. The operator must know if the load is in the structural or tipping portion of the load chart.
   d. Rated load capacities and recommended operating speeds, special hazard warnings or instruction shall be posted and visible to the operator on all cranes.
   e. Proper hand signals shall be used to signal the operator. Only one person shall signal the operator at a time.
   f. Accessible areas within the swing radius of the counterweight shall be barricaded.
   g. Cranes operating close to overhead power lines shall be protected from contact with energized lines by one of the following:
      i. The lines shall be de-energized and grounded.
      ii. Barriers, not part of the crane shall be erected to prevent contact.
      iii. Minimum safe distance of ten (10) feet shall be maintained around all overhead power lines of 50 KV or less. (add four (4) inches for every additional 10 KV)
   h. Make sure the crane is set up level on a firm foundation, with adequate cribbing and all outriggers deployed.
   i. Keep workers clear of loads about to be lifted and suspended.
      i. Warn any unnecessary personnel or stragglers in the area.
      ii. Loads shall not be swung or suspended over persons.
   j. When picking a load, start, stop and swing slowly.
   k. Watch for defective rigging equipment or poor rigging technique.
   l. The operator shall be alert at all times and remain in the cab with a load on the crane.

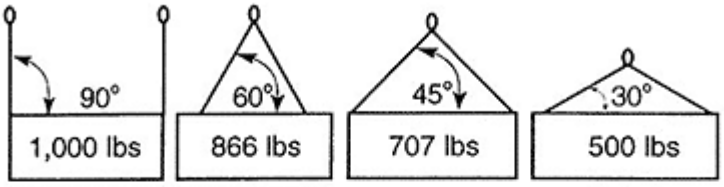
2.) Crane Inspections:
   a. All cranes are to be inspected annually and certification shall be kept on file.
   b. The operator shall inspect the crane before each use and during use.
      i. Deficiencies shall be repaired or defective parts replaced before continued use.
      ii. Inspections shall be documented on a crane inspection checklist daily.

3.) Rigging Safety:
   a. The rigger must know the weight of the load and the rated capacities of any slings or rigging hardware.
   b. Know the center of gravity of the load. Attach the load above the center of gravity or secure the load.
   c. Select the sling best suited to the load and select a hitch that will hold and control the load.

d. Inspect all rigging equipment prior to each use.
e. Protect slings from sharp edges.
f. Allow for the reductions in sling capacity when using chocker hitches or severe sling angles.

LOAD ANGLE CHART

Angle factor *must* be applied to calculate the reduced sling capacity when lifting force is not at 90° to the plane of the load!

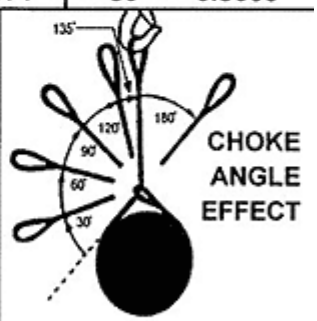


Multiply angle factor x sling's vertical rated load to calculate the reduced capacity at that angle.

Angle	Factor	Angle	Factor	Angle	Factor	Angle	Factor
90°	1.0000	70°	0.9397	55°	0.8192	40°	0.6428
80°	0.9848	65°	0.9063	50°	0.7660	35°	0.5736
75°	0.9659	60°	0.8660	45°	0.7071	30°	0.5000

Because of the greatly reduced lifting capacity, use extra care when the **horizontal** lift angle is less than 45° and do not make lifts of less than 30° load angle. *Example:* A sling rated at and lifting 1,000 pounds will be damaged – and could break suddenly–when the lifting angle is less than 30° at which angle the sling's capacity is reduced to only 500 pounds. *Important:* Use a longer sling to increase the angle which will also increase the allowable capacity.

For choker hitches, the lifting capacity is reduced by 25% or more, depending on the angle of choke.



