FCI CONSTRUCTION

*Your Vision, Our Experience – **Together***

Safety Manual

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President's Statement

The Fetters' Family founded FCI in 1994 to build and renovate commercial structures including schools, medical facilities, factories and public works installations. FCI takes great pride in the integrity, efficiency and quality workmanship provided by the men and women who make-up the FCI Team.

The Leadership of FCI is committed to a strong and effective safety program. In order to ensure a safe place for all employees to work, each member of the FCI Team accepts a professional and a moral obligation to their Coworkers, to the Company, and to our Customers to carry out work activities in a safe and efficient manner.

Each FCI employee continuously strives to prevent unsafe acts in the workplace and to anticipate potential hazards and prevent their occurrence. Each employee recognizes that working in an unsafe manner is contrary to the success of the company and the well-being of our workforce. The FCI Workforce believes that accidents and injuries cause unneeded hardship and pain for FCI employees and their families. Accidents and injuries are a waste of human capital, effort, time and money.

Safety, quality and productivity go hand-in-hand at each FCI project. In order to make the FCI Safety Program effective each Employee works together to continually eliminate the possibility of accidents and injuries.

Please help yourself and your coworkers practice safe work habits.

Sincerely,

Eric E. Pedersen

Safety Policy

It is the policy of this company to support a healthy and safe workplace for all employees. FCI will make the effort to comply with safety regulations while performing our work. All FCI employees are responsible for anticipating, recognizing, evaluating, and controlling risk in the workplace.

FCI has developed and implemented a safety program. Each employee is required to abide by this safety program. All employees are provided a safety program orientation prior to beginning work. Copies of the FCI Safety Policy are available at each jobsite. Both electronic and hard copies of the Safety Policy are available to each employee. Complying with the Safety Program is for the well-being of each FCI Employee, other people, equipment and property. Each FCI Employee will abide by all safety regulations as they pertain to the OSHA Construction Industry Regulations 29 CFR 1926, OSHA General Industry 29 CFR 1910, and the company's Best Practices.

Safety will always take precedence over more expedient unsafe operations. Every attempt will be made to assure appropriate worker safety training, availability of proper equipment, and to create conditions that will provide for a safe workplace.

Safety requires a Team effort to succeed. The efforts of each FCI Employee share a common goal of preventing all work-place injuries and property accidents. Workplace injuries cause pain, suffering and financial loss for each member of the FCI Workforce.

Incidents resulting in injury or illness are not an act of God. Accidents and injuries do not just happen. Accidents are unforeseen events which rarely. Incidents and injuries are caused by people who make incorrect choices about how to carry out tasks.

Workplace injuries not only cause pain and suffering for the members of the FCI Workforce, but they also become public knowledge to our clients and customers. Customers review the safety performance of contractors through public information obtained from OSHA, insurance companies, word of mouth, and press releases. FCI Clients choose to associate with construction companies who perform safely.

It is critically important for the FCI Workforce to avoid injuries and accidents Incidents and injuries result in pain and a loss of opportunities for the entire FCI Team. Any employee who willfully disregards work practices as regulated by OSHA, or who fails to implement company safety policy may be subjected termination.

Safety Responsibilities and Contact Information

PURPOSE

To define the responsibilities and requirements for implementing and maintaining an effective Safety and Health Program at FCI Construction.

SCOPE

These safety policies apply to each Employee of FCI Construction, and those employed

RESPONSIBILITIES

- Company Management
  - FCI Construction accepts responsibility for safety and accident prevention on the job by actively supporting safe work practices and by requiring that each FCI Employee follow the safety program.
  - Management will support the safety program by allocating adequate financial, manpower, and material resources needed to maintain a safe workplace.
  - The Management of FCI Construction believes that all accidents are preventable, and requires that all employees actively participate in and follow the FCI Construction Safety Program.
- Corporate Safety Director
  - This position will be accountable to Corporate Management for the planning, coordinating, and administration of the Safety Program. The Safety Director will provide direction, motivation, and resolve problems associated with all aspects of the safety program.
  - Conducts random and periodic job-site inspections and audits to evaluate compliance with sound safety and accident prevention procedures.
  - Reviews the results of safety inspections with Management, Superintendents, and others. Tracks deficiencies and provides input for corrective actions put in-place for any noted safety deficiencies.
  - Alerts all levels of the workforce to changes in safety regulations and requirements, and makes recommendations for safety compliance.
  - Prepares educational materials for sharing and accident prevention related topics. Provides workforce training for specific safety topics such as confined space entry, respiratory protection, fall protection, equipment operation, etc.
  - Plans and coordinates all educational programs for Superintendents and Management personnel. If needed, will arrange for outside safety and health professionals to provide appropriate educational programs.
  - Plans and maintains adverse incident investigative reports, new and revised safety rules, and job-site audit reports.
  - Reviews and presents data on all adverse events. Adverse events include near-miss events, first aid cases, work related injuries, and property accidents that occur in the workplace or job-sites. Uses the data to educate and

motivate all FCI Employees towards achieving an injury and accident free work-place.
    - Ensures that Superintendents conduct all required employee on-the-job safety meetings.
    - Maintains OSHA record keeping requirements for the Company.
    - Receives and reviews copies of the safety and health programs required by any subcontractors controlled by FCI at each jobsite. Immediately notifies Subcontractors of safety deficiencies in policy or procedures that are presented at the jobsites.
    - Manages the Hazard Communication, Bio Hazard, Respiratory Protection, Silica Control and other formal components of the FCI Safety Program.
    - Obtains and maintains the required safety and accident prevention materials including:
        - Federal, State and Local rules and regulations
        - Corporate safety and accident prevention programs
        - Personal protective equipment and First Aid supplies
        - All documents and forms related to safety administration
        - Safety education and training materials
        - Records as required by OSHA, State, Local, Owner, and Company regulation or policy.
        - Posting of emergency response and medical response plans at each jobsite.
        - Management of Workers compensation program including coordination of medical treatments provided for injured workers.
        - Management of Fleet Insurance Program.
- Project Manager
    - Is responsible for monitoring the performance of each Superintendent to verify compliance with safety and accident prevention activities, jobsite audits, weekly safety talks, post-accident investigation, and ongoing jobsite safety compliance.
    - Reads and reviews relevant safety and health program information, and applies that information towards managing an injury free environment at the jobsite.
    - Reviews with the Safety Director the first notice of each accident, injury and near miss that occurs at the jobsites. Assists the Safety Director and Superintendent in the investigation for each adverse event that occurs at designated job-sites.
    - Maintains open and timely lines of communication regarding both routine and special safety procedures required at their jobsites.
    - Instructs Superintendents individually regarding their safety responsibilities.
    - Becomes familiar with the OSHA Standards for Construction and General Industry.
    - Instructs and requires that Superintendents and Field Craftsmen will not allow shortcuts or ignore the proper safety procedures as are outlined in the FCI Safety Policy, OSHA Standards for Construction Industry or General Industry Standards.
    - Works with the FCI Safety Director to ensure safety compliance and participation among all subcontractors involved in a project.

    - Anticipates the need for special safety equipment and procedures needed to handle non-routine situations at the jobsite. Keeps the Safety Director appraised of these non-routine situations before they present, allowing time to implement proper safety preparations.
- Superintendent
    - Reinforces a positive attitude about personal and on-the-job safety among all personnel by actions, examples, and training.
    - Communicates, encourages and verifies the day-to-day safety and accident prevention efforts of the Field Craftsmen.
    - Maintains open lines of communication about routine safety matters and special procedures for unusual or hazardous operations with all employees.
    - Is accountable to the Project Manager for employee compliance with the safety program and results.
    - Enforces the entire safety and accident prevention program as well as any special controls as directed by the Safety Director.
    - Initiates disciplinary actions when and as required by the safety and accident prevention program and disciplinary policy.
    - Is responsible for the write-up and review of all adverse events, including near-misses, first aid cases, injuries and property accidents that occur at the jobsite. The Superintendent makes notification of injuries and property accidents to the Project Manager and Safety Director as soon as possible after the incident occurs.
    - Leads and conducts a Daily Safety Review with the FCI Workers at each jobsite on each working day. Enlists the safety input and signature from each Craftsman working at the jobsite while completing the daily safety review. Submits the completed Daily Safety Review (form # 8) to the safety office.
    - Ensures that a jobsite safety survey (form # 1) is completed each week at each jobsite. Follows up on corrective actions.
    - Maintains a required stock of personal protective equipment (glasses, dust masks, hearing protection, welding mask, skin protection, hardhats), provided by the Safety Office so that clean, undamaged personal protective equipment is continuously available to the Trades. Verifies the adequacy, proper use, and maintenance of safety equipment issued for the job.
    - Engages the workforce in a weekly safety topic distributed by the Safety Department. Each worker is to sign the weekly safety topic. Weekly topics attendance is recorded by the Safety Office.
    - Ensures the immediate tagging-out and removal from service of any equipment or process that presents and unsafe condition.
    - Maintains current certifications in (CPR-AED-1st Aid) Cardio-Pulmonary Resuscitation, Automatic External Defibrilator) for use if needed at the jobsite.
    - Is scheduled to complete, or has completed an approved OSHA 30-hour Construction Safety Course.
    - Coordinates with trained Rigger to evaluate adequacy of rigging equipment, wire rope, shackles, blocks, slings, rope, etc.
    - Continuously verifies the proper functioning of tools, power equipment and fire extinguishers used at the jobsite.

- Recognizes need for, and makes timely requests for safety equipment, safety harnesses, lanyards, fall prevention equipment, protective welding gear, etc. that may be needed at the jobsite.
- Audits and verifies completion of documented daily pre-use inspection of Lulls, Boom Lifts, Scissor Lifts, scaffolds.

- Field Craftsman
  - Are responsible for their own compliance with all safety and accident prevention programs and rules. Any worker who has knowledge of, or perceives equipment to be in any way unsafe will immediately bring it to the attention of his Superintendent.
  - Follows the safe work practices commonly recognized in the construction industry or the FCI Safety Program.
  - Works in accordance with good safety practices at all times. If the employee feels that he/she has been ordered into an unsafe situation that they cannot correct, they will remove themselves from the area and warn others of the hazard. Once they are in a safe area they are to contact the jobsite Superintendent to report the unsafe condition. If the Superintendent does not take action or orders the employee back to the alleged hazard area, the employee is to contact the Safety Director.
  - Each FCI Employee uses required safety equipment and personal protective equipment as indicated in the Personal Protective Equipment (PPE) Policy.
  - Performs assigned tasks in a safe manner without taking imprudent chances or risks.
  - Remains alert to unsafe acts and potentially hazardous conditions created by other workers.
  - Does not hesitate to warn coworkers of any perceived safety risk. FCI Workers safeguard the well-being of each other.
  - Reports all unsafe conditions to the Superintendent.
  - Contributes to housekeeping efforts to keep the worksite clean, sanitary and orderly.
  - Reports all injuries, regardless of the seriousness of the injury, to the Superintendent immediately.
  - Attends and participates in the daily safety review and the weekly safety talk.
  - Is responsible for maintaining training and certification as is needed to operate certain types of equipment (example: licenses and training certificates for Lull, fork lift, scissor lift, boom lift, crane, scaffold, rigging).
- Estimators
  - Estimators will ask for input regarding customer site-specific safety and environmental concerns that may not be immediately apparent when placing a job bid. Examples are working with or around asbestos, lead, underground tanks, planned excavations, confined space entry, special background check requirements, buried utilities, or other hazardous situations that may require special handling.
  - Attend a pre-bid walk through to determine the presence of hazardous conditions that may impact the construction project costs.
  - Fully participate in obtaining, and wearing the required personal protective equipment while visiting the jobsite. As a minimum, hard hats, safety glasses, sturdy shoes, and appropriate clothing are required at all jobsites.
  - Conduct and record a site safety audit when visiting a FCI jobsite.

FCI CONSTRUCTION EMERGENCY CONTACT INFORMATION			
Name and Title	Mobile phone	Office Phone	Other Contact

Equal Opportunity Employment

PURPOSE

To define the FCI Construction commitment and Policy for equal opportunity employment.

SCOPE

The Equal Employment Opportunity policies apply to each Employee and potential employee of FCI Construction.

RESPONSIBILITIES

- FCI Construction is an Equal Opportunity Employer, committed to fostering equal employment opportunity to all persons without regard to their race, religion, sex, national origin, age, veteran status, union affiliation, disability, and any other legally protected class.
- It is the policy of FCI Construction to assure that applicants are employed, and employees are treated without regard to their race, religion, sex, national origin, age, disability, veteran status, genetic information, or any other legally protected class.
- Equal employment opportunity actions apply to employment, promotion, transfer, demotion, recruitment, layoff, termination of employment, rates of pay and selection for training.
- Issues related to equal employment opportunity can be directed to the FCI Human Resources Officer.

New Hire Safety Orientation

PURPOSE

To provide new hires at FCI Construction a review and reinforcement of the safety policies and procedures, which apply to their job assignments.

SCOPE

The new hire orientation procedure applies to all FCI New Employees.

REQUIREMENTS

- The Project Superintendent, Employee's immediate Supervisor or the Safety Director will instruct the new hire in the rules and regulations outlined in the FCI Orientation packet. The instruction is provided to every new hire prior to work assignment.
- There is an expectation that all Employees know and practice the Basic Rules of Construction Safety.
- Documentation of the safety orientation is obtained for each new hire by completion of the New Hire Orientation Sign-off sheet. The Site Superintendent will review the New Employee Orientation with each New Hire, and send the completed paperwork to the FCI Home Office. Signatures and legible information must be provided by each Employee before starting work. Workers can expect payroll delays if signatures, substance abuse screening numbers and other information is not complete, or is not legible. Employees are responsible for providing their screening number from the union endorsed screening program, if they do not have the number readily available, a phone number is provided on the employee application to call and obtain. New Apprentice Trades may not have yet obtained their screen id number, if this is the case the worker must promptly follow-through with the screen procedure specified by their representative union and provide the number as soon as it is available. Superintendents will check new hire orientation paperwork to make certain it is complete. The Superintendent or other FCI Representative must verify at least two forms of identification from each new employee in order to verify US citizenship. Usually the needed information is found on a drivers' license and social security card. ID cards are not kept or copied, they are returned immediately to employees after the information is verified as accurate on the I-9 form.
- Employee Certification of Training for non-routine or special skill job responsibilities is required. Confined space entry, operation of Lulls and fork lifts, using scissor or boom personnel lift devices, using powder actuated tools, rigging of loads for hoisting, wearing of respirators, handling of hazardous materials, administering first aid and CPR, Crane Operator License, and welding are all examples of job tasks that require proof that the employee has achieved adequate skills and knowledge before attempting the task in the workplace. Training documentation is maintained by the FCI Safety Office.
  Knowledge and skills certifications are provided through Union training programs, private training programs, or training provided by FCI. Even an experienced Lift Operator with many years of safe operating history, requires periodic re-training.

Certification of successful training is required every three years for a Lull or fork lift Operator. All employees are asked to provide copies of training documents for the construction skills they have attained (Lull Operator Cards, Rigging Training, Scaffold Competent Person, Confined Space Entry, Respiratory Protection Training, etc.). Employees will please keep their original training documents, while providing copies to their Superintendents. FCI values and appreciates skills attained by our Workforce.

- All Employees must have knowledge of certain programs prior to starting work. These programs include the Hazard Communication (HazCom) program, the BioHazard control program, the site specific emergency response program posted at each jobsite, and the FCI policy for the use of personal protective equipment. Each FCI Employee has ready access to the HazCom information for each chemical they might work with including the safety data sheets for each chemical product. Employees will ask the Superintendent or Safety Director if they need further information about any chemical they work with. Employees will follow the use instructions for the chemical materials used, and will use the personal protective equipment recommended for protection. All product containers are labeled with the name of the chemical product they contain.

THE BIOHAZARD CONTROL PROGRAM

All Employees must know how to avoid exposure to pathogens that can be found in blood, saliva, or other body fluids. Pathogens are live bacteria or viruses that can cause disease and/or illnesses unless protective measures are taken. Blood, urine, feces, and saliva, are some examples of body fluids that may contain potentially infectious materials. These body fluids can be encountered in the workplace when an injured worker may bleed, vomit, or otherwise release body fluids that others could become exposed to. Each FCI employee will use gloves and safety glasses “universally” to protect themselves from exposure to a biohazard that they may encounter at the jobsite. A BioHaz Spill Kit is furnished at each FCI Jobsite to protect employees from exposure when cleaning-up infectious spills and accidents. FCI employees do not hesitate to ask their Superintended and/or the Safety Director for any further information about how to avoid exposure to blood borne pathogens in the workplace. Each Superintendent, many workers, and FCI Management Representatives are trained in first aid/CPR/and BioHaz clean-up procedures. Each affected employee will be notified if special biohaz control practices are required in certain health-care, laboratory, or other jobsites.

SUBSTANCE ABUSE PREVENTION PROGRAM

FCI has implemented a substance abuse prevention program designed to provide a workplace free of alcohol and drug abuse. The FCI substance abuse policy has requirements for initial, random, probable cause, and post-accident drug and alcohol testing for all employees. The use, possession, transportation, solicitation, distribution or sale of drugs by anyone while on company business or premises is absolutely prohibited. Prohibited drugs are defined as illegal drugs, controlled drugs or the illegal use, sale or distribution of prescribed drugs. The company prohibits any employee from being at work or working under the influence of drugs or alcohol, regardless of the degree of physical or mental impairment the employee may be

experiencing. This policy includes the misuse of prescribed drugs contrary to what the treating physician advises. Any violation of these rules by any employee while on company business or premises will be cause for disciplinary action up to and including discharge and referral to law enforcement agencies. The term "company premises" includes all property, buildings, structures, job sites, parking lots and vehicles under the control of the company or otherwise being utilized by the company. FCI Construction cooperates in the substance abuse prevention programs endorsed by the Skilled Trade Unions. Tradespeople are responsible for maintaining ready-to-work status as is detailed in the substance abuse prevention programs endorsed by their respective Unions. Employees must provide their program id number and maintain a "cleared" or "available" status if they are working at a FCI jobsite.