CHOKE ANGLE EFFECT

ANGLES OF CHOKE	SLING RATED LOAD PERCENTAGE OF SINGLE LEG SLING CAPACITY
120 - 180	75%
90 - 119	65%
60 - 89	55%
30 - 59	40%

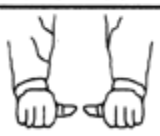
g. Use only alloy chain (grade 80) when lifting with chain slings.
h. All loads shall include at least one tagline to help control and steady the load.

4.) Rigging Inspections:

a. **Synthetic Web Slings** should be replaced under any of the conditions:
    i. Acid or caustic burns.
    ii. Burned, melted or charred.
    iii. Snags, punctures, tears or cuts.
    iv. Broken or worn stitching.
    v. Excessive fraying, red warning threads visible.
    vi. Tag missing or illegible.
    vii. Ultraviolet sunlight damage.

b. **Wire Rope Slings** should be replaced under any of the conditions:
    i. Missing or illegible tag.
    ii. Randomly broken wires in one lay or 5 broken wires in one strand on one lay.
    iii. Kinking, crushing, birdcaging or other damage to the braided structure of the rope.
    iv. Heat damage.
    v. Severe corrosion or pitting.
    vi. Damaged end attachments.
    vii. Bent hooks.

c. **Chain Slings** should be replaced under any of the conditions:
    i. Missing or illegible tag.
    ii. Excessive wear.
    iii. Twisted, bent or cut links.
    iv. Cracked welds in the links.
    v. Severe nicks and gouges.
    vi. Excessively stretched links.
    vii. Severe corrosion.
    viii. Worn or damaged master link.
    ix. Bent Hooks.

 Main Hoist	 Auxiliary Hoist	 Hoist Load	 Hoist Load Slowly	 Stop
 Raise Boom	 Raise Boom & Lower Load	 Lower Load	 Lower Load Slowly	 Emergency Stop
 Lower Boom	 Lower Boom & Raise Load	 Swing Boom	 Swing Boom Slowly	 Travel (mobile eqpt)
 Retract Boom 2 hands	 Retract Boom 1 hand	 Extend Boom 2 hands	 Extend Boom 1 hand	 Dog Everything

4-7 Emergency Action Plan

1.) General: The supervisor in charge of each job site is responsible for ensuring that the elements of the plan are communicated to all employees on site.

2.) Elements of Emergency Action Plan:
   a. **Alerting Employees:** The supervisor in charge of each job site should make sure that all employees can be contacted in the event of an emergency.
   b. **Emergency Escape Procedures:** Routes and gathering points should be established where all employees are together in the event of an emergency.
   c. **Accountability:** Each supervisor is responsible for accounting for all employees after an emergency has occurred.
   d. **Alerting Emergency Services:** In most emergency situations 9-1-1 should be called.
      i. Have someone meet emergency services personnel and direct them to the area.
      ii. Ensure that access has been created for emergency services personnel.

3.) Specific Emergencies:
   a. **Fire:**
      i. Small Fire may be extinguished by trained employees with fire extinguishers.
         1. Position yourself between the fire and exit.
         2. Report small fires to supervisor.
      ii. Large Fire shall have local fire departments notified and notify all employees to evacuate the area.
         1. Account for all employees and subs.
         2. Ensure that access has been created for emergency services personnel.
   b. **Medical:**
      i. Notify emergency services (9-1-1) and supervisor
      ii. Provide basic first-aid if trained.
      iii. Have someone meet emergency services personnel and direct them to the area.
      iv. Ensure that access has been created for emergency services personnel.
   c. **Utility Damage:**
      i. Notify emergency services (9-1-1) and supervisor
      ii. Ensure safety of all workers.
      iii. Check the utility location ticket to see if the utility was marked properly.
      iv. Photograph the excavation, the damage line and any markings.

d. **Hazardous Spills:**
    i. If the spill poses an immediate safety, health or environmental hazard, contact emergency services (9-1-1).
    ii. Consult the MSDS for procedures.
    iii. Contain the spill if possible to prevent further contamination.
e. **Vehicle Incident:**
    i. Notify emergency services (9-1-1) and supervisor
    ii. Check for injuries of all persons involved.
    iii. Protect the scene from hazards.
    iv. Have someone meet emergency services personnel and direct them to the area.
    v. Ensure that access has been created for emergency services personnel.
f. **Weather Related Event:**
    i. Immediately suspend any work.
    ii. Seek shelter for protection.
    iii. Listen to radio for further details and instruction.