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

FCI has implemented a 100% eye protection requirement. Each Employee is obligated to wear appropriate eye and face PPE while working at each FCI Construction site. Trauma, particles, chemicals and radiant energy cause thousands of eye injuries each year among Construction workers. Some forms of radiant energy are invisible but still cause damage to your vision. High velocity particles and other debris *can and do* find their way into the eyes of workers who are wearing *only* ANSI approved safety glasses with side-shields. Workers will wear BOTH ANSI approved eyeglasses AND a face-shield when chipping, cutting, machining, grinding metals and during other tasks that present a high velocity particle risk to the eyes. Welding, cutting and thermal brazing will require the use of correctly shaded eye protection. All FCI Employees wear hard hats at all times at every job. Jobsites require the wearing of high visibility outerwear to provide greater visibility of workers around moving equipment and vehicles. Certain tasks may require other forms of PPE such as dust masks, hearing protection, or barrier gloves and clothing. FCI provides their workers with appropriate PPE.

BACKGROUND CHECKS FOR EMPLOYEES

Some of our clients require that FCI Construction, and Sub-Contractors under the control of FCI Construction, conduct background checks to verify that all employees who work at certain projects have no evidence of criminal, violent, or sexual offender history. Usually it is a School Corporation that requires criminal and sex offender background checks for all Contractors on-site. In some cases, clients may require that offender history be checked for each contractor employee. FCI maintains criminal history, driving history, and substance abuse program information with utmost confidentiality.

VERIFICATION OF CITIZENSHIP

FCI verifies the citizenship status of employees by entering information provided on the I-9 form into the E-Verify database maintained by the US Government. All information is held securely and with discretion. Those who have unacceptable criminal offense records may not go to background check sensitive jobsites.

BASIC RULES OF CONSTRUCTION SAFETY FOR ALL CONSTRUCTION WORKERS

All FCI Employees and each FCI Sub-Contractor are expected to read, understand, sign-off, and abide by these Basic Rules of Construction Safety.

1. Each Tradesman, each Tradeswoman, each Superintendent, each Employee and the Management of each Contractor and Subcontractor involved with any building project is responsible for job-site safety. Immediately report unsafe conditions, to your Superintendent. Every Worker is responsible for safety at a construction jobsite.

2. All Workers MUST report unsafe conditions to their Superintendent. Under no circumstances should a worker hold back on speaking up about a possibly unsafe condition. Under no circumstances will a Worker be punished or penalized for pointing out a hazard in need of correction.

3. Immediately report all first aid cases, injuries, property accidents and near miss events to your Superintendent. Near miss events are “close calls” reported to prevent them from happening again. A written report using FCI Incident Report (form # 6 or equivalent) is submitted within 24-hours for workplace accidents, injuries, first-aid cases, and near misses.

4. Even if you think an injury is minor and you can shake it off, please report all injuries when they happen. Quick care for an injury can reduce the overall severity and improve the outcome of the injury. All FCI Superintendents are current certified 1st aid and CPR providers.

5. Hard hats are worn at all times at all jobsites.

6. All personnel at the jobsite wear a minimum of tinted or clear ANSI approved safety eyewear with fixed side shields at all times at all jobsites. Both ANSI approved eyewear and face protection must be provided for protection from flying objects, particles, liquids, harmful radiation, grinding, chipping, burning, welding, brazing or operating a cutting torch. The form of face protection will vary depending upon the hazard. Exposures to grinding/chipping/flying debris require the use of mesh screen or solid plastic full-face shield to provide additional protection beyond just safety glasses. Splash resistant goggles are worn for exposures from splashing or spraying of liquids. Welding always requires the use of a welding mask with the appropriate light filtering shade.

7. Workers dress properly with appropriate work clothes including trousers, a shirt with sleeves, and sturdy work shoes or boots. Loose clothing, loose jewelry, or loose hair that presents an entanglement hazard must never be

worn at the jobsite. Remove jewelry, tie hair up and back. Do not wear gym or sport shoes to work. High visibility outerwear is required at many jobsites. Some jobsites may require the use of steel toe/steel shank work boots or other special safety wear.

8. Comply at all times with all federal, state and local safety regulations, and the safety policies established by your Company. FCI and FCI Subcontractors fully comply with the regulations adopted by law in the Code of Regulations (CFR 1926, Construction Industry Standards). All FCI Superintendents have completed an OSHA 30-hour Construction Safety Course, in addition, Superintendents have accumulated years of jobsite safety experience and are familiar with the safety regulations. Ask your Superintendent for safety advice.

9. Properly care for and be responsible for all personal protective equipment (PPE) such as your hard-hat, safety glasses, gloves, dust mask, hi-vis outerwear, etc. Swap out damaged or worn PPE through your Superintendent when replacements are needed. PPE is provided for each worker by their employer.

10. Stay clear of suspended and overhead loads. If a load is to be moved above where you are working or walking, stand well clear until it has passed. Lift zones should be clearly barricaded with signage to warn workers of the overhead hazard. All workers cooperate with the Crane or Lift Operator to avoid the overhead hazard danger zone while they make their lifts.

11. Boom lifts require the use of a full-body harness and lanyard for each basket occupant. Training is required for any Boom Lift Operator. All Boom lifts are inspected in writing before each shift of use.

12. Scissor lifts do not usually require a harness and lanyard. Scissor lifts are a form of “mobile scaffolds” and the guardrails that enclose the scissor lift platform provide fall protection. As with any scaffold, occupants must not overreach or overstep the rails that surround the platform. Workers feet must remain on the floor of the scissor lift during use. Keep the opening in the rails shut after you enter the scissor lift platform, the chain or swinging gate must be latched to make the guardrails complete.

13. Both scissor and boom lifts are to be operated on level, firm surfaces. They can tip over when raised from an unlevel base. High winds gusting over 20-mph can cause a scissor lift to become unstable or tip. Sheet goods moved in a scissor lift can act like sails in high winds. Sheet goods being moved inside

the scissor lift can fall inside of the scissor lift platform striking workers within the guardrails.

14. Workers do not operate machinery or material handling equipment unless both trained and authorized to do so. Workers must have documented training and permission before operating lulls, forklifts, Bobcats, motorized pallet jacks, scissor lifts, boom lifts, cranes or any motorized construction mobile equipment. Do not hitch rides on material hoists or other motorized mobile equipment. Remove and secure the keys to all material handling equipment at the end of each working day.

15. Each piece of motorized equipment must be inspected by the Equipment Operator prior to each shift of use, document the daily pre-use inspections in writing using the inspection log. Daily inspection logs are kept in waterproof packets on each piece of equipment, fresh inspection logs are kept by each Superintendent.

16. Seat Belts are worn when operating ALL equipment furnished with a roll over protective system (ROPS). All Lulls, fork-lifts, Bob-Cats, Skid Steers have ROPS. The drop down bar found on BobCats and SkidSteers is NOT a seat belt, it is an interlock mechanism designed to prevent activation of the hydraulics. If using a BobCat/SkidSteer use BOTH the drop down bar and a properly snugged seat belt.

17. Understand and know the site emergency response plan posted at the jobsite. The emergency response plan tells how to respond to a worksite emergency, injury, fire, take cover event, severe weather, site evacuation or workplace violence event. The emergency response plan is written for each jobsite with unique information like what clinic to use and what numbers to call.

18. Practice good housekeeping at all times. Continually pick up trash, banding, and scrap building materials. A cluttered work place increases the chance of injuries. Properly secure and store materials that could become airborne during severe weather and high winds.

19. Contain and collect any spills of fuels, lubricants, antifreeze, hydraulic oils, sealers and other chemical products that may be released at the jobsite. Absorbent materials, sand, and soil can be used to absorb materials. Spills are contained and collected quickly to prevent further spreading of the contamination. Immediately notify the Superintendent of any spills that occur on the jobsite, the Superintendent will promptly notify the Safety Department.

Prevent chemical products, fuels, etc. from entering into any sewer or waterway.

20. Tobacco use is prohibited at most jobsites. Do not use tobacco at tobacco-free jobsites. On sites that allow tobacco use dispose of cigarette butts properly, make sure they are extinguished, make sure they are in a waste container. Never smoke or produce open flames near a fuel storage area.

21. Inspect each ladder before each use. Do not use ladders with damaged rungs or rails. All ladders in need of repair must be immediately tagged-out, removed from service, and reported to the Superintendent. All access ladders are to extend at least three feet above the landing platform and be securely fastened at the top to prevent shifting. Maintain a three point contact with the rails and rungs of the ladder when climbing. Do not carry things while climbing up or down a ladder, use a hand line. Conductive metal rail ladders are not used at FCI jobsites. Step ladders are to be fully opened and locked into the open position before use.

22. Gasoline, diesel fuel, and other flammable liquids must be stored and transported only in safety cans. Engines must be shut off when refueling. Never allow smoking or open flames near flammable liquids or gases. Fuel depots, when furnished at the jobsite require a 2A extinguisher placed 25 to 75 feet from the fuel tank. Fuel depot tanks must have secondary containment in the event of a tank leak. Fuel depots, fuel tanks, and compressed gas cylinders are protected from jobsite traffic by the placement of special physical barriers or barricades.

23. Secure compressed gas cylinders in an upright position to prevent tipping of the cylinder. Valve caps must always be in-place when the cylinder is not in use. Oxygen is stored at least 20-feet from flammable gases or liquids, or separated by a 5-foot high fire wall with at least a 30-minute fire rating. Never attempt to repair damaged or leaking cylinders. Never lubricate or use oil on cylinder valves.

24. When brazing, welding, thermal cutting, grinding or when any sparking occurs at any jobsite a FCI Hot Work Permit (form # 12 or equivalent) is opened by the Superintendent. A hot work permit is required for work inside where combustible materials are located within 35-feet of the flame or spark generation. A hot work permit is required for work outside where combustible materials are located and flame or spark generation occurs. Wind can carry an ember away from the immediate hot work site. Dry brush, grass, and debris found outdoors can produce a significant fuel load, resulting in destructive

fires when ignited. Hot work permits protect against a fire starting at a jobsite both during and after work. When you use a hot work permit, the spark or flame generating work must stop at least ½ hour before leaving the immediate area of hot work. At least one worker must complete a fire watch for at least ½ hour before closing out the hot work permit. Hot work permits are closed-out and turned into the Site Superintendent at the end of each shift. A new permit is required for each shift of worker at each separate hot work location. FCI does not burn trash, lumber, brush or debris at any jobsite, this waste is placed into the proper waste receptacle. Some jobsites require the isolation of different waste types into different dumpsters. If isolation is required, mixing of waste types (trash/wood/masonry/metals) can result in costly penalties.

25. Never leave a hole or opening in a floor or roof unprotected or uncovered. A strong, firmly fastened, cover or guardrail must be provided at each floor and roof opening. Covers are made of minimum ¾ inch plywood. Chipboard or oriented strand-board is never used to cover an opening. Label floor opening covers with the word “HOLE”. Openings subjected to equipment traffic require stronger covers such as steel plate, or the area surrounding a plywood cover can be encircled with a strong guardrail barrier to prevent heavy equipment or excessive loads from passing over the floor covering. Use strong fasteners to lock the cover in-place. Label (paint) the cover with the word “HOLE”.

26. Inspect tools before each use. Do not operate tools unless guards and safety devices are in-place and in proper operating condition. Keep your tools in good condition. Attach a “Danger Do Not Use” tag to defective tools and equipment when removing them from service. Prevent the use of damaged equipment or tools, tag and take them out of service.

27. Horseplay, fighting, verbal intimidation or harassment of coworkers is not tolerated. All Contractors work as a Team to avoid disruption and conflict while building the project.

28. All chemical product containers must be properly labeled and in approved storage containers at all times. Even the water in a carboy or barrel used for mortar mixing must be labeled. Containers of new chemical products are properly labeled and shipped in approved containers from the manufacturer. Self-closing safety cans are used to store gasoline (red can) and diesel fuel (yellow can). Dented or damaged fuel cans are emptied, tagged-out and removed from service immediately. Chemical products are never stored in damaged or leaking containers. Do not re-use empty chemical product containers unless the labeling information is completely removed, the container is thoroughly cleaned and rinsed, and relabeled properly.

Do not drop materials or tools from scaffolds or other high places. When working from scaffolds or elevations use either toeboards or barrier tape to protect and warn those who may pass by the base of the scaffold.

29. Ask if you have questions about any chemical product used in the workplace. FCI uses the services of 3E Company to provide safety data sheet (SDS) information. Call 800-451-8346 at any time to obtain faxed, emailed, or over-the-phone safety data sheet information about any chemical product at the jobsite. Chemical lists and safety data sheets must be updated as new chemical products come on-site.

30. Remove, cut-off, or hammer down protruding nails, screws, or staples that could injure your or your coworkers. Remove or cover laceration hazards. All rebar, form stakes, conduit and other impalement hazards, are covered with approved rebar caps or other means to prevent impalement.

30. Obey warning flags and signs posted to warn you of hazards or danger. Red barrier tape means danger, do not enter areas barricaded with red danger tape.

31. Yellow caution tape indicates a possible hazard, proceed slowly and with caution if you see yellow caution tape.

32. FCI will write and distribute a relevant safety talk on weekly basis to the FCI Workforce. The completed weekly safety topic sign-off sheet is submitted by the Superintendents either in hard-copy or electronic format.

33. FCI uses GFCI type breaker devices to provide protection from dangerous contact with electricity while using power tools. Workers connect the GFCI closest to the 110-volt power source so that the entire length of the circuit is protected. Damaged cords or electric devices are tagged out and removed from service immediately. Use only undamaged extension cords equipped with a three prong plug. The need for GFCI type protection applies to the use of any 110-volt power supply indoors or outdoors used at a construction, demolition or remodel project.

34. Hearing protection is provided for workers exposed to noise levels above 85 dBA (decibels on the A weighted scale as per 29 CFR).

35. Documented training is required for Excavation Competent Person, Scaffold Competent Person, Rigger, Signal Person and Crane Operators. Equipment Operators of Lulls, forklifts, boom lifts, scissor lifts, BobCats and SkidSteers are

required to have up-to-date Operators Licenses which are periodically renewed. Employees must have copies of training certifications before operating this equipment.

36. Please look out for yourself and your Coworkers. Prevent injuries and accidents.

LADDER SAFETY

Ladders (step ladders and extension ladders) are used by all Trades at some time. According to OSHA, documented training is required for anyone who uses a ladder. Please review, understand and apply these rules that apply to ladder safety.

1. Tie off the top of the ladder to keep it from shifting, sliding or pushing off.
2. A change in elevation of 19-inches or more needs a ramp, stairs, or a ladder.
3. 25 or more Workers on a raised work area require at least 2-ladders.
4. Step ladders must have the spreader lock engaged. Don't lean a step ladder, open the step ladder fully and lock it.
5. Portable ladders (extension and step ladders) must extend at least 3-feet above the landing surface where the worker steps off. Tie all ladders off to prevent shifting. Tie the ladder to a secure anchor point with stout rope or tie-wire
6. Place an extension ladder at an angle so the horizontal distance from the top support to the foot of the ladder is one-quarter the working length of the ladder.
7. Place the ladder on a stable level surface. Don't let the rails sink in soft soil or mud.
8. Do not use the ladder on a slippery surface unless you secure the bottom too.
9. Ladders installed where they could be displaced by traffic, passageways, doorways, driveways need to be secured to prevent displacement or barricaded to keep activities and traffic away.
10. Keep the area around the top and bottom of the ladder clear. Ladder falls are bad. Ladder falls onto "objects, pallets of block or equipment" could be worse. Blockage around the top and bottom of the ladder can cause tripping.
11. The top of the ladder should be placed with the two rails supported equally, then tie it off to a secure anchor.
12. Do not move or shift the ladder while it is occupied. Do not extend the ladder rails while the ladder is occupied.
13. FCI uses ladders with non-conductive side rails, Do not use all metal ladders.
14. Do not use the top hinge plate of a step ladder. The top hinge plate of a step ladder can accommodate tools or a paint pan. Do not use the top step of a step ladder. The top step is NOT the top hinge plate of the ladder where the front and back rails are hinged. Notice the top step has a warning label not to use. Don't stand on the top step, or sit or stand on the top hinge plate. Remember to remove tools that you place on the step ladder before you move it, a forgotten tool can strike you when it falls off the ladder.
15. Crossbracing on the rear of a step ladder is not used for climbing (unless it is designed and provided with both front and rear steps).

16. Each worker inspects the ladder before each use. A competent person is to inspect the ladder periodically for damage, and after any mishap that could affect the safe use of the ladder. Do a check of the ladder before each use.
17. If the ladder is damaged, cracked or broken in any way, tag it out, take it out. Securely attach a red and black “Danger Do Not Use” tag. Remove damaged ladders (and all damaged equipment) from service immediately.
18. Always face the ladder when climbing up or down.
19. Maintain 3 points of contact on the ladder when ascending or descending the ladder.
20. Do not carry objects or loads that could cause an employee to lose balance or fall

SCAFFOLD SAFETY

All persons who occupy and use a tubular welded frame scaffold are required by OSHA to be trained prior to use. Training includes a good knowledge of what the OSHA standard requires and the ability to apply that knowledge. The Specific OSHA standard that applies is found in the Construction Industry Standard 1926.450, 451, 452, 453, and 454. This training covers only tubular welded frame scaffold systems. Section 1926.450 is definitions used in the Standard. Some important definitions are as follows:

- Bearer - a horizontal transverse scaffold member (which may be supported by ledgers or runners) upon which the scaffold platform rests and which joins scaffold uprights, posts, poles, and similar members.
- Competent Person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.
- Exposed power lines - electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.
- Fabricated frame scaffold or tubular welded frame scaffold - a scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.
- Failure - load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.
- Guardrail System - a vertical barrier, consisting of, but not limited to, toprails, midrails, and posts, erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

When erecting, dismantling, or modifying a s tubular welded frame scaffold, a Competent Person shall determine the feasibility of providing means of access and fall protection during these operations.