5-1 Machinery and Equipment

1.) General:
   a. Daily inspections:
      i. All machinery and equipment should be inspected before use to ensure safe operating procedures.
      ii. Tests shall be performed to ensure that brakes and all other operational systems are in proper working order.
      iii. Whenever machinery or equipment is found to have any major deficiencies, it shall be tagged out of service.
   b. Only qualified individuals shall operate any machinery or equipment.
   c. Machinery and equipment shall not be operated in a manner that will endanger people or property, nor shall the operating speeds or loads be exceeded.
   d. Climb into and out of equipment only using steps or rungs provided on the machine.
   e. The use of cell phones, headphones, or similar items is prohibited while operating machinery or equipment.

2.) Equipment:
   a. Equipment is only designed to carry as many as there are seat belts.
      i. Seat belts are not required for equipment that is designed to be operated in the stationary position.
      ii. Mobile equipment to be driven on public roadways shall be properly registered.
         1. Lights shall be in good working condition.
         2. Warning systems, alarms and horns shall be in good working condition.
   b. Maintenance and repairs shall only be performed while the equipment is shut off, unless specifically designed for lubricating while engine is running.
   c. Equipment shall have all blades, buckets, dump bodies or similar equipment fully lowered or blocked when not being used.
   d. Internal combustion engines shall not be run within an enclosed building unless adequate ventilation controls are in place.
   e. Parking:
      i. All parked equipment shall have the parking brake set.
      ii. Equipment parked on an incline shall have the wheels chocked and the parking brake set.
      iii. Equipment left adjacent to roadways shall have lights or reflectors that are visible to passing motorists.

3.) Mixer Truck:

a. **Inspections:** Shall be inspected as required by the Federal Motor Carrier Safety Regulations. Drivers are to fill out the Vehicle Inspection Reports every day prior operating.

b. **Moving the Truck:**
    i. Prior to entering the job site, the driver is to be briefed as to how to enter and exit the site.
    ii. Whenever the truck is running, the drum should be moving a slow speed.
    iii. Make sure the drum is moving slowly when accessing the platform.
    iv. Avoid the rollers when climbing the ladder and standing on the platform.

c. **Placement of Concrete:**
    i. Use proper PPE when working with or around concrete.
    ii. Be careful of pinch points when folding over chutes and adding extension chutes.
    iii. Use proper lifting technique when carry chutes.
    iv. Do not allow anyone to walk or work under extended chute section.
    v. Only drive the truck with the chute is extended to a location to clean and remove them safely.

d. **Cleaning:**
    i. Clean the drum at slow speed to keep the truck from rocking.
    ii. Be careful of your hands and head while the drum is spinning.
    iii. Do not climb on the chutes to clean them or access the hopper.
    iv. Do not spray hose directly into the drum to avoid splash back.

4.) Safety Devices:

a. All vehicles shall be equipped with an audible warning device accessible from the operator's station.

b. No equipment having an obstructed view to the rear shall be used unless:
    i. It is equipped with an audible reverse signal that is distinguishable from surrounding noises.
    ii. The equipment is only backed under the direction of a spotter.

5-2 Driver Safety

1.) Drivers Responsibilities:
   a. Read, understand and follow the requirements of this program.
   b. Participate in programs to improve driver safety.
   c. Maintain a valid driver's license and adhere to license restrictions.
      i. An MVR will be obtained for all new employees.
      ii. MVRs shall be checked yearly for all drivers.
      iii. MVRs will be stored confidentially in each driver's file.
   d. To complete a daily inspection report of the vehicle driven and report any vehicle incident on the appropriate form.

2.) Vehicle Use:
   a. Company vehicles may not be driven for personal use.
   b. Drivers of assigned vehicles may not allow unauthorized persons to operate company owned vehicles.
   c. Disciplinary action, including termination, may be taken for unauthorized use of company vehicles.
   d. Employees may be held responsible for any losses incurred during an unauthorized use of company vehicles.

3.) High Risk Drivers:
   a. **Identification of High Risk:**
      i. Conviction for an alcohol and/or drug related driving offense.
      ii. Refusal to submit to blood alcohol content (BAC) test.
      iii. Conviction for reckless driving.
      iv. Combination of three or more moving violations within last three years.
      v. Leaving scene of accident.
      vi. Felony committed involving a vehicle.
   b. **Management of High Risk:**
      i. Probation up to two (2) years from the date of the most recent violation.
         1. Driver shall be notified in writing of probation.
         2. An MVR shall be obtained every six months during the probationary period.
         3. Driving privileges will be immediately suspended for any driving violations during the probationary period.
         4. Additional driver training may be required.
      ii. Suspension of all driving privileges for a period of 3 months or as determined by management.
         1. Driver shall be notified in writing of suspension.
         2. After a driver's privileges have been restored, they will be placed on probation for a period of two (2) years.

4.) Safety:

a. The driver and all occupants are required to wear seat belts when operating or riding in a motor vehicle. It is the driver's responsibility for ensuring that all passengers are wearing seat belts.
b. A driver may not operate a motor vehicle at any time when their ability is impaired, affected or influenced by drugs, alcohol, medication, illness, fatigue or injury.
c. Drivers are required to abide by all federal, state and local laws and ordinances.
d. Each driver is responsible for ensuring that the motor vehicle is maintained in safe driving condition.
e. Drivers are required to drive with headlights on at all times when conditions warrant.
f. Drivers may not transport flammable liquids or gases unless a DOT or UL approved container is utilized.

5.) Inclement Weather:

a. **Rain:**
    i. Always turn on lights in rain
    ii. Slow to a safe speed before curves and accelerate slightly through them. Avoid braking through curves.
    iii. If you begin to hydroplane, do not apply brakes, let off the gas until you slow and the tires regain traction.
b. **Snow and Ice:**
    i. Always turn on lights in snow.
    ii. Clean all windows, lights and turn signals before driving.
    iii. Keep windshield wiper fluid full.
    iv. Accelerate, turn, change lanes and stop slowly and smoothly.
    v. Singal well in advance for turns, stops and lane changes.
c. **Fog:**
    i. Always turn on lights (low beams) in fog.
    ii. If visibility diminishes to a point you must slow to a crawl, find a safe place to pull off the road.

5-2.1 Cell Phone

Chippewa Concrete Services, Inc. sets forth this policy about cell phone usage to all employees with or without company issued phones. For the purpose of this policy, the term "cell phone" is defined as any handheld device with the ability to receive and/or transmit voice, text or data messages with out a cable connection.

1.) Use of cell phone:
   a. **General use at work:** While at work, employees are expected to exercise the same discretion in the use of personal cell phones as they use with company cell phones. Excessive personal calls during the workday, regardless of the phone used can interfere with employee's productivity and be a distraction to others. Employees should restrict personal calls during work time to a minimum and ensure that friends and family members know of this policy.
   b. **Unsafe work situation:** The Company prohibits the use of cell phones or similar devices while at any work site at which the operation of such device would be a distraction to the user and/or could create an unsafe work environment.
   c. **Use while driving:** The employees may have access to a cell phone while in a company vehicles in a "hands free" application to send and receive calls, but texting while in a company vehicle is prohibited. The employees should remember that their primary responsibility is driving safely and obeying rules of the road.
   d. **Action of cell phones:** Any fines that result from the illegal use of a cell phone are the responsibility of the employee.