- Supported frames must bear on baseplates or screw jacks and must be placed on a firm foundation. Mudsills when used, are at least 2x10x12-inches for scaffold up to 4-frames in height. If the scaffold is greater than 4-frames in height the mudsills shall be 2x10x18-inches minimum. Nominal dimension lumber may be used for mudsills.

- Prior to the placement of mudsills, the terrain must be level. Screwjacks are to be secured to the mudsills to prevent slippage of dislodging. At least two alternately placed 16-penny nails will secure the screwjack baseplate to the mudsills. Nails are driven in about half way and bent over so they can be removed from the mudsills.
- All bracing shall be put in place on any scaffold bearing weight.
- Scaffold pins/pigtails are to be used in ALL locations, front and back.
- Scaffold are to be fully planked when used as a working platform. Scaffold plank is inspected by the Competent Person before each shift of use. Reject plank that have split ends, bows, cracks. Reject scaffold with forklift spears, dents and gouges. Reject scaffold with saw kerfs, notches or holes. Reject scaffold with fungus, decay and insect damage.
- Scaffold plank are lapped a minimum of 12-inches over a horizontal supporting member.
- Scaffolds are braced to the wall at a minimum of every 3 frames in height as well as every 4 frames in length. Bracing must be attached at a location with a horizontal member that supports both the inner and outer leg of the frame.

Working layers of scaffold above 10-feet shall have the following:

- End gates, or equivalent, placed at all ends of the open frames.
- Walk-off protection is to be placed at all ends of open walk plank.
- Mid rails and tip rails are to be in-place at all scaffolds and openings.
- When using cross bracing as a guardrail, it works as either a mid rail or a top rail NOT BOTH a straight rail must always be added to serve as the missing top rail or missing mid rail
- When using standard straight rails follow these rules for top and mid rails. The height of the top rail must be been 38 and 45-inches above the work platform. Midrails are installed about half way between the top rail and the work surface.

Scaffold access must be provided for all Trades including Masons and Tenders. This includes workers on a single buck.

- Use extension ladders or scaffold stairs. Climbing regular narrow scaffold bucks is not acceptable.
- A red and green tag system is put in-place to indicate that a competent person has inspected the scaffold and determined it to be safe. A red tag indicates that the scaffold is not OSHA compliant. No employees of any Trade is to use a red-tagged scaffold. The only exception is when the scaffold is being assembled or disassembled. A red tagged scaffold can be signed and remain in place for any duration without being inspected on a daily basis. A green tagged scaffold indicates that the scaffold meets all of the guidelines set-forth in the OSHA guidelines. Green tagged scaffolds are inspected and signed-off before each shift by a Scaffold Competent Person.

FCI Construction hires skilled Tradesperson who understand safety requirements in a commercial construction environment. As a condition of employment, each FCI Employee must use safe work practices at every construction site.

STOP WORK AUTHORITY

STOP
NOTIFY
CORRECT
RESUME

As part of this training, each Employee is made aware that they have the authority to stop any unsafe act or condition immediately. As stated previously, each Tradesperson, each Superintendent, each Foreman, each Employee, and the Management of each Contractor and Subcontractor involved with any building project is responsible for job-site safety.

All Employees MUST report unsafe conditions to their Superintendent even when there is no control of health and/or safety risk clearly established or understood – meaning Safety Policy for example or IOSHA regulation. Under no circumstances should an Employee hold back on speaking up about a possibly unsafe condition or act. Under no circumstances will an Employee be punished or penalized for pointing out a hazard in need of correction. Your help in preventing injury or illness is greatly appreciated.

Stop – stop work which is believed/known to cause injury or illness
Notify – notify foreman or superintendent of unsafe condition(s)
Correct – supervision will ensure the unsafe condition is remedied
Resume – continue work under safe conditions

Once a situation is reported and work has been stopped, all affected Employees members MUST also stop work until the Stop Work issue is resolved. No work will resume until Supervision has addressed all issues or concerns, evaluated the job location, discussed with the Employees/Contractors involved, and reevaluated the scope of the work in question. Again, the work will not resume until this done. The Site Superintendent and/or Masonry Supervision, has the overall responsibility of supporting a safe and productive workplace. The H&S Director, Project Management, and Executive Staff have the responsibility of supporting the Site Superintendent and Masonry Supervision. The Site Superintendent or Masonry Supervision will document the Stop Work in their Daily Safety Review.

The Project Manager will review the Stop Work documentation in evaluation of exposure and follow-up with Site Supervision and others (e.g. Contractor) in an effort to be vigilant in maintaining a safe work environment and closing the review. This training will be reviewed annually.

As a New FCI Employee by signing this document, I am stating that I have reviewed, I understand, and I will abide by the following parts of the FCI Safety Program:

1) FCI General Safety Program,
2) Hazard Communication Program,
3) BioHazard Control Program,
4) Substance Abuse Prevention Policy,
5) Personal Protective Equipment (PPE) Policy,
6) Criminal History background and Citizenship Verification Policy,
7) Basic Rules of Construction Safety,
8) Ladder Safety,
9) Scaffold Safety.

I know that failure to comply with construction safety requirements could prevent me from being a FCI Employee. I also know that by providing my signature and personal information, I hereby give FCI Construction permission to verify my citizenship, criminal background history, and my current participation in a substance abuse prevention program.

Printed Employee Name _____

Signature of Employee _____

Orientation given by _____ Date _____

Substance Abuse Prevention Policy

FCI maintains a safe, healthful and efficient working environment for all of its employees and customers. Part of our safety plan is to provide a work-place free of substance abuse. The use of illegal drugs, improperly used prescription drugs, or consumption of alcohol during work is an unacceptable threat to the safety of our employees, our customers, and the communities in which we do business. Abuse of a legal drug or alcohol is defined as any use of a legal drug or alcohol which negatively impairs a person's faculties while on the job, (other than the use of a legal drug for appropriate purposes in accordance with applicable medical directions).

Alcohol refers to ethyl alcohol created as a process of fermentation. Examples include beer, wine, or liquor/spirits of various types, mixtures and concentrations. Employees are prohibited from using alcoholic beverages during working hours or within six (6) hours prior to reporting for duty. Employees are not to be under the influence of alcohol while at work or on Company time. Employees are not to use or possess alcohol on Company property in an unauthorized manner.

Controlled Substances/Illegal drugs include those listed in the following table. The drug testing program will test for the following drugs at the levels listed, or any drug or substance defined as a controlled substance and included in schedule I, II, III, IV, or V under the Federal Controlled Substance Act, 21 USC section 801. FCI reserves the right to update this list of controlled substances when the list is added to, changed, or when the screening or testing levels are modified in accordance with the U.S. Department of Transportation or other accepted standards.

Name of substance	Initial Screening Measured in ng/mL	Confirmatory Testing Measured in ng/mL
Amphetamines	1000	
Amphetamine		500
Methamphetamine		500
Cocaine Metabolites	300	150
Marijuana	50	15
Opiate Metabolites	2000	
6-Acetylmorphine		10
Morphine		2000
Codeine		2000
Phencyclidine (PCP)	25	25
Barbituates	300	200
Benzodiazipines	300	300
Methadone	300	300
Propoxyphene	300	300
Methaqualone	300	300
Alcohol	Breathalyzer	0.04 BAC

The integrity of collected urine, breath or blood samples will be ensured by following the U.S. Department of Transportation urine specimen collection guidelines for the collection of samples that provide for a continuous chain of custody, and which recognize privacy concerns regarding the individuals tested. Testing of samples will be done by accredited laboratories that have certification through the U.S. Department of Health and Human Services. Positive screen results will be confirmed by gas chromatography/mass spectrometry technology. A Medical Review Officer (MRO) will review all drug tests prior to certification of final results. The MRO is a Medical Doctor with specialty training and expertise in substance abuse and drug testing. The MRO will review all test results to insure that proper procedure, protocol and reporting is done. The MRO will interview each person with positive test results to assess whether any plausible explanation exists for the positive drug test.

Legal Drugs are drugs for which there is a valid medication prescribed for a specific employee or employee use of an over the counter medication. When an employee is using a prescription or over the counter medication which the employee or his/her physician believes will negatively affect the employees' ability to safely perform their assigned job duties, the employee must notify the job site Superintendent about use of the medication. The prescribed drug must be taken in accordance with the prescribers (Physician) directions. Employees will keep prescription drugs and over the counter drugs in the original pharmacy container. Taking of a prescription drug that was prescribed for another is considered abuse of a legal drug.

A Medical Review Officer (MRO) is a licensed physician authorized to receive, and interpret laboratory results generated as a result of a drug or alcohol testing program. The MRO has knowledge of substance abuse disorders and has appropriate medical training to interpret and evaluate confirmed test results, together with the individual's medical history and any other relevant biomedical information.

FCI has implemented a substance abuse prevention program designed to provide a workplace free of substance abuse. The FCI substance abuse policy has requirements for pre-hire, random, probable cause, and post-accident drug and alcohol testing for all employees. The use, possession, transportation, solicitation, manufacture, distribution or sale of prohibited drugs by anyone while on company business or premises is absolutely prohibited. Prohibited drugs are defined as illegal drugs, controlled drugs or the illegal use, sale or distribution of prescribed drugs. The company prohibits any employee from being at work or working under the influence of illegal drugs or alcohol, regardless of the degree of physical or mental impairment the employee may be experiencing. This policy includes the intentional misuse of prescribed legal drugs and over the counter medications. Any violation of these rules by an employee while on company business or premises will be cause for disciplinary action up to and including immediate discharge and referral to law enforcement

agencies. The term “company premises” includes all property, buildings, structures, customer job sites, parking lots and vehicles under the control of the company or otherwise being utilized by the company. Any employee who is found to be under the influence of drugs or alcohol which impairs judgment, performance or behavior while on Company premises or Company business will be subject to disciplinary actions up to and including termination. FCI cooperates in the substance abuse prevention programs endorsed by the Skilled Trade Unions including but not limited to IUCSAT (Indiana Union Construction Substance Abuse Trust), BCRC (Building and Construction Resource Center) and the Ohio MOST (Mobilization Optimization Stabilization and Training) program.

All FCI Employees, including Tradespeople, Field Staff, Management Personnel and CDL Drivers are subject to pre-hire, random, probable cause, and post-accident drug and alcohol testing. Tradespeople are responsible for maintaining active or ready to work status as is spelled out in the substance abuse prevention program endorsed by their respective unions. Employees must maintain a “cleared” or “available” status before and while working at a FCI jobsite. The FCI Safety Director verifies each employee’s acceptable status in their respective union endorsed substance abuse prevention programs on a periodic basis.

As a condition of employment employees are required to abide by the terms of this policy and to notify the company in writing, of any federal and state criminal drug statute conviction involving the manufacture, distribution, dispensing, possession, or use of a controlled substance no later than 5-days after such conviction. An employee who is convicted may be subject to discipline up to and including termination, and/or may be required to satisfactorily participate in a substance abuse rehabilitation program which is approved by the Company. Any federal or state criminal drug statute conviction involving the manufacture, distribution, dispensing, possession, or use of a controlled substance will prevent an employee from operating company owned vehicles as stipulated by our vehicle insurance underwriter, or the State driving regulations related to substance abuse.

An employee’s refusal to submit to a drug or alcohol test when requested to do so may subject the employee to discharge. Any employee deemed unfit for duty because of a reasonable suspicion that the employee is under the influence of drugs or alcohol, will be instructed not to self-transport. A company representative will offer private or public transportation to take the employee to the testing center and/or to the employee’s home.

If the employee refuses transportation assistance, and indicates an intention to drive from a jobsite, the FCI Supervisor or Management Representative will document the

refusal and will warn the employee that appropriate law enforcement authorities will be notified.

FCI will maintain criminal history, driving history, and substance abuse program information for our employees with strict confidentiality. Personnel records regarding Substance abuse information will not be communicated outside FCI unless required by law. Evidence of substance abuse or substance abuse legal convictions can be used to exclude workers from eligibility to work at FCI job sites.

Questions about the Substance Abuse Prevention program are to be directed to the Safety Director.

Background Check Policy

PURPOSE

During certain construction projects, the Project Client/Owner and the Contractor/Employer has a legal duty to protect students, children, youth, employees, and other vulnerable populations which may be present at the construction site, from construction workers who have records of certain criminal activities. To further the protection of youth or vulnerable populations the Client/Owner, and/or Contractor/Employer require that all construction workers affiliated with certain construction projects undergo a criminal background investigation to eliminate any workers that have been convicted of or pleaded guilty to certain criminal violations.

SCOPE

In order to better protect the vulnerable populations that may be present at schools and institutions, laws have been established to evaluate the criminal histories of those who work at these locations. School Boards and other FCI Clients mandate that expanded criminal history checks be evaluated for all workers who participate in these building projects. An expanded criminal history check is defined as a search of records maintained by all counties or similar government agencies where the worker has resided. The records must be evaluated for all states and counties where the worker has resided, even those outside of the worker's current residence. Expanded background checks are done by State, Local, Federal, and Private Agencies. In addition to searching state and county criminal records, expanded criminal background checks mandate that sex offender registries in all 50 States be checked to verify that each worker is not a sex offender. The NSOPR (National Sex Offender Public Records) database is a service provided by the U.S. Department of Justice, it maintains records of sexual offenders from all 50 states, provinces and Indian Nations. As a minimum, both the criminal history evaluation and sexual offender registry check must be verified for each potential worker. The NSOPR database must be checked for all potential workers, even those who have no state or county criminal history records. School boards or other Clients/Owners may stipulate through contract documents, that additional levels of criminal background investigation must occur for workers who go to their jobsites. For instance, a school board may stipulate that all workers will participate in a FBI (Federal Bureau of Investigation) national criminal check, including a fingerprint analysis run through a national database. FCI Construction, Inc. will comply with the stipulations of all legally binding contracts.

RESPONSIBILITIES

Each FCI Employee or potential FCI Employee agrees in writing to submit to a criminal history background check when making the initial employment application process. Each FCI Employee agrees to notify the FCI Safety Director immediately if and when they have been charged with additional criminal charges. New criminal charges will be evaluated on both a preliminary basis, and a final basis after dismissal, disposition or sentencing for the criminal charges. The background check process is

administered by the FCI Safety Director. The Safety Director is responsible for protecting employee records in a confidential and discreet manner. Certain criminal activities may prevent potential employees from working with FCI Construction, Inc. This requirement for background checks applies to all employees of a Contractor holding a construction contract awarded by the Client/Owner who will perform work at the construction site. This requirement includes the employees of all Subcontractors to a Contractor who will be performing work on site.

IMPLEMENTATION

Certain criminal behaviors are legally justifiable reasons for not hiring offenders to work at schools and other sensitive building projects. The seriousness of these offenses requires employers to eliminate those convicted of these crimes from certain employment categories that would place them in possible contact with youth or vulnerable populations. State and Federal law has established uniform guidelines and standards for criminal conduct screening designed to deny employment for those who have committed certain crimes from working or volunteering in schools, childcare facilities, home health care facilities, community mental health centers, and other places that would put them in contact with youth, or other vulnerable populations. Those convicted of one or more of these 19 listed Offenses are not to work at Schools, certain institutions or other protected locations. This list may be added to or modified by legal mandates as issued by State (IC 20-26-5-11b) or Federal Agencies:

1. Murder or aggravated murder (IC 35-42-1-1)
2. Voluntary manslaughter (IC 35-42-1-3)
3. Causing suicide (IC 35-42-1-2), Assisting suicide (35-42-1-2.5)
4. Reckless homicide (IC 35-42-1-5)
5. Battery (IC 35-42-2-1) unless 10 years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later
6. Aggravated battery (IC 35-42-2-1.5)
7. Kidnapping (IC 35-42-3-2)
8. Criminal confinement (IC 35-42-3-3)
9. A sex offense under IC 35-42-4
10. Arson (IC 35-43-1-1) unless 10 years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later
11. Incest (IC 35-46-1-3)
12. Neglect of dependent as a Class B felony (for a crime committed before July 1, 2014) or a Level 1 felony or Level 3 felony (for a crime committed after June 30, 2014) (IC 35-46-1-4(b)(2)), unless ten (10) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.
13. Child selling (IC 35-46-1-4(d)).
14. Contributing to the delinquency of a minor (IC 35-46-1-8), unless ten (10) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.

15. An offense involving a weapon under IC 35-47 or IC 35-47.5, unless ten (10) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.
16. An offense relating to controlled substances under IC 35-48-4, unless ten (10) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.
17. An offense relating to material or a performance that is harmful to minors or obscene under IC 35-49-3, unless ten (10) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.
18. An offense relating to operating a motor vehicle while intoxicated under IC 9-30-5, unless five (5) years have elapsed from the date the individual was discharged from probation, imprisonment, or parole, whichever is later.
19. An offense that is substantially equivalent to any of the offenses listed in this subsection in which the judgment of conviction was entered under the law of any other jurisdiction

The Owner may permit a construction worker to work conditionally until the criminal background check is completed and the owner receives the results of the check. If the results of the check indicate criminal conviction associated with any listed offense, the Construction worker shall be immediately removed from the jobsite.

Indiana Code 35-42-4-14. Unlawful entry of school property by a serious sex offender

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Sec. 14. (a) As used in this section, “serious sex offender” means a person required to register as a sex offender under IC 11-8-8 who is:

(1) found to be a sexually violent predator under IC 35-38-1-7.5; or

(2) convicted of one (1) or more of the following offenses:

(A) Child molesting (IC 35-42-4-3).

(B) Child exploitation (IC 35-42-4-4(b) or IC 35-42-4-4(c)).

(C) Possession of child pornography (IC 35-42-4-4(d) or IC 35-42-4-4(e)).

(D) Vicarious sexual gratification (IC 35-42-4-5(a) and IC 35-42-4-5(b)).

(E) Performing sexual conduct in the presence of a minor (IC 35-42-4-5(c)).

(F) Child solicitation (IC 35-42-4-6).

(G) Child seduction (IC 35-42-4-7).

(H) Sexual misconduct with a minor (IC 35-42-4-9).

(I) A conspiracy or an attempt to commit an offense described in clauses (A-H).

(J) An offense in another jurisdiction that is substantially similar to an offense described in clauses (A) through (I).

(b) A serious sex offender who knowingly or intentionally enters school property commits unlawful entry by a serious sex offender, a Level 6 felony.

Each Worker is obligated to provide notification of any new arrest and/or criminal convictions to the Employer immediately. If an employee has had a criminal background check within the last 12-months prior to the date of contract award, which showed no violations of the 19 offenses listed above, the results of that background check can be used in lieu of conducting a new background check. A recent or prior criminal background check does not eliminate the requirement that each Employee report recent charges of arrest for criminal violations.

By definition, every exclusion for employment is done on a case by case basis. A brief written record of the reason for the employment refusal is maintained by the employer in the employee's personnel records. All Worker/Employee personal information is maintained with utmost confidentiality and security. Only the Safety Director, or other Administrative Personnel who have a need to know, will be allowed access to the personal information of potential, active or former employees.

At jobsites where background checks are enforced and mandatory, there are situations where a Construction Worker who has been convicted of certain non-egregious crimes (e.g. aggravated assault) *may* be permitted to work if all of the following conditions are met:

1. The offense was a misdemeanor,
2. The victim of the offense was not under 18-years of age,
3. At least 10 years have lapsed since the worker was fully discharged from imprisonment, parole, and probation, or if the worker has had the record sealed or expunged.
4. The worker provides written confirmation from the court of his rehabilitation
5. The worker's hiring will not jeopardize in any way the health, safety, or welfare of the persons served by the Owner. The following criteria must be considered in determining whether hiring of the worker will jeopardize those persons served by the Owner:
    a) The workers age at the time of the offense
    b) The age and ability of the victim, including whether the victim was an individual with physical or mental disabilities.
    c) The nature and seriousness of the offense
    d) The circumstances under with the offense was committed
    e) The degree to which the worker participated in the offense
    f) The time elapsed since the worker was fully discharged from imprisonment, probation or parole.
    g) The likelihood that the circumstances leading to the offense will recur.
    h) Whether the worker is a repeat offender to any of the 19 numbered offenses two or more times in separate criminal actions.
    i) The extent to which the job assigned this worker provides an opportunity for the commission of an offense listed in the 19 numbered offenses.

j) The worker's employment record.
k) The worker's efforts at rehabilitation and the results of those efforts.
l) Whether any criminal proceedings are pending against the worker.

The worker must provide written proof that the above listed conditions have been met. If the worker fails to provide such proof or if the Owner or Employer determines that the proof offered by the Worker is inconclusive or inadequate, the Worker will not be considered for employment. Any doubt shall be resolved in favor of protecting those vulnerable persons served by the Client/Owner and or Contractor/Employer.

A conviction or guilty plea to an offense listed (in the list of 19) will not prevent a worker from working if the worker has been granted an unconditional pardon for the offense pursuant to the law. Unconditional pardon includes a conditional pardon in which all conditions of the court have been performed, or the record has been legally expunged, or the criminal record has been restricted by court action.

This construction project requirement applies to all employees of all Contractors and Subcontractors who will be performing work at certain designated projects. The employees who serve as delivery or material suppliers will only be subject to this requirement if they are delivering materials and equipment to the building while the school is in session, and/or it is reasonably expected that exposure to vulnerable populations could occur at the jobsite. Exceptions are also made for certain delivery personnel who remain at their delivery vehicles (for instance concrete delivery drivers).

An arrest record standing alone (without a conviction) cannot be used to deny employment opportunity, however an employer can make a hiring decision based upon the conduct underlying the arrest, if the conduct warrants restriction from the position in question.

The law restricts the information employers can use about certain felony charges, for instance Judges frequently convert Class-D felony convictions to Class-A misdemeanor convictions. Examples of Class-D felonies which are frequently converted to Class-A misdemeanors include theft, operating a motor vehicle while intoxicated, and dealing/possessing marijuana. Class-D felonies may be reduced by the judicial system when the crime does not involve a sexual offense, violence, or bodily injury. When the judicial system converts felony charges to misdemeanor charges, the employer is to consider the crime as a misdemeanor, even though background check information may provide details of the initial felony charges.

Title VII compliance (Equal Employment Opportunity Compliance) prohibits discrimination based on race, color, religion, sex, or national origin. To ensure Title VII compliance when FCI uses the content of criminal records to make employment decisions, FCI will not use disparate treatment or cause disparate impact when making their hiring decision. Decisions to grant or deny employment are never based upon race, color, religion, sex or national origin. Employers have an obligation to apply hiring decisions consistently over time for all employees.

In 1975 the Eighth Circuit Court identified 3-factors called the Green Factors. The Green Factors are based upon the court case of Green vs Missouri Pacific Railroad. When a decision to hire or not hire an applicant based upon criminal history is used, employers must apply these factors consistently without regard to race, color, religion, sex or national history. FCI considers these factors when evaluating employees for potential hire.

The 3 Green Factors are:

1) Seriousness of the offense or conduct. Certain offenses are so egregious that they are legally mandated grounds for not hiring an offender to work at projects where youth or vulnerable people could be present. (see list of 19)
2) The time that has passed since the offense or conduct and/or completion of the sentence. Employers are allowed to make prudent but consistent judgement calls that may consider the age of the offender at the time of the offense, length of time since the offense, and satisfactory completion of the sentence given by the courts when making employment decisions.
3) The nature of the job held or sought Employers can make hiring decisions based upon the degree of supervision the job candidate will be subject to, or the proximity the candidate will have to youth or other vulnerable populations.

Disparate Treatment would occur if an employer considers two similarly qualified candidates for a position and each of the candidates has a comparable criminal record based upon similarities in their Green Factors. If candidates differ in one or more characteristic of race, color, religion, sex or national origin, no preference can be given to either candidate based on their differences in race, color, religion, sex, or national origin.

Even though the laws of most states stipulate that the applicant is responsible for all costs associated with obtaining the expanded criminal history check, in the construction industry costs associated with conducting the criminal background check are typically paid for by either the Client/Owner or the Contractor/Employer.

Questions about the Criminal Background Check Policy can be directed to the Safety Director.

Fleet Vehicle Policy

PURPOSE

This policy provides instructions for authorized and qualified Drivers of Company owned Fleet Vehicles.

SCOPE

This policy applies to all qualified and authorized Drivers of Company owned Fleet Vehicles.

RESPONSIBILITIES

The General Superintendent serves as the Fleet Manager. The Fleet Manager has authority to assign fleet vehicle to authorized Fleet Drivers. In addition, the Fleet Manager has many additional responsibilities as listed in this policy to include ensuring a ready for service operational fleet.

The Chief Financial Officer serves as the Financial Officer. The Financial Officer authorizes vehicle drivers, ensures compliance, and files claims with insurance broker.

The Safety Director serves as an incident investigation officer, training officer, and notifies Fleet Manager of random drug screens for CDL operators.

Fleet Vehicle Drivers have been authorized and assigned a fleet vehicle. Fleet Drivers are to comply with this policy in an effort to prevent injury, property damage, limit liability, and maintain the property provided by FCI Construction.

QUALIFICATION OF DRIVERS

A Fleet Driver must be authorized by the Financial Officer to drive Fleet Vehicle.

Qualified Fleet Drivers must be licensed in the State of their residency and hold valid Operator, Chauffeur or Commercial Driver Licenses. Insurance underwriters issue our fleet insurance policy based upon their guidelines of acceptable driving history for fleet drivers. The Financial Officer and the Fleet Insurance Underwriter reviews the motor vehicle record (MVR) of each fleet driver initially and at least annually to verify that each driver continues to meet the minimum qualification requirements to drive a Fleet Vehicle. An employee with a MVR grade of poor may not be insurable by the insurance carrier. If driving is a required part of your job, the inability to be insured could jeopardize employment. In most cases, a major violation will result in an excessive number of driving record points as assigned by the State. Major violations documented on a drivers' MVR classify a driver as unacceptable if the following driving violations have occurred within the past three years.

- Driving under the influence of alcohol or drugs
- Failure to stop/report an accident,
- Leaving the scene of an accident,

- Reckless driving or speeding contest,
- Driving while impaired,
- Making a false accident report,
- Homicide, manslaughter or assault arising out of the use of a vehicle,
- Driving while license is suspended or revoked,
- Careless/reckless driving,
- Attempting to elude a police officer,
- An excessive accumulation of minor violations (frequent speeding tickets, excessive points)
- (3) or more moving violations within last 3-years,
- Violating the open container law (exceptions permitted if circumstances are acceptable and documented by underwriter-status would revert to marginal/probationary),
- Drivers with an out-of-state license for more than 60-days past the request that they obtain an in-state license,
- Passing a school bus or failing to yield to an emergency vehicle,
- Any driver with less than three years driving experience.

In addition to the major violation category, there are marginal driving violations that Fleet Drivers should avoid. An accumulation of marginal violations may classify you as a "borderline" driver with a greater than normal driving risk. If you have a history of marginal violations, slow down, drive more carefully, drive more attentively, and make an effort to avoid continuing violations. Marginal or probationary violations include the following if the violation has occurred within the past 18-months:

- Excessive speeding (15-mph or more over the speed limit in any speed zone),
- Careless driving creating an accident,
- Drivers with two or more moving violations within the past 18-months,
- Any driver that the underwriter thinks has not demonstrated good driving habits (i.e. numerous not at fault accidents).

Both FCI Construction and the FCI Insurance Underwriter safeguard the personal information of all employees, including information obtained regarding driver motor vehicle records.

DRIVER RESPONSIBILITIES FOR VEHICLE MAINTENANCE

- Each Fleet Driver is responsible for maintaining readily accessible insurance and registration documents with the vehicle they are driving. Keep the current registration and insurance documents in your glovebox. Dispose of expired registrations and insurance documents.
- Fleet Drivers will never operate a FCI Vehicle that has unlawful safety deficiency. Unsafe vehicles are removed from service until all safety systems are fully operational. The Fleet Manager can usually accommodate a Vehicle Driver with an alternate vehicle to drive while repairs are being done.
- Each Driver of a FCI vehicle will regularly verify the safe working condition of the vehicle by doing a routine check of the tires, brakes, parking brakes, seat

belt/shoulder restraints, steering, lights/signals, tires, horn, wipers, vehicle glass and mirrors.

- Fleet vehicles are kept clean and presentable both inside and out. The appearance and cleanliness of vehicles should be a positive reflection of the FCI Construction image.
- Clean ice, snow, window fog and dirt from your windows before driving in order to maintain a clear view of where you are driving. Headlamps are turned-on when using windshield wipers due to rain, snow, hail, fog or other unfavorable conditions. During foggy conditions, low beam headlamps produce less glare and may be more effective than high beams.
- Fleet Drivers may occasionally move tools and materials to jobsites in the course of their jobsite visits. FCI vehicles are never loaded beyond their weight capacity.
- Fleet Drivers will ask Shop Personnel if they are unsure how to secure and fasten any load transported in a fleet vehicle. All Drivers are responsible for securely strapping down and anchoring any tools or materials moved with a company vehicle or trailer.
- Fleet Drivers are responsible for changing their engine oil and oil filter at 5,000-mile intervals. Drivers will submit an expense report for the cost of the oil change. A receipt for the oil change is submitted to the Shop Mechanic. The Shop Mechanic will update the fleet maintenance record so that scheduled maintenance can be tracked. ALL Vehicles will use a non-synthetic and manufacturer recommended weight motor oil.
- Fleet drivers are also responsible for rotating their tires every 10,000-miles. Each Fleet Driver will keep a record of when the 5,000-mile oil change and 10,000-mile tire rotation was last done in order to meet the prescribed maintenance schedules.
- Drivers will arrange to have their assigned truck serviced in the Shop at 100,000 mile intervals. Fleet Drivers are responsible for checking their oil, coolant, and brake fluid levels regularly. Drivers will consult the Shop Mechanic when vehicle fluid levels drop, or when new tires or repairs may be necessary.
- Fleet Drivers will regularly check their spare tire and tire changing hardware and be familiar with how to change a tire in the event of a flat. Drivers should verify that the spare tire is fully inflated.
- Keep tools, computers and other valuables inside the vehicle and out of sight if possible. Lock your vehicle when appropriate.
- Obtain, or know now how to obtain, a spare key in the event you lock yourself out of a vehicle.
- If the vehicle is equipped with a fire extinguisher, the driver is responsible for completing the monthly inspection of the extinguisher. There is a sign-off for the monthly inspection included with each extinguisher tag. Fleet Vehicle Drivers do the *monthly* inspections by checking the following 7 items: Hefty-does the extinguisher feel like it weighs enough?, Hose-Is the hose and/or nozzle of the extinguisher in good shape, not deformed or cracked? Is the hose or nozzle threaded into the valve properly? Gauge-Does the dial read in the full range? If not replace the extinguisher. Pin must be tied with a plastic breakaway tamper seal that holds the pin in place but allows the pin to pull free when using the fire extinguisher.

DRIVER RESPONSIBILITIES FOR SAFE DAILY OPERATION

All Fleet Drivers and their passengers are required to properly use seat/safety/shoulder belts and harnesses. Seat and shoulder belt use is required by law in Indiana.

Tail gating or driving too close to another driver is intimidating and unsafe. Indiana traffic law can assign 6 driving record points to the motor vehicle record of drivers convicted of following too closely. Tailgating is considered reckless driving. Regardless of travel speed, drivers should maintain at least 3-seconds of travel time behind leading vehicles.

Driving faster than the posted speed limit is illegal and can lead to increased accidents. Driving under the influence of prescription medications (as noted on prescription), alcohol, and illegal drugs is a law violation and not permitted.

Use of a cell phone without hands-free operation causes driver distraction and is a major contributor to traffic accidents. At this time, all Fleet Drivers are discouraged from using cell phones without a hands-free device.

LOAD CAPACITY

Load capacity of all Fleet Vehicles shall not be exceeded. The appropriate loading capacity of your vehicle can be limited either by volume capacity (how much space is available) or by payload capacity (how much weight the vehicle should carry). Once you have reached the maximum payload of your vehicle, do not add more cargo, even if there is space available. Overloading or improperly loading your vehicle can contribute to loss of vehicle control and vehicle rollover. The payload listed on the Tire Label is the maximum payload (located on the door jamb) for the vehicle as built by the assembly plant.

DRIVING VIOLATIONS

Drivers are responsible for any violations of law or legal fines they incur while operating any vehicle, including a Company vehicle. If you drive a Fleet Vehicle, notify the Financial Officer of all moving violations, including those you may incur with your personal vehicle.

Therefore, each Fleet Driver has a responsibility to report any traffic violations that they incur to the Financial Officer within 48-hours of the event. This includes violations you get while driving both the Company vehicle, and your personal vehicle. This also includes traffic violations for which the driver pleads innocent to the charge. Financial Officer will review the points assigned by the Bureau of Motor Vehicles, and verify that the Fleet Driver is still eligible to drive a Fleet Vehicle. All Insurance Companies have access to BMV records of traffic violations incurred by the drivers listed on their policies.

The State of Indiana offers drivers convicted of two or more traffic offenses within a 12-month period an opportunity to successfully complete a Driver Safety Program.

Anyone can complete a Driver Safety Program. The Indiana BMV will apply a 4-point credit to an official Indiana driving record if the driver safety program is successfully completed.

COMMERCIAL LICENSED DRIVERS (CDL)

Commercial Driver's License (CDL) Operators transport material and equipment to and from our construction job sites. CDL Drivers meet Federal and State Department of Transportation (DOT) licensing requirements that include special training, driving tests, medical evaluations and substance abuse screenings as required by the DOT. CDL driver compliance, including the DOT random drug screen pool, is managed by the Safety Director. CDL Drivers are subject to drug and alcohol screens before hire, randomly, post-accident and for just cause.

CDL Drivers of commercial trucks will track gross vehicle weights (GVW) and miles driven for each trip to and from FCI jobsites by using the trip logs carried in each delivery truck. CDL Drivers will make note of GVW (Gross Vehicle Weight) for each leg of each trip, so that the vehicle weights and miles driven can be accurately recorded for tax reporting purposes.

- The Fleet Manager will coordinate with Shop Personnel to complete the annual DOT inspections of each commercial vehicle and trailer, copies of the annual inspections will be kept in each respective vehicle or trailer, and back-up copies are maintained in Financial Officer office.
- The Fleet Manager will coordinate with the CDL Drivers to obtain highway move permits for the transfer of oversize/overweight vehicles to and from the jobsites.

The Safety Director and/or Fleet Manager intervenes when there are signs of drug and/or alcohol use by Fleet or CDL Drivers. Intervention may include the reasonable suspicion testing protocol.

CDL Drivers are prohibited by law from holding, dialing, or reaching for a communication device while driving their CDL trucks. Large fines can be levied for both CDL Drivers and their Company unless totally hands free communication devices are used by CDL Drivers. Hands free Bluetooth type devices are acceptable for use by CDL Drivers while driving.

Texting while driving is illegal for all motorists in the State of Indiana, as well as most other States and jurisdictions. Never text while driving. Although regular drivers (not CDL Drivers) can legally make phone calls when driving, the use of hands-free phone devices is encouraged by all Fleet Drivers.

Responsibility for Taxes, Fees, Insurance, Registration, and Plates
The Financial Officer is responsible for obtaining and providing plates, registrations, and insurance coverage for each fleet vehicle. Annually updated insurance and registration documents are given to each Fleet Driver. These documents are kept in the glove box of each fleet vehicle. The Financial Officer is responsible for the

scheduling of drivers with our insurance company and coordination with the Fleet Manager as deemed appropriate.

The Financial Officer will file the annual IRP (International Registry Plan), Annual MCS (Motor Carrier Safety) vehicle identification, and the UCR (Unified Carrier Registry) for commercial delivery vehicles greater than 10,000 pounds. The Financial Officer will obtain the cab cards for each commercial truck, file the IFTA (International Fuel Tax Administration) statement, and submit the properly apportioned quarterly payment due to each taxing State.

Driver Incident Resulting in Property Damage (not to include glass damage)
After an incident is reported to Fleet Manager and/or Financial Officer, the Safety Director is required to conduct an incident investigation. The incident investigation is conducted in an effort of prevention of future incidents, claims processing, and/or subrogation.

As informed by the Fleet Insurance Agent, Indiana law now mandates that the vehicle insurance underwriter provide proof of insurance after any accident or moving violation. According to current Indiana law, failure to document proof of insurance could result in your license being suspended. In the past this has applied only to vehicle accidents, it now applies to all moving violations, deer collisions, or any event that triggers a police report. Enforcement includes letters you will get from the State asking for proof of insurance, followed by escalation and loss of license. Since your drivers' license travels with you from vehicle to vehicle, this notification requirement applies to traffic events that you incur in any vehicle you are driving.

- Use extreme caution when getting out of your vehicle after an accident. A downed wire, oncoming traffic or a dazed animal can add to the danger of an accident scene. Wear a high-vis vest to increase your visibility when standing or walking close to a roadway. Traffic approaching the scene of an accident presents a serious hazard to pedestrians.
- Provide immediate assistance for any persons injured as a result of an accident. Call 911 to summon emergency medical services.
- Call the Police for all incidents. Obtain and record the file number of the police report done by the responding Officer. Obtain the name(s) of the responding Officers. The police report is used to file an insurance claim. Occasionally, Law Enforcement will be unable to promptly respond to minor vehicle accidents that do not involve injury. In these cases, where vehicle accident reports are not available, the employee written accident report will be relied upon.
- Do not make admissions of guilt or make comments regarding fault if you are involved in a traffic accident. Do not attempt settlement, regardless of how minor the event.
- Use the driver accident reporting pamphlet inside your vehicle glove box to make written records about the incident. Exchange name, address, phone, insurance company name, policy numbers and plate numbers of those involved. Record witness statements and their contact information.
- Take photographs of the damage and accident scene.

- All Drivers must be aware that a Certificate of Compliance must be filed with the Indiana Bureau of Motor vehicles after any moving violation. The Financial Officer will verify that the Certificate of Compliance is filed for all incidents involving a *FCI* vehicle. Any moving violations incurred while an employee is driving their *personal* vehicle require the employee and or the employees' insurance agent, to verify the filing of the Certificate of Compliance with the Bureau of Motor Vehicles.
- "Act of God" type incidents, for example a storm causing a tree to fall on a Fleet Vehicle while it is parked at a Fleet Drivers home, are covered under the Fleet comprehensive insurance coverage.
- The Fleet Manager will determine the vendor and type of parts (original manufacturer or after-market) that will be used for the repair of damaged fleet vehicles. Usually the Insurance underwriter will stipulate and approve aftermarket parts for damaged components or vehicle glass. Original manufacturer parts are substantially more expensive. The additional costs are not typically covered by insurance. Waiting times, availability and higher costs are an issue with original manufacturer parts as compared with approved after-market parts.

DRIVING INCIDENT RESULTING IN GLASS DAMAGE

Clean, undamaged glass is part of the vehicle safety equipment. If you notice a chipped or cracked windshield or other vehicle glass damage, contact the Financial Officer who will arrange the repair or replacement of the vehicle glass. Some glass damage can be repaired, preventing a more-costly window replacement.

Make contact quickly after the glass damage is noticed since cracks and chips can spread or become too large to repair. Vehicle windshields are usually repaired or replaced at the jobsite by a mobile auto glass vendor. Very cold or wet weather may require that the repair/replacement be done in the shop, if this is the case, a loaner vehicle can be arranged. Invoices for vehicle glass repair or replacement are submitted by Financial Officer with a completed form 17 to our insurance underwriter. The Driver of the vehicle with the damaged glass will provide the information for form 17 to the Financial Officer.

PERSONAL USE OF FLEET VEHICLES

Company fleet vehicles are used for work-related travel by Authorized Fleet Drivers to, from, and during work activities. In the event an employee is negligent and causes an accident while driving a fleet vehicle for non-work related travel, 100% of the deductible needed to perform the vehicle repairs will be reimbursed to the Company by the employee. Non-work related incidents are determined either through admission by the employee, documented by a police report, or determined by the Fleet Manager or Safety Director.

Each Fleet Driver is financially and legally responsible for resolving traffic violations, fines and court costs which they incur while driving a motor vehicle, this includes a fleet vehicle.

Never loan your assigned FCI vehicle to anyone not authorized as a Fleet Vehicle Driver. FCI Vehicles can be driven only by FCI Employees who have been authorized by the Financial Officer.

FLEET DRIVER ANNUAL TRAINING

Annual training shall be completed by all Fleet Vehicle Drivers. Currently, we use Travelers Risk Control resource for online training. All Fleet Vehicle Drivers will be provided access to the website. If not, a paper copy will be provided and sign-off sheet for record of training. A record of training will be maintained by the Safety Director on the Training Spreadsheet.

Fleet Drivers will maintain the vehicle in a professional manner both inside out, including sweeping, dusting, and washing as appropriate to represent FCI Construction.

Fleet Drivers are cautious drivers. Due to the nature of our work, Fleet Drivers are particularly cautious around pedestrians, bicyclists, and children encountered at customer jobsites and while traveling. Fleet Drivers are especially vigilant and take a few extra moments to walk around and look under their vehicle before leaving a school, playground, or other location where children gather. Children and toddlers are drawn to cars and trucks and are difficult to notice when they are around a vehicle.

DISCIPLINARY POLICY, DRIVER COMPLAINTS AND DRIVER DISCIPLINE

It is the policy of FCI Construction that Fleet Drivers comply with all traffic laws. Fleet Drivers are law abiding, courteous, defensive drivers. The Safety Director investigates all Fleet Driver complaints submitted to the Office, and produces an incident report. Fleet Drivers who show evidence of operating in an unsafe or uncourteous manner are subject to disciplinary actions. Each vehicle is labeled with phone number, website address and fleet vehicle number so that it can be easily identified.

Reports of Fleet Drivers who operate their vehicles in an illegal, intimidating, or uncourteous fashion are investigated by the Fleet Manager and/or the Safety Director. All Fleet Driver complaints will be investigated for validity. The alleged Fleet Driver offender will be able to explain his side of the alleged incident. Fleet Drivers are advised to notify the Fleet Manager when other drivers act in an illegal, harassing or erratic fashion. Fleet Drivers should document their version of the driving event before complaints are reported by other drivers.

First offense corrective discipline for unsafe or uncourteous fleet driving is a requirement that the offending Fleet Driver meet with the President and/or Financial Officer and complete Traveler's Driving Safely – Construction Pickups as refresher training.

Second offense corrective discipline for unsafe or uncourteous fleet driving is to pay for, and successfully complete, a Driver Safety Program approved by the Indiana

Bureau of Motor Vehicles. The Safety Director will provide details about this Indiana Online Driver Improvement program. The program is available on-line, costs approximately $40.00 and takes 4-hours to complete. Supervision of course completion is monitored by the Safety Director. Second offenses indicate a pattern of unsafe or uncourteous driving habits.

Blatant, egregious, or repeated driving policy violations may result in the loss of fleet driving privileges. All driver complaint incidents will be reviewed on an individual basis.

If you have questions about the FCI Fleet Vehicle Policy contact the Fleet Manager or Financial Officer.

ANNUAL FCI FLEET DRIVER POLICY AGREEMENT

As a FCI Fleet Vehicle Driver I agree to drive in a courteous and safe manner.

I agree to obey the traffic laws and to abide by the guidelines as written in the FCI Fleet Vehicle Policy as revised on July 16, 2019.

I have read the Fleet Vehicle Policy and affirm so with my signature below.

I agree to notify the Financial Officer and/or Fleet Manager within 48-hours of any moving violations that I may incur while operating any motor vehicle.

I know where my current vehicle registration and insurance card are stored in my vehicle (glovebox).

Printed name of FCI Fleet Vehicle Driver _____

Signature of FCI Fleet Vehicle Driver _____

Date _____

PERMISSION FOR CHECK OF MOTOR VEHICLE RECORD FOR FCI VEHICLE DRIVERS

As a FCI Fleet Vehicle Driver, I agree to drive in a courteous and safe manner. I agree to obey the traffic laws and to abide by the guidelines as written in the FCI Fleet Vehicle Policy as revised on July 16, 2019.

I agree to notify the Financial Officer and/or Fleet Manager within 48 hours of any moving violations that I may incur while operating any motor vehicle.

I know where my current vehicle registration and insurance card are stored in my vehicle (glovebox). An annual check of your driving history is done to ensure compliance with the FCI Construction vehicle insurance underwriter.

I, (please print name) _____, grant permission for FCI to check my motor vehicle record (MVR) to verify that my MVR remains acceptable in accordance with the criteria established by our vehicle insurance underwriter. I understand that FCI will protect the privacy of my MVR.

A copy of your MVR will be provided to you in a sealed envelope at the time it is reviewed.

X

_____

Employee Signature Date

1) My Driver's License number_____
2) The last 4 digits of my Social Security # _____
3) The zip code from my current Driver's License _____
4) State that issued my Driver's License_____

Disciplinary Policy

PURPOSE

FCI Construction has a long history of providing our Clients with quality construction services in an efficient, cost effective, and safe manner. Both FCI Construction and our Clients expect and deserve the integrity and professionalism displayed by the FCI Workforce. FCI has written policies and procedures that establish expectations for performing work in a safe manner. Safety rules and regulations are enforced to prevent adverse events that could harm FCI Employees, our Clients, the Public and the Company. To enforce the safety and well-being of each FCI Employee, the Company has implemented a disciplinary policy. Failure by any FCI Employee to perform work in a safe and professional manner can result in disciplinary action.

SCOPE

The disciplinary policy applies to all FCI Employees and business activities associated with all operations.

RESPONSIBILITIES

Each FCI Employee is responsible for identifying, reporting, and correcting unsafe conditions and acts. Each FCI Employee is required to enforce the safety policies and procedures in-place.

DEFINITIONS

Safety violations are any unsafe act or condition that could reasonably lead to an accident, injury, near miss or property loss. A safety violation occurs when the rule(s) and regulations of OSHA, the Customer, or FCI is/are broken. Violations of safety policies and/or Federal, State, and local regulations by a FCI employee will result in disciplinary action.

Code of Ethics Business Protocol violations
Each FCI Employee works with honesty, in a cooperative way with those involved with construction projects. Stealing, cheating, fighting and harassment are not part of the FCI business model. FCI will cooperate with law enforcement in the prosecution of theft and other illegal behaviors.

DISCIPLINARY ACTION PROCEDURES

When an employee is observed committing a safety violation, the employee is informed that their actions are unacceptable and are jeopardizing the safety of themselves or another. The exact nature of the hazard and what is acceptable is explained to the employee. The violation is brought to the attention of the Employee's Supervisor. The Disciplinary form (attached) will be completed by Site Superintendent, Employee, and the Union Steward may be present. The form will be submitted to the Safety Director who will log on FCI's Training Spreadsheet.

exposures will not be tolerated at any time. The following is the list of exposures and the disciplinary action to follow.

Employee exposure:

1. **Working on scaffolding** without a green tag (dated for the day's use). Scaffolding not red-tagged will be general disciplinary action.

2. **Exposure to fall** (general industry 4 feet, construction 6 feet) without guard railing, or personal fall arrest system, or controlled decking zone, or controlled access zone, or warning line system. For example, an employee is observed bypassing safety measures or neglecting safety measures. An exposure which employee is utilizing the system but not compliant will be general disciplinary action.

3. **Energy control** (lockout / tagout) not in use when there is exposure to electrical shock/electrocution, pneumatic energy, hydraulic energy, stored energy (e.g. spring, mechanical). Employee shall place personal lock to ensure energy is isolated, energy shall be dissipated, and operation controls shall be used to verify de-energization.

4. **Excavations** with an employee having an exposure to standing earth, or the like, greater than 4 feet. Trenches require benching, sloping, shoring to ensure an employee will not be seriously injured. Excavations shall be inspected daily to identify hazards – calving, standing water, abandoned pipes, etc.

First Offense – employee(s) will be sent home for the day without pay up to termination of employment without unemployment benefit.

Second Offense – employee will be sent home for 3 days without pay up to termination of employment without unemployment benefit.

Third Offense – employee will be laid off or terminated without unemployment benefit.

General Disciplinary

First Offense, when an employee is observed committing a safety violation the employee is informed that their actions are unacceptable and are jeopardizing the safety of themselves or another. The exact nature of the hazard and what is acceptable is explained to the employee. The violation is brought to the attention of the Employee's Supervisor with an informal note made to the project safety file. If the undesirable act is of a serious nature a formal written reprimand is issued to the employee for the first offense.

Second Offense, when an employee is observed committing an offense for the second time, a formal written reprimand is issued. The formal reprimand will describe the nature of the violation in detail. Copies of the formal written

reprimand will be presented to the Employee, the Employee's Superintendent, and the project safety file.

Third Offense, whether for the same offense, or for three different safety offenses, may result in the employee being removed from the project. Third offenses are formally documented.

If the infraction is of a serious nature, any or all of these steps may be waived. Individuals may be terminated from employment at any time if the violation is flagrant or involves a serious offense. Serious safety violations are those that could result in injury. Flagrant violations are those where the employee knows the safety violation and intentionally does not comply. Examples of serious or flagrant violations include but are not limited to the following:

- Not using fall protection as proscribed in the Construction Standards,
- Removing a lockout device without following proper lockout/tag out procedure,
- Entering excavations without cave-in protective measures,
- Failure to safeguard against electrical contact or electrocution hazard,
- Entry into a confined space without following proper confined space entry procedures,
- Willful destruction of Customer/Owner or any Contractors Property,
- Blatant refusal to use proper personal protective equipment or to follow other safety requirements.
- Gross disregard for standard code of business ethics.

Any employee who refuses to comply with the established occupational safety and health requirements is not acceptable. Employees who are terminated for non-compliance may not be eligible for re-employment. Superintendents who are unable to or unwilling to secure the performance of their workers in compliance with contractual safety obligations, are unacceptable and may be removed from the jobsite. There is an expectation that each Contracting Entity is familiar with the Code of Federal Regulations, Construction Industry Standards, 29 CFR 1926. Certain regulatory standards are "shared" with the General Industry Standard, 29 CFR 1910. Examples of construction tasks that apply to the General industry standard are fork lift operation, confined space entry, HazCom, and others. FCI expects that all workers are familiar with the regulations as they apply to their specific tasks. Non-compliance with safety regulations is not acceptable at a FCI jobsite.

FCI CONSTRUCTION DISCIPLINARY/ACCOUNTABILITY NOTICE

Project Name: _____ Project #: _____

Company: _____ Date: _____

List the specific policy, procedure or practice that was violated?_____

Violation Issued by _____ Violation Date/Time_____

Is this a first violation or a repeat violation? _____

Name(s) of Violator(s)_____

Corrective Actions put in-place to prevent repeat of this violation -

_____

Name of FCI Employee who issued this discipline _____

Printed Name of Violator/Employee _____

Signature of Violator/Employee _____

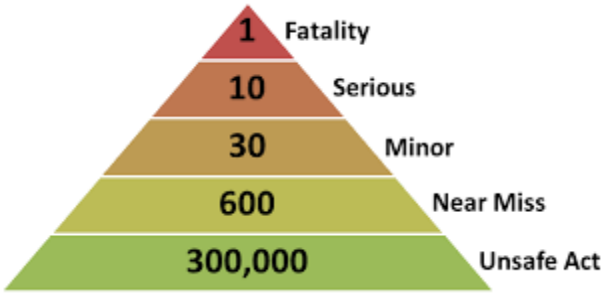
Incident Reporting and Accommodated Work Process

PURPOSE

Incidents which result in occupational injury or illness, damage to property of others (see 08 Fleet Vehicle Policy if fleet vehicle involved), or actions which could have resulted in a loss must be reported and investigated for correction. Accommodated work will be made available for those employees who suffer an injury or illness requiring medical treatment beyond first aid.

SCOPE

All employees with occupational exposure



RESPONSIBILITY

All Field and Office Employees are required to report all incidents which result in either injury, illness, or property damage to their immediate supervisor.

Office, Shop, Yard Supervision: The President, VP of Operations, CFO, General Superintendent, Director of Masonry manage personnel in the office, shop, yard. An incident resulting in injury beyond first aid or property damage shall be reported to the Safety Director. In addition, near misses should be reported and discussed with those having exposure.

Field Supervision: The Site Superintendent is responsible for managing the jobsite and reporting all incidents. The incident resulting in injury beyond first aid or property damage shall be reported to their immediate supervisor. Near misses should be reported on the Daily Field Report and shared with employees on that jobsite during the next Daily Safety Review. If very serious, meaning possible fatality, work shall be stopped and all employees will review the incident to correct behavior or raise awareness.

The Safety Director serves as an incident investigation and reporting officer. All incidents resulting in property damage or injury requiring medical treatment will be investigated. The Safety Director will report occupational injury incidents to insurance company and OSHA*. The Safety Director will report property damage incidents to insurance company when necessary. *OSHA will only be contacted as required by 29 CFR 1910 regulation.

DEFINITIONS

Accommodated work – an injury or illness which result

Injury or Illness – injury and or illness in this text is an incident which requires medical treatment beyond first aid on the jobsite.

Near Miss Incident – an incident in which no property was damaged and no personal injury was sustained, but where, given a slight shift in time or position, damage or injury easily could have occurred.

Unsafe Act – is any act that deviates from a generally recognized safe way or specified method of doing a job and which increases the probabilities for an accident. It must contain an element of unsatisfactory behavior immediately before an accident that was significant in initiating the event.

Unsafe Behavior – any behavior that an employee engages in without regard to safety rules, standards, procedures, instructions, and specific criteria in the system.

Unsafe Condition – are hazards that have the potential to cause injury or death to an employee. Some of these hazards include erroneous safety procedures, malfunctioning equipment or tools, or failure to utilize necessary safety equipment such as goggles and masks.

NEAR MISS

Sharing near miss reports with coworkers enables us to continue to reduce our injuries and losses. Our goal is to share information with all Field or Office Personnel to learn from our mistakes, and to avoid future incidents which result in injury, illness, or loss. Near misses are accidents waiting to happen. Investigation information will not be used to punish or blame anyone reporting a near miss situation.

RECORDING INCIDENT

The Superintendent/ Foreman will record all injuries including minor first aid cases using the FCI Incident Report 2020. Fill out the incident report as soon as is possible after the adverse incident. Provide your name, the involved employee's name, and details about who, what, where, when, how, and why an incident occurred. Corrective actions are always noted on the incident report. Supplementary photos, drawings, and notes are to be added to the incident report.

OSHA

Within twenty-four (24) hours after the in-patient hospitalization of one or more employees or an employee's amputation or an employee's loss of an eye, as a result

of a work-related incident, you must report the in-patient hospitalization, amputation, or loss of an eye to OSHA using one of the following methods:

By telephone or in person to the OSHA Area Office that is nearest to the site of the incident.

By telephone to the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742).

OSHA reporting of fatalities, in-patient hospitalizations, amputations, or loss of an eye must include the following information:

- Establishment name
- Location of the work-related incident
- Time of the work related incident
- Type of reportable event (e.g., in-patient hospitalization, amputation, loss of eye)
- Number of employees who suffered the event
- Contact person and phone
- Brief description of the work related incident

All incidents will be investigated to the appropriate level with regards to incident severity. Complete the report using the FCI Incident Report (form #6) as soon as possible after caring for an injured Employee. Interview injured employee and witnesses in an effort to determine the cause of the injury or illness. Submit the incident report the FCI Safety Director. All photographs, receipts and records associated with the injury or medical care must be submitted to the Safety Office. The Safety Director will coordinate medical care with the injured employee and the medical care provider after any work-related injury.

Every effort is made to accommodate an employee with a work related injury so that they do not experience a lost work day. FCI calls this our Temporary Return to Work Program. Information needed to manage the temporary return to work program are placed on FCI form # 5. Your Safety Director will make every effort to coordinate with the treating Physicians, Superintendents, and injured employee to establish work duties that comply with any restrictions recommended by the injured employee treating Physicians. Restricted duty assignments may be in the main shop or yard, or an injured coworker could be assigned for specific tasks at a specific job-site. Superintendents, the injured employee and Safety Director will consult with each other and carefully follow the medical restrictions recommended by the treating physician. A written listing of what tasks the injured employee can and cannot do will be provided by the Safety Director as specified by the treating physicians. Under no circumstances will an employee who has sustained a work related injury be “pushed” beyond the limitations placed upon them by the treating physician. Our goal is to provide meaningful work while an injured employee recuperates. Medical appointments, physical therapy, and other scheduled events for which the injured employee needs to attend will be coordinated by the Safety Director and shared with all affected staff.

Use the FCI Incident Report to report all events, Use it for:

- Near Miss Events-could have been worse under slightly different circumstances, investigate incident to prevent recurrence.
- First Aid Events-minor injury cared for by certified first aid provider
- Injury Events-Require outside medical assistance.
- Property Events- damage to building, damaged materials/equipment, theft, vandalism, etc.

Report all accidents or injuries to the Safety Director and Project Manager as soon as possible. In addition, incidents are to be reported to the host facility as soon as possible. You will be asked to describe the corrective action taken in response to a near miss, accident or injury event. Corrective action *is not*, "told employee to be more careful". Examples of corrective actions taken in the example of a slip at the job trailer steps *would be*, "shoveled snow off of steps, installed a boot scraper outside first step, tightened hand rail, covered steps with masonry sand, assigned snow removal upon arrival each day, placed shovel at entrance to encourage removal during and after snow and ice accumulation, will obtain and place ice melt at entrance for easy use, etc.,"

Site Superintendent is responsible for safely securing the incident site, medical treatment for the injured employee, and gathering information to begin incident investigation. The IPad or IPhone can be used to take photos of the scene, injury, property damage. The incident forms can be accessed on the IPad. Supervision will be trained in incident investigation techniques such as REACT – provided by Travelers Insurance – which provide direction on:

- Inspect Scene
- Taking Photos
- Interviewing
- Review Documents
- Find the Root Cause

The Safety Director will collect all evidence gathered by the Site Superintendent, or their designee in an effort to assess and identify its relevance to the incident. The information and evidence gathered will be secured ensuring preservation for reference by Project Management, Executive Officers, and/or Insurance Company.

In conclusion of the incident investigation, a Summary of Incident will be provided to Site Superintendent, Project Management, Executive Officers to review lessons learned. This will be an opportunity for feedback from those who are involved with the project and an effort to prevent a similar incident from happening again.

Staff Training

PURPOSE

FCI Construction is proud of the skills and accomplishments attained by our Workforce. The union employees make the effort to improve their knowledge and skill through their respective union, with on the job training, and training modules provided by the company. Management is provided the same opportunities of training provided by such organizations as Building Contractors Association, Associated General Contractors, Chamber of Commerce, and American Society of Safety Professionals.

SCOPE

The training applies to all FCI Employees.

RESPONSIBILITIES

Each FCI employee is responsible for identifying their training needs. For OSHA compliance and best practices, the safety director will develop training for all employees who have exposure to hazards.

TRAINING MATERIAL AND TOPICS

Employees will review the training manuals before they attempt to take the knowledge and skills tests for each topic. Training manuals are available for the following topics.

- Telehandler, Fork Lift, Pallet Jack (material handling equipment used to handle materials)
- Scissor and Boom Lift (personnel lift equipment used to move workers)
- Rigger
- Signal Person
- Crane Operator
- Scaffold Competent Person
- BobCat Operator

Training is also available and required for scaffold Competent Person, Scaffold Qualified Person, Riggers and Signal Persons. If you perform these skills on the job, certification of your training is needed. Contact your Safety Director for help to obtain training or to document training you have completed. Training can sometimes be provided at your work site. The Safety Director will coordinate with jobsite Superintendents when arranging training at any jobsite.

Training cards are distributed to those who successfully complete training. The Safety Director obtains copies of training records from employees to verify their training and to make sure their training records are in order. Training sponsored by FCI includes both a skills test and a knowledge test as written proof that an employee has demonstrated the ability and knowledge to safely perform a skill. Test records are maintained on file in the Safety Office.

Initial *and* annual refresher training is provided for the following topics:

- Personal Protective Equipment (PPE) training,
- Hazard Communication training,
- Annual Biohazard training,
- Ladder Use
- Scaffold Use
- Silica Exposure Control Plan

OSHA 30 HOUR

Each FCI Superintendent has successfully completed the OSHA 30-hour Construction Safety Training Course. Each Superintendent is also currently certified as a First Aid, CPR and AED provider.

EQUIPMENT OPERATION

Each Equipment Operator must have documented the training and skills required before they operate a telehandler, forklift, motorized pallet jack, boom lift, scissor lift, skid steer, or crane. You must have passed both a *knowledge* test and a *evaluation* test before you are authorized to operate any powered industrial truck. Knowledge and skills tests can be provided through Union training programs, private training programs, or training sponsored by Company. Even if you are an experienced Operator with many years of safe operating history, OSHA mandates that you successfully complete equipment use training or retraining:

- When you are first assigned to operate equipment,
- When you are assigned to operate new and unfamiliar equipment,
- At least every three years (for powered industrial trucks),
- If you have operated any equipment in an unsafe or hazardous way,
- If you have been involved in an accident or near miss while operating equipment,
- If you were found not operating the equipment properly,
- If workplace conditions change so that it could affect the safe equipment operation.

The Safety Director or other experienced (e.g. Superintendent) can provide a training manual, knowledge test, and skills test for Operators of most equipment used at our

jobsites. Tradesmen have been safely operating this equipment for many years, therefore, this is refresher training for most Operators. Some newer employees are less skilled and may require more in-depth training before being given the authority to operate different pieces of material handling and personnel lift equipment at Company jobsites. If you have training records from Union training programs, or from other employers, please make them available to the Safety Department.

TRAINING RECORD

A data base is maintained by the FCI Safety Office to track the training achievements of the workforce, so that skills attained by workers can be matched to the job requirements.

Questions about workforce training can be directed to the Safety Director.

Recordkeeping and Forms

FCI has developed a number of forms in order to manage safety tasks in a consistent manner. Some of these forms such as the Daily Safety Review, and Jobsite Safety Survey forms have been made available via tablets for easier use by Field Employees.

A brief description of the purpose and use of each form is provided below.

- Jobsite Safety Survey (JSS) is completed periodically by FCI Field Personnel, Safety Director or the Site Project Manager. A condensed version of this form is available on Teams and is referred to as a "Safety Report".
- Federal and State Jobsite Posting is placed at each jobsite. It contains the mandatory insurance and Department of Labor postings. This multipage posting is also available in a laminated format whereby all of the pages are neatly laid out for easier jobsite posting.
- Employee Application Packet gathers personal data from each applicant, verifies the basic safety knowledge expected of each worker. Confirms required knowledge of hazard communication, personal protective equipment, bio-hazard control, ladder use, basic scaffold use, and emergency response procedures. This form gathers information about the workers current skills and safety training as well as substance abuse screening number. Form 3 is used to obtain permission to conduct background checks, and citizenship verification.
- Orientation packet distributed to each Employee when they begin work at FCI. Provides review of basic construction safety expectations and instructions for employees to fill out the form 3 the Application packet.
- Temporary Return to Work Plan, a document filled out by the Safety Director with input from the treating physician after a work related injury. The plan is used to define what work restrictions the worker is to abide by after sustaining a work related injury. The Safety Director will work with the injured employee and his/her Superintendent to ensure that the restricted work employee follows the limitations as recommended by the treating physician. Every effort is made to fully accommodate any work restrictions placed upon an injured employee in order to avoid lost day injuries. Lost work day injuries are much more damaging to our work comp insurance rate that injuries that allow the employee to continue to work with some restrictions.
- Incident Report used to document work related injuries, first aid cases, near miss events, and property events. This form is filled out immediately by the Superintendent after a workplace incident. The Safety Director is to be called and involved for any work related injury or property damage situation. Additional reports are filed over the telephone with the work comp insurance carrier for any work related injuries.
- Equipment Operator Cards issued when workers successfully complete both the skills and knowledge competency test for Operators of Lulls, fork lifts, boom lifts, scissor lifts, and powered hand trucks.

- Daily Safety Review to be completed by each Work Crew each day. It serves as a written reminder to review jobsite tasks, the hazards associated with the tasks and the methods to control the hazards associated with the various tasks.
- Daily inspection sheet for the Lorian LRT 230E Crane, the inspection is completed to verify that all crane safety systems are acceptable prior to each day of operation. The Daily inspection is done in addition to the monthly and annual documented inspections.
- Daily fork-lift, Lull and motorized hand truck pre-use inspection log completed prior to each shift in which a piece of material handling equipment is used. It verifies that all safety functions are working properly prior any use.
- Daily Boom-Lift and Scissor-Lift pre-use inspection log completed each day in which a piece of personnel handling equipment is used. It is used to verify and document that all safety systems are functional on personnel lift devices before each use.
- Hot Work Permit, this document is opened and closed each shift that welding, brazing, thermal cutting, or spark generation (metal grinding) is being done within 35-feet of combustible materials. The form details the requirements for fire watch, and required fire-fighting equipment to have readily available at the hot work site. Hot work permits are be filled out, opened and closed for work that occurs indoors and often for work that occurs outdoors if there is any risk of fire-spread (grass, vegetation, debris, stacks of pallets, etc. Instructions for use of hot work permit is included in each permit sheet. Permits are documents that are saved for some period of time in order to prove that prudent avoidance of potential fire occurred at the jobsite. Form # 14 is the Confined Space Entry Worksheets to be completed when workers enter either a confined space or a permit required confined space.
- Background and criminal history consent form in which a worker gives permission to run a background check required for workers at some jobsites.
- Motor vehicle driving history consent form used to obtain an individual workers' driving record to verify acceptable driving history prior to issuing of a company vehicle.
- Auto Glass Claim form filled-out by drivers when a company vehicle sustains damage to the windshield or other auto-glass.
- OSHA Respiratory Program Appendix D, used to inform workers of the limitations of dust-mask type respirators when used for worker comfort or to control nuisance dust exposures. This would be for comfort use only, NOT for use of respirator to minimize an osha regulated substance.
- Release of liability waiver used when escorting students and other personnel on a jobsite.
- Biohazard Kit Pack used as an insert in the biohazard and bloodborne pathogen response kits which are furnished at each jobsite. Form 21 is self explanatory, with bloodborne pathogen
- Workplace Violence Event Report used to describe and document cases of workplace violence, threats, or verbal intimidation.

- Interim Life Safety Measure checklist and daily log sheets used in health-care and other occupied facilities to document the precautions taken to safeguard existing fire detection and fire protection systems in-place during construction activities.
- Eyewash kit insert used when assembling portable field eyewash kits.
- Trip logs used in the Kenworth, Ford 550 and International 7400 delivery trucks to track each trip destination, gross vehicle weights and fuel used. These forms are used to file the quarterly international fuel tax and to report trips to different states and jurisdictions so that proper road use taxes can be paid.
- Summarize the miles driven quarterly for payment of the International Fuel Tax Agreement assessments.

Housekeeping

PURPOSE

To define minimum company requirements and responsibilities for maintaining housekeeping to reduce fire, slip, trip, fall hazards.

SCOPE

This section applies to all FCI employees and operations.

REQUIREMENTS

- Make good housekeeping part of the job. Keep work areas free from clutter.
- Deposit all scrap and trash in the proper container. Some work sites require the separation of different types of debris for instance metal, trash, wood, masonry/concrete.
- Keep traffic lanes and fire exits free of blockage and debris at all times.
- Clean up oil and grease, they can cause serious slip-trip injuries.
- Remove or bend over all protruding nails. Pad or protect sharp points and sharp edges as they can cause lacerations and puncture wounds.
- Keep materials, debris, and tools away from equipment, walkways, floor openings, and wall edges.
- Stack, block, and secure materials so they will not slide, roll, fall, or collapse.
- Keep tools and equipment neat, clean, and stored properly. Tag out and remove any damaged equipment or tools.
- Plan for safe collection, storage, and disposal of flammable liquids, lubricants, or other chemical products. Fuel storage areas will have sealed secondary containment tanks to contain any spilled or leaked fuel. Fuel storage areas must be protected from traffic.
- Allow access to stored materials. Keep aisles and exits clear for emergency and loading equipment.
- Eliminate or protect against the causes for tripping or slipping hazards, especially in walking areas.
- Always use the proper personal protection equipment when handling equipment.
- Comply with applicable safety rules when using material handling equipment.
- Never throw materials or debris to the ground level without having a coworker standing by at the lower level to verify that the area is clear. Debris is normally dropped inside of a properly placed chute.
- Always keep stairways and the landing areas of ladders free from all clutter, debris, and blockage.
- Maintain the storage of sheet goods and other construction supplies so they cannot become airborne during high winds. Storms can appear quickly, plywood, insulation, and other flat goods can become dangerous projectiles during high winds. Use weights, banding, or interior storage to keep materials from becoming airborne.

- Metal banding, tie wire, concrete mesh, and plastic wrapping have caused serious tripping and tangling injuries at jobsites. Dispose of cut bands and other packaging material immediately when it is created at the jobsite.
- Cleaning and disposal of dust that contain silica dust will be done using wet methods, wet sweeping or by use of a HEPA (High Efficiency Particulate Air filter) type vacuum. To prevent silica dust from becoming airborne, surfaces and clothing which contain silica containing dusts are not cleaned with compressed air. Superintendents will verify cleaning methods of those areas that may be contaminated with silica residue with their Silica Competent Person and/or Safety Director. Dry brushing and dry sweeping are avoided when cleaning-up materials that could be silica containing.
- Waste material that contains silica dust should be kept in a wet state and disposed of wet to prevent the release of dust back into the work space. For example slurry generated by a wet saw process will be cleaned-up before it dries using a wet vac. When emptying the vacuum, the slurry will be transferred into a plastic bag and placed into a container for disposal. Seal the slurry waste container to prevent the release of dust back into the work space.

Biohazard Control Process

PURPOSE

This process provides information, direction, and regulatory compliance for employees who have an occupational exposure to blood or other potentially infectious materials.

SCOPE

All Supervisors who have been First Aid and CPR trained will be required to complete training annually. In addition, the office personnel who have been trained as Good Samaritans should be familiar with this information.

RESPONSIBILITIES

The General Superintendent will be responsible for ensuring training is completed by those under their supervision.

The Director of Masonry will be responsible for ensuring training is completed by those under their supervision.

The Safety Director will be responsible for reviewing this process annually, distributing training material, and documenting completion of the annual training.

THE EXPOSURE CONTROL PLAN

The Exposure Control Plan explains how to eliminate or minimize exposure to pathogens that can be found in potentially infections materials such as blood, saliva, or other body fluids. The first rule is to use **standard universal precautions** before potential contact occurs with a pathogen. Universal Precautions are used to prevent exposure to biohazards in the workplace. Universal precautions are called *universal* because every exposure from every person is treated as if it could cause an infection. No employee will second guess whether gloves and glasses are used; they are used "universally" when providing first aid, or when cleaning up blood and other body fluids released as a result of an injury.

This Exposure Control Plan is readily available to all FCI employees via the Health and Safety Manual and on FCI Construction website via the Safety link.

EXPOSURE DETERMINATION

FCI Construction Superintendents are trained to administer First Aid and CPR. We are not trained nor practice demolition or remediation of potentially infectious sites. If there is doubt or if a potentially infectious material is identified this shall be reported immediately to supervision, construction management, or owner of property dependent on our role for that specific project.

Prudent precautions are put in-place when working in areas where it is suspected that there may be improperly disposed of sharps which can be found behind

cabinets and other furnishings. These precautions include verifying that all sharps are contained and removed before starting demolition or remodeling jobs in health care facilities, laboratories and certain public facilities. Public spaces such as landscape beds, pavilions, restrooms, public transit facilities, and shelters require that workers carefully inspect the work areas to make certain they do not contain improperly discarded sharps or other biohazards that could be encountered by construction workers.

In addition to the confined space safety procedures needed prior to entering manholes and storm sewers, workers will inspect inside of all manholes and vaults prior to entry to verify that there are no carelessly discarded sharps or hypodermics present.

TRAINING

Each employee with an occupational exposure (as explained in Letter of Interpretation, Appendix A) will be required to complete periodic training. The training program will ensure employee participation in the program (e.g. donning PPE, doffing PPE, proper disposal of contaminated material, proper handwashing techniques).

Training shall be provided as follows:
1. At the time of initial assignment to tasks where occupational exposure may take place;
2. At least annually thereafter.
3. Additional training shall be provided when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.

The training program shall contain at a minimum the following elements:
1. An accessible copy of the regulatory text of this standard and an explanation of its contents (Appendix B);
2. A general explanation of the epidemiology and symptoms of bloodborne diseases; an explanation of the modes of transmission of bloodborne pathogens:
3. An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
4. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
5. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;
6. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
7. An explanation of the basis for selection of personal protective equipment;
8. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;

9. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
10. Procedure to be followed if an exposure incident occurs, including method of reporting the incident and the medical follow-up that will be made available.
11. Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;
12. An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and
13. An opportunity for interactive questions and answers with the person conducting the training session.
14. The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.

PERSONAL PROTECTIVE EQUIPMENT

Each job site has a BioHaz clean-up kit which contains nitrile gloves, clear safety glasses, antiseptic towelettes (initial personal clean-up until First Aid / CPR employee can wash with water and soap), germ-killing wipes (for final clean-up of surface), and special red BioHaz bags to hold the waste from a potential infectious material clean-up. Universal precautions mandate the wearing of disposable gloves and safety glasses with side shields as minimum protection to avoid exposure to a biohazard. Soiled personal protective equipment, contaminated clean-up supplies, bloody clothing and used first aid supplies are placed into the red plastic bags found in the biohaz response kits. The red BioHaz bag has the international symbol for bio-hazard, and the warning “BIOHAZARD, BIOHAZARDOUS WASTE, INFECTIOUS WASTE” pre-printed onto the outside of the bag. Notify the FCI Safety Director to dispose of any biohazardous waste you accumulate at your jobsite or location.

ENGINEERING AND WORK PRACTICE CONTROLS

Blood, urine, feces, and saliva, are some examples of body fluids that could contain potentially infectious materials. These potentially infectious body fluids can be encountered in the workplace in the following ways:

When an injured or ill worker bleeds, vomits, or otherwise releases body fluids that others could become exposed consideration must be given of treatment. The responding Good Samaritan or First Aid / CPR trained employee shall immediately place nitrile gloves on hands and place safety glasses on face – correctly if assisting injured employee. If the injury appears to need emergency medical treatment, have injured employee compress the injury and/or place ill worker so they do not further injure themselves or you. Follow First Aid / CPR instruction and have someone call 911 to summon assistance.

While providing first aid for a coworker during injuries or incidents in the workplace, personal protective equipment is required. Even a minor cut that requires simple first aid treatment will release blood. Eye protection is worn when providing first aid because an arterial cut can spurt blood. For most injuries requiring first aid, the injured employee can treat themselves relieving First Aid responder of exposure.

Workers can also become exposed to a pathogen if they get stuck by contaminated medical equipment, syringes or “sharps” which are improperly disposed of. Hypodermic needles and sharps can be found in health care facilities, in places frequented by IV drug users, and from carelessly disposed sharps used by those who give themselves injections (for instance an insulin dependent diabetic).

Jobsites such as laboratories, health care facilities and wastewater treatment plants may require additional precautions when workers could become exposed to ventilation exhausts, aerosols or liquid wastes that may contain infectious agents. The Safety Director and Superintendent will notify of any special precautions to put in-place while working in these areas of increased respiratory risk.

All equipment and work surfaces shall be cleaned with paper towels, or absorbent material, and then wiped with SaniZide (germicidal wipes) while First Aid employee is still wearing PPE.

Healthy, unbroken skin provides good protection from the bacteria and viruses found in nature. Cuts and minor abrasions on the skin surface make it much easier for bacteria and viruses to enter the body and cause infection. If potentially infectious blood or body fluids contact the surface of the skin, immediately wash the skin with soap and water. Water, soap and the use of anti-septic wipes are effective in removing and killing dangerous pathogens on the skin surface. Even cold clean water will remove most germs.

Hand washing must be provided. As all jobsites vary, we must rely on available resources. If running water is available, then this will serve as the handwashing facility. Bottled water is provided on all jobsites; this can serve the need for hand washing. Antiseptic towelettes are provided in BioHazard Kits which can be used in lieu of running water. Supervisor must wash hands with soap and water as soon as feasible.

BLOODBORNE DISEASES

Pathogens are bacteria or viruses that can cause disease and/or illnesses. Pathogens can survive for long periods of time on surfaces that appear to be clean. Examples of pathogens include but are not limited to the following:

- AIDS (acquired immune deficiency) virus can cause destruction of the immune system.
- Hepatitis virus can cause infection and damage to the liver and other organs.
- Tuberculosis bacteria can cause infection and damage to lungs and other organs.

FCI employees who require the use of medically prescribed hypodermics to treat a health condition are responsible for providing their own “sharps container” for the proper disposal of any used hypodermic syringes or finger lancets that they may use while checking their blood or self-administering medicine at a FCI Jobsite. A sharps container is a hard plastic or metal sealed container that holds “sharps” such as a used hypodermic needle, this prevents sharps from accidentally sticking someone.

POST EXPOSURE

Workers who have experienced exposure to a potentially infectious source are to immediately report the potential exposure to their supervisor and/or Safety Director. If done quickly, certain follow-up treatments can reduce or eliminate the risk of infection, even after exposure occurs. These prophylactic treatments include administering hepatitis vaccine, immunoglobulin injections, or other medical interventions. Immediately report sharps exposures and other potentially infectious exposures when they occur.

Each job site has a BioHaz clean-up kit which contains nitrile gloves, clear safety glasses, antiseptic towelettes (initial personal clean-up until First Aid / CPR employee can wash with water and soap), germ-killing wipes (for final clean-up of surface), and special red BioHaz bags to hold the waste from a potential infectious material clean-up. Universal precautions mandate the wearing of disposable gloves and safety glasses with side shields as minimum protection to avoid exposure to a biohazard. Soiled personal protective equipment, contaminated clean-up supplies, bloody clothing and used first aid supplies are placed into the red plastic bags found in the biohaz response kits. The work surface shall be cleaned with SaniZide. Specimens of blood or other potentially infectious materials shall be placed in BioHaz red bag. The bag will be properly disposed at the nearest hospital; the Safety Director will verify disposal location.

ANNUAL EVALUATION

Questions or comments about the biohazard control program are answered by the FCI Safety Director. This safety process is to be evaluated annually.

APPENDIX A

LETTER OF INTERPRETATION FROM OSHA

January 16, 2007

Mr. Charles F. Brogan
Pro Med Training Center, LLC
P.O. Box 374
Front Royal, VA 22630

Dear Mr. Brogan:

Thank you for your August 16, 2005, letter to the Occupational Safety and Health Administration (OSHA). We apologize for the delay in our response. You sent some questions regarding OSHA's standards on first aid, including CPR and bloodborne pathogens. This reply letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not detailed in your original correspondence. Your paraphrased questions and our replies are below.

Questions: You wrote that you teach first aid, including CPR, in the Winchester, VA, area. You have been asked by several employers what OSHA's standards are for first aid, including CPR and bloodborne pathogens. Your clients are employed at various workplaces, including, but not limited to, doctors' offices, construction companies, daycare facilities, and retirement homes. Does everyone have to be trained in first aid, including CPR and bloodborne pathogens? What if there is a career rescue squad within five miles of the workplace?

Replies: OSHA's standard for first aid training in general industry, 29 CFR 1910.151(b), provides:

In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available.

In the construction industry, 29 CFR 1926.50(c) provides:

In the absence of an infirmary clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

The primary requirement addressed by these standards is that an employer must ensure prompt first aid treatment for injured employees, either by providing for the availability of a trained first aid provider at the worksite, or by ensuring that emergency treatment services are within reasonable proximity of the worksite. The basic purpose of these standards is to assure that adequate first aid is available in the

critical minutes between the occurrence of an injury and the availability of physician or hospital care for the injured employee.

One option these standards provide employers is to ensure that a member of the workforce has been trained in first aid. This option is, for most employers, a feasible and low-cost way to protect employees, as well putting the employer clearly in compliance with the standards. OSHA recommends, but does not require, that every workplace include one or more employees who are trained and certified in first aid, including CPR.

The other option for employers is to rely upon the reasonable proximity of an infirmary, clinic or hospital. OSHA has consistently taken the view that the reasonable availability of a trained emergency service provider, such as fire department paramedics or EMS responders, would be equivalent to the "infirmary, clinic, or hospital" specified by the literal wording of the standards. Emergency medical services can be provided either on-site or by evacuating the employee to an off-site facility in cases where that can be done safely.

However, the requirements that emergency medical services must be "reasonably accessible" or "in near proximity to the workplace" are stated only in general terms. An employer who contemplates relying on assistance from outside emergency responders as an alternative to providing a first-aid-trained employee must take a number of factors into account. The employer must take appropriate steps prior to any accident (such as making arrangements with the service provider) to ascertain that emergency medical assistance will be promptly available when an injury occurs. While the standards do not prescribe a number of minutes, OSHA has long interpreted the term "near proximity" to mean that emergency care must be available within no more than 3-4 minutes from the workplace, an interpretation that has been upheld by the Occupational Safety and Health Review Commission and by federal courts.

Medical literature establishes that, for serious injuries such as those involving stopped breathing, cardiac arrest, or uncontrolled bleeding, first aid treatment must be provided within the first few minutes to avoid permanent medical impairment or death. Accordingly, in workplaces where serious accidents such as those involving falls, suffocation, electrocution, or amputation are possible, emergency medical services must be available within 3-4 minutes, if there is no employee on the site who is trained to render first aid. OSHA exercises discretion in enforcing the first aid requirements in particular cases. OSHA recognizes that a somewhat longer response time of up to 15 minutes may be reasonable in workplaces, such as offices, where the possibility of such serious work-related injuries is more remote.

The first aid training standards at 29 CFR 1910.151 and 1926.50(c) generally apply throughout the industries that they cover. Other standards which apply to certain specific hazards or industries make employee first aid training mandatory, and reliance on outside emergency responders is not an allowable alternative. For example, see 29 CFR 1910. 266(i)(7) (mandatory first aid training for logging employees), and 29 CFR 1910.269(b) (requiring persons trained in first aid at work locations in the electric power industry).

The bloodborne pathogens standard at 29 CFR 1910.1030(g)(2) requires employers to provide training to any employees who have occupational exposure to blood or other potentially infectious materials, such as employees assigned medical or first aid duties by their employers. The standard at 29 CFR 1910.1030(b) defines "occupational exposure" as "reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties." If an employee is trained in first aid and identified by the employer as responsible for rendering medical assistance as part of his/her job duties, that employee is covered by the bloodborne pathogens standard.

You may find these standards on OSHA's website, http://www.osha.gov by following the link to "standards" and searching for "first aid," "bloodborne pathogens," "logging," etc. In addition, because you serve clients in Virginia, we should refer you to the standards of the Virginia Department of Labor and Industry (DOLI), which administers an OSHA-approved occupational safety and health plan. Virginia's general industry and construction first aid standards are the same as those of federal OSHA. However, Virginia may interpret its first aid standards more stringently than federal OSHA interprets its standards. Thus, we recommend that you also contact that agency. You may contact the Virginia DOLI at the following address:

Virginia Department of Labor and Industry
Powers-Taylor Building
13 South 13th Street
Richmond, VA 23219-4101
Phone: (804) 371-2327

APPENDIX B

TITLE 29 CFR 1910.1030 OSHA STANDARD

1910.1030(a) *Scope and Application*. This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.
1910.1030(b) *Definitions*. For purposes of this section, the following shall apply:

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

Blood means human blood, human blood components, and products made from human blood.

Bloodborne Pathogens means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

Clinical Laboratory means a workplace where diagnostic or other screening procedures are performed on blood or other potentially infectious materials.

Contaminated means the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

Contaminated Laundry means laundry which has been soiled with blood or other potentially infectious materials or may contain sharps.

Contaminated Sharps means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

Decontamination means the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Engineering Controls means controls (e.g., sharps disposal containers, self-sheathing needles, safer medical devices, such as sharps with engineered sharps injury protections and needleless systems) that isolate or remove the bloodborne pathogens hazard from the workplace.

Exposure Incident means a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

Handwashing Facilities means a facility providing an adequate supply of running potable water, soap, and single-use towels or air-drying machines.

Licensed Healthcare Professional is a person whose legally permitted scope of practice allows him or her to independently perform the activities required by paragraph (f) Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

HBV means hepatitis B virus.

HIV means human immunodeficiency virus.

Needleless systems means a device that does not use needles for:

(1) The collection of bodily fluids or withdrawal of body fluids after initial venous or arterial access is established;

(2) The administration of medication or fluids; or

(3) Any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps.

Occupational Exposure means reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties.

Other Potentially Infectious Materials means

(1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids;

(2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and

(3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

Parenteral means piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts, and abrasions.

Personal Protective Equipment is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

Production Facility means a facility engaged in industrial-scale, large-volume or high concentration production of HIV or HBV.

Regulated Waste means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Research Laboratory means a laboratory producing or using research-laboratory-scale amounts of HIV or HBV. Research laboratories may produce high concentrations of HIV or HBV but not in the volume found in production facilities.

Sharps with engineered sharps injury protections means a nonneedle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident.

Source Individual means any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to the employee. Examples include, but are not limited to, hospital and clinic patients; clients in institutions for the developmentally disabled; trauma victims; clients of drug and alcohol treatment facilities; residents of hospices and nursing homes; human remains; and individuals who donate or sell blood or blood components.

Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.

Universal Precautions is an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

Work Practice Controls means controls that reduce the likelihood of exposure by altering the manner in which a task is performed (e.g., prohibiting recapping of needles by a two-handed technique).
1910.1030(c) *Exposure Control* -
1910.1030(c)(1) *Exposure Control Plan*.
1910.1030(c)(1)(i) Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure.
1910.1030(c)(1)(ii) The Exposure Control Plan shall contain at least the following elements:
1910.1030(c)(1)(ii)(A) The exposure determination required by paragraph (c)(2),
1910.1030(c)(1)(ii)(B) The schedule and method of implementation for paragraphs (d) Methods of Compliance, (e) HIV and HBV Research Laboratories and Production Facilities, (f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, (g) Communication of Hazards to Employees, and (h) Recordkeeping, of this standard, and

1910.1030(c)(1)(ii)(C) The procedure for the evaluation of circumstances surrounding exposure incidents as required by paragraph (f)(3)(i) of this standard.
1910.1030(c)(1)(iii) Each employer shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.20(e).
1910.1030(c)(1)(iv) The Exposure Control Plan shall be reviewed and updated at least annually and whenever necessary to reflect new or modified tasks and procedures which affect occupational exposure and to reflect new or revised employee positions with occupational exposure. The review and update of such plans shall also:
1910.1030(c)(1)(iv)(A) Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens; and
1910.1030(c)(1)(iv)(B) Document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.
1910.1030(c)(1)(v) An employer, who is required to establish an Exposure Control Plan shall solicit input from non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation, and selection of effective engineering and work practice controls and shall document the solicitation in the Exposure Control Plan.
1910.1030(c)(1)(vi) The Exposure Control Plan shall be made available to the Assistant Secretary and the Director upon request for examination and copying.
1910.1030(c)(2) *Exposure Determination*.
1910.1030(c)(2)(i) Each employer who has an employee(s) with occupational exposure as defined by paragraph (b) of this section shall prepare an exposure determination. This exposure determination shall contain the following:
1910.1030(c)(2)(i)(A) A list of all job classifications in which all employees in those job classifications have occupational exposure;
1910.1030(c)(2)(i)(B) A list of job classifications in which some employees have occupational exposure, and
1910.1030(c)(2)(i)(C) A list of all tasks and procedures or groups of closely related task and procedures in which occupational exposure occurs and that are performed by employees in job classifications listed in accordance with the provisions of paragraph (c)(2)(i)(B) of this standard.
1910.1030(c)(2)(ii) This exposure determination shall be made without regard to the use of personal protective equipment.
1910.1030(d) *Methods of Compliance* -
1910.1030(d)(1) *General*. Universal precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious materials.
1910.1030(d)(2) *Engineering and Work Practice Controls*.
1910.1030(d)(2)(i) Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after institution of these controls, personal protective equipment shall also be used.
1910.1030(d)(2)(ii) Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.
1910.1030(d)(2)(iii) Employers shall provide handwashing facilities which are readily accessible to employees.
1910.1030(d)(2)(iv) When provision of handwashing facilities is not feasible, the employer shall provide either an appropriate antiseptic hand cleanser in conjunction

with clean cloth/paper towels or antiseptic towelettes. When antiseptic hand cleansers or towelettes are used, hands shall be washed with soap and running water as soon as feasible.
1910.1030(d)(2)(v) Employers shall ensure that employees wash their hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.
1910.1030(d)(2)(vi) Employers shall ensure that employees wash hands and any other skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or other potentially infectious materials.
1910.1030(d)(2)(vii) Contaminated needles and other contaminated sharps shall not be bent, recapped, or removed except as noted in paragraphs (d)(2)(vii)(A) and (d)(2)(vii)(B) below. Shearing or breaking of contaminated needles is prohibited.
1910.1030(d)(2)(vii)(A) Contaminated needles and other contaminated sharps shall not be bent, recapped or removed unless the employer can demonstrate that no alternative is feasible or that such action is required by a specific medical or dental procedure.
1910.1030(d)(2)(vii)(B) Such bending, recapping or needle removal must be accomplished through the use of a mechanical device or a one-handed technique.
1910.1030(d)(2)(viii) Immediately or as soon as possible after use, contaminated reusable sharps shall be placed in appropriate containers until properly reprocessed. These containers shall be:
1910.1030(d)(2)(viii)(A) Puncture resistant;
1910.1030(d)(2)(viii)(B) Labeled or color-coded in accordance with this standard;
1910.1030(d)(2)(viii)(C) Leakproof on the sides and bottom; and
1910.1030(d)(2)(viii)(D) In accordance with the requirements set forth in paragraph (d)(4)(ii)(E) for reusable sharps.
1910.1030(d)(2)(ix) Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.
1910.1030(d)(2)(x) Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or benchtops where blood or other potentially infectious materials are present.
1910.1030(d)(2)(xi) All procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, spraying, spattering, and generation of droplets of these substances.
1910.1030(d)(2)(xii) Mouth pipetting/suctioning of blood or other potentially infectious materials is prohibited.
1910.1030(d)(2)(xiii) Specimens of blood or other potentially infectious materials shall be placed in a container which prevents leakage during collection, handling, processing, storage, transport, or shipping.
1910.1030(d)(2)(xiii)(A) The container for storage, transport, or shipping shall be labeled or color-coded according to paragraph (g)(1)(i) and closed prior to being stored, transported, or shipped. When a facility utilizes Universal Precautions in the handling of all specimens, the labeling/color-coding of specimens is not necessary provided containers are recognizable as containing specimens. This exemption only applies while such specimens/containers remain within the facility. Labeling or color-coding in accordance with paragraph (g)(1)(i) is required when such specimens/containers leave the facility.

1910.1030(d)(2)(xiii)(B) If outside contamination of the primary container occurs, the primary container shall be placed within a second container which prevents leakage during handling, processing, storage, transport, or shipping and is labeled or color-coded according to the requirements of this standard.
1910.1030(d)(2)(xiii)(C) If the specimen could puncture the primary container, the primary container shall be placed within a secondary container which is puncture-resistant in addition to the above characteristics.
1910.1030(d)(2)(xiv) Equipment which may become contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated as necessary, unless the employer can demonstrate that decontamination of such equipment or portions of such equipment is not feasible.
1910.1030(d)(2)(xiv)(A) A readily observable label in accordance with paragraph (g)(1)(i)(H) shall be attached to the equipment stating which portions remain contaminated.
1910.1030(d)(2)(xiv)(B) The employer shall ensure that this information is conveyed to all affected employees, the servicing representative, and/or the manufacturer, as appropriate, prior to handling, servicing, or shipping so that appropriate precautions will be taken.
1910.1030(d)(3) *Personal Protective Equipment* -
1910.1030(d)(3)(i) *Provision*. When there is occupational exposure, the employer shall provide, at no cost to the employee, appropriate personal protective equipment such as, but not limited to, gloves, gowns, laboratory coats, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices. Personal protective equipment will be considered "appropriate" only if it does not permit blood or other potentially infectious materials to pass through to or reach the employee's work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.
1910.1030(d)(3)(ii) *Use*. The employer shall ensure that the employee uses appropriate personal protective equipment unless the employer shows that the employee temporarily and briefly declined to use personal protective equipment when, under rare and extraordinary circumstances, it was the employee's professional judgment that in the specific instance its use would have prevented the delivery of health care or public safety services or would have posed an increased hazard to the safety of the worker or co-worker. When the employee makes this judgement, the circumstances shall be investigated and documented in order to determine whether changes can be instituted to prevent such occurances in the future.
1910.1030(d)(3)(iii) *Accessibility*. The employer shall ensure that appropriate personal protective equipment in the appropriate sizes is readily accessible at the worksite or is issued to employees. Hypoallergenic gloves, glove liners, powderless gloves, or other similar alternatives shall be readily accessible to those employees who are allergic to the gloves normally provided.
1910.1030(d)(3)(iv) *Cleaning, Laundering, and Disposal*. The employer shall clean, launder, and dispose of personal protective equipment required by paragraphs (d) and (e) of this standard, at no cost to the employee.

1910.1030(d)(3)(v) *Repair and Replacement*. The employer shall repair or replace personal protective equipment as needed to maintain its effectiveness, at no cost to the employee.
1910.1030(d)(3)(vi) If a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible.
1910.1030(d)(3)(vii) All personal protective equipment shall be removed prior to leaving the work area.
1910.1030(d)(3)(viii) When personal protective equipment is removed it shall be placed in an appropriately designated area or container for storage, washing, decontamination or disposal.
1910.1030(d)(3)(ix) *Gloves*. Gloves shall be worn when it can be reasonably anticipated that the employee may have hand contact with blood, other potentially infectious materials, mucous membranes, and non-intact skin; when performing vascular access procedures except as specified in paragraph (d)(3)(ix)(D); and when handling or touching contaminated items or surfaces.
1910.1030(d)(3)(ix)(A) Disposable (single use) gloves such as surgical or examination gloves, shall be replaced as soon as practical when contaminated or as soon as feasible if they are torn, punctured, or when their ability to function as a barrier is compromised.
1910.1030(d)(3)(ix)(B) Disposable (single use) gloves shall not be washed or decontaminated for re-use.
1910.1030(d)(3)(ix)(C) Utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. However, they must be discarded if they are cracked, peeling, torn, punctured, or exhibit other signs of deterioration or when their ability to function as a barrier is compromised.
1910.1030(d)(3)(ix)(D) If an employer in a volunteer blood donation center judges that routine gloving for all phlebotomies is not necessary then the employer shall:
1910.1030(d)(3)(ix)(D)(1) Periodically reevaluate this policy;
1910.1030(d)(3)(ix)(D)(2) Make gloves available to all employees who wish to use them for phlebotomy;
1910.1030(d)(3)(ix)(D)(3) Not discourage the use of gloves for phlebotomy; and
1910.1030(d)(3)(ix)(D)(4) Require that gloves be used for phlebotomy in the following circumstances:
1910.1030(d)(3)(ix)(D)(4)(i) When the employee has cuts, scratches, or other breaks in his or her skin;
1910.1030(d)(3)(ix)(D)(4)(ii) When the employee judges that hand contamination with blood may occur, for example, when performing phlebotomy on an uncooperative source individual; and
1910.1030(d)(3)(ix)(D)(4)(iii) When the employee is receiving training in phlebotomy.
1910.1030(d)(3)(x) *Masks, Eye Protection, and Face Shields*. Masks in combination with eye protection devices, such as goggles or glasses with solid side shields, or chin-length face shields, shall be worn whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.
1910.1030(d)(3)(xi) *Gowns, Aprons, and Other Protective Body Clothing*. Appropriate protective clothing such as, but not limited to, gowns, aprons, lab coats, clinic jackets, or similar outer garments shall be worn in occupational exposure situations.

The type and characteristics will depend upon the task and degree of exposure anticipated.
1910.1030(d)(3)(xii) Surgical caps or hoods and/or shoe covers or boots shall be worn in instances when gross contamination can reasonably be anticipated (e.g., autopsies, orthopaedic surgery).
1910.1030(d)(4) *Housekeeping* –
1910.1030(d)(4)(i) *General*. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. The employer shall determine and implement an appropriate written schedule for cleaning and method of decontamination based upon the location within the facility, type of surface to be cleaned, type of soil present, and tasks or procedures being performed in the area.
1910.1030(d)(4)(ii) All equipment and environmental and working surfaces shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.
1910.1030(d)(4)(ii)(A) Contaminated work surfaces shall be decontaminated with an appropriate disinfectant after completion of procedures; immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials; and at the end of the work shift if the surface may have become contaminated since the last cleaning.
1910.1030(d)(4)(ii)(B) Protective coverings, such as plastic wrap, aluminum foil, or imperviously-backed absorbent paper used to cover equipment and environmental surfaces, shall be removed and replaced as soon as feasible when they become overtly contaminated or at the end of the workshift if they may have become contaminated during the shift.
1910.1030(d)(4)(ii)(C) All bins, pails, cans, and similar receptacles intended for reuse which have a reasonable likelihood for becoming contaminated with blood or other potentially infectious materials shall be inspected and decontaminated on a regularly scheduled basis and cleaned and decontaminated immediately or as soon as feasible upon visible contamination.
1910.1030(d)(4)(ii)(D) Broken glassware which may be contaminated shall not be picked up directly with the hands. It shall be cleaned up using mechanical means, such as a brush and dust pan, tongs, or forceps.
1910.1030(d)(4)(ii)(E) Reusable sharps that are contaminated with blood or other potentially infectious materials shall not be stored or processed in a manner that requires employees to reach by hand into the containers where these sharps have been placed.
1910.1030(d)(4)(iii) *Regulated Waste* -
1910.1030(d)(4)(iii)(A) *Contaminated Sharps Discarding and Containment*.
1910.1030(d)(4)(iii)(A)(1) Contaminated sharps shall be discarded immediately or as soon as feasible in containers that are:
1910.1030(d)(4)(iii)(A)(1)(i) Closable;
1910.1030(d)(4)(iii)(A)(1)(ii) Puncture resistant;
1910.1030(d)(4)(iii)(A)(1)(iii) Leakproof on sides and bottom; and
1910.1030(d)(4)(iii)(A)(1)(iv) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard.
1910.1030(d)(4)(iii)(A)(2) During use, containers for contaminated sharps shall be:
1910.1030(d)(4)(iii)(A)(2)(i) Easily accessible to personnel and located as close as is feasible to the immediate area where sharps are used or can be reasonably anticipated to be found (e.g., laundries);

1910.1030(d)(4)(iii)(A)(2)(ii) Maintained upright throughout use; and
1910.1030(d)(4)(iii)(A)(2)(iii) Replaced routinely and not be allowed to overfill.
1910.1030(d)(4)(iii)(A)(3) When moving containers of contaminated sharps from the area of use, the containers shall be:
1910.1030(d)(4)(iii)(A)(3)(i) Closed immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, transport, or shipping;
1910.1030(d)(4)(iii)(A)(3)(ii) Placed in a secondary container if leakage is possible. The second container shall be:
1910.1030(d)(4)(iii)(A)(3)(ii)(A) Closable;
1910.1030(d)(4)(iii)(A)(3)(ii)(B) Constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping; and
1910.1030(d)(4)(iii)(A)(3)(ii)(C) Labeled or color-coded according to paragraph (g)(1)(i) of this standard.
1910.1030(d)(4)(iii)(A)(4) Reusable containers shall not be opened, emptied, or cleaned manually or in any other manner which would expose employees to the risk of percutaneous injury.
1910.1030(d)(4)(iii)(B) *Other Regulated Waste Containment* -
1910.1030(d)(4)(iii)(B)(1) Regulated waste shall be placed in containers which are:
1910.1030(d)(4)(iii)(B)(1)(i) Closable;
1910.1030(d)(4)(iii)(B)(1)(ii) Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;
1910.1030(d)(4)(iii)(B)(1)(iii) Labeled or color-coded in accordance with paragraph (g)(1)(i) this standard; and
1910.1030(d)(4)(iii)(B)(1)(iv) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
1910.1030(d)(4)(iii)(B)(2) If outside contamination of the regulated waste container occurs, it shall be placed in a second container. The second container shall be:
1910.1030(d)(4)(iii)(B)(2)(i) Closable;
1910.1030(d)(4)(iii)(B)(2)(ii) Constructed to contain all contents and prevent leakage of fluids during handling, storage, transport or shipping;
1910.1030(d)(4)(iii)(B)(2)(iii) Labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard; and
1910.1030(d)(4)(iii)(B)(2)(iv) Closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport, or shipping.
1910.1030(d)(4)(iii)(C) Disposal of all regulated waste shall be in accordance with applicable regulations of the United States, States and Territories, and political subdivisions of States and Territories.
1910.1030(d)(4)(iv) *Laundry*.
1910.1030(d)(4)(iv)(A) Contaminated laundry shall be handled as little as possible with a minimum of agitation.
1910.1030(d)(4)(iv)(A)(1) Contaminated laundry shall be bagged or containerized at the location where it was used and shall not be sorted or rinsed in the location of use.
1910.1030(d)(4)(iv)(A)(2) Contaminated laundry shall be placed and transported in bags or containers labeled or color-coded in accordance with paragraph (g)(1)(i) of this standard. When a facility utilizes Universal Precautions in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with Universal Precautions.

1910.1030(d)(4)(iv)(A)(3) Whenever contaminated laundry is wet and presents a reasonable likelihood of soak-through of or leakage from the bag or container, the laundry shall be placed and transported in bags or containers which prevent soak-through and/or leakage of fluids to the exterior.
1910.1030(d)(4)(iv)(B) The employer shall ensure that employees who have contact with contaminated laundry wear protective gloves and other appropriate personal protective equipment.
1910.1030(d)(4)(iv)(C) When a facility ships contaminated laundry off-site to a second facility which does not utilize Universal Precautions in the handling of all laundry, the facility generating the contaminated laundry must place such laundry in bags or containers which are labeled or color-coded in accordance with paragraph (g)(1)(i).
1910.1030(e) *HIV and HBV Research Laboratories and Production Facilities*.
1910.1030(f) *Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up -*
1910.1030(f)(1) *General*.
1910.1030(f)(1)(i) The employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident.
1910.1030(f)(1)(ii) The employer shall ensure that all medical evaluations and procedures including the hepatitis B vaccine and vaccination series and post-exposure evaluation and follow-up, including prophylaxis, are:
1910.1030(f)(1)(ii)(A) Made available at no cost to the employee;
1910.1030(f)(1)(ii)(B) Made available to the employee at a reasonable time and place;
1910.1030(f)(1)(ii)(C) Performed by or under the supervision of a licensed physician or by or under the supervision of another licensed healthcare professional; and
1910.1030(f)(1)(ii)(D) Provided according to recommendations of the U.S. Public Health Service current at the time these evaluations and procedures take place, except as specified by this paragraph (f).
1910.1030(f)(1)(iii) The employer shall ensure that all laboratory tests are conducted by an accredited laboratory at no cost to the employee.
1910.1030(f)(2) *Hepatitis B Vaccination*.
1910.1030(f)(2)(i) Hepatitis B vaccination shall be made available after the employee has received the training required in paragraph (g)(2)(vii)(I) and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons.
1910.1030(f)(2)(ii) The employer shall not make participation in a prescreening program a prerequisite for receiving hepatitis B vaccination.
1910.1030(f)(2)(iii) If the employee initially declines hepatitis B vaccination but at a later date while still covered under the standard decides to accept the vaccination, the employer shall make available hepatitis B vaccination at that time.
1910.1030(f)(2)(iv) The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in appendix A.
1910.1030(f)(2)(v) If a routine booster dose(s) of hepatitis B vaccine is recommended by the U.S. Public Health Service at a future date, such booster dose(s) shall be made available in accordance with section (f)(1)(ii).

1910.1030(f)(3) *Post-exposure Evaluation and Follow-up*. Following a report of an exposure incident, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following elements:
1910.1030(f)(3)(i) Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred;
1910.1030(f)(3)(ii) Identification and documentation of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law;
1910.1030(f)(3)(ii)(A) The source individual's blood shall be tested as soon as feasible and after consent is obtained in order to determine HBV and HIV infectivity. If consent is not obtained, the employer shall establish that legally required consent cannot be obtained. When the source individual's consent is not required by law, the source individual's blood, if available, shall be tested and the results documented