2.) Personal use of Company issued phones:
   a. **General Rule:** Chippewa Concrete Services, Inc. provides cell phones to certain employees as a business tool. They are provided to assist employees in communicating with management and other employees, engineers, and others with whom they may conduct business.

      Employees are advised that their Company issued cell phones may be regularly monitored for misuse. Any misuse which incurs extra cost to the Company will be the responsibility of the employee and may be deducted from the employees check.
   b. **Security of cell phone:** Employees in possession of Company issued cell phones are expected to protect the equipment from loss, damage, or theft. On resignation or termination of employment or at anytime on request, the employee may be asked to produce the phone. Any employee unable to produce the cell phone or upon inspection of the phone, damage or misuse is noted, the employee will be responsible for all cost to repair or replace issued phone.

5-2.2 Accident Procedures

1.) Driver on Scene:
   a. Stop Vehicle, set parking brake and shut down engine.
   b. Protect the scene. (set up reflective triangles)
   c. Assist the injured without moving them unless the situation presents a dangerous hazard.
   d. Contact the local police and the company to report the accident.
   e. Exchange pertinent information with other driver.
      i. Company
      ii. Name and Drivers License
      iii. Address (company)
      iv. Company phone number
      v. Insurance Carrier (with policy number)
   f. Obtain any witness information (name and contact number)
   g. Take photos of accident scene.
      i. Different angles.
      ii. Start away and move closer.
      iii. Show the view of the approach to impact for all involved.
      iv. Photograph any other areas of concern or contributing factors.
   h. Draw a diagram of the accident scene with all the information you can regarding the accident.
   i. Fill out an incident report.
   j. Report all incidents, no matter how small.
      i. Never admit fault.
      ii. Never apologize.
      iii. Never argue with other drivers or witness.
      iv. Never argue with the police.
      v. Never make statement with media.
      vi. Never discuss the accident with anyone other than company.
      vii. Report all incidents, no matter how small.

2.) Driver off Scene:
   a. A determination should be made whether a vehicle is safe to drive after it has been involved in any accident. A company maintenance person shall be contacted and included in the decision. The driver shall communicate the nature and extent of the repairs and damages to the maintenance person and the company for determination.
   b. If the vehicle is drivable, it should be return to the shop for maintenance check on the brakes and any other repair needed.
   c. The driver shall be sent for a post accident drug and alcohol testing and removed from driving until results are received.

CHIPPEWA CONCRETE SERVICES, INC. SAFETY MANUAL

If a job represents a potential safety or health threat, every effort will be made to plan a safe way to do the task. Every procedure shall be a safe procedure and follow all guidelines listed herein. Shortcuts in safe procedures by either supervisors or workers will not be tolerated. If a worker observes any unprotected job, which may pose a potential threat to their health or safety, he or she must inform management and management must take adequate precautions.

It is the policy of Chippewa Concrete Services, Inc. to provide protection and leadership to all employees from unsafe work conditions and practices on the jobsite. Our employees are considered the most fundamental asset of our operations. Their safety must be considered first when planning any construction activity. All employees of Chippewa Concrete Services, Inc. have the responsibility to work safely and ensure that fellow workers also work safely on the job to ensure everyone leaves the jobsite unharmed at the end of the day.

I _____have read and agree to adhere with all included policies set forth herein accordance to the Chippewa Concrete Services, Inc. Safety Manual as well as OSHA regulations. I will follow all policies and procedures set forth within the Chippewa Concrete Services, Inc. Safety Manual to ensure the well being of all job site employees.

_____

(Signature) (Date)

_____

(Print name)

_____

(Address)

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_____

(Signature) (Date)

_____

(Print name)

_____

(Address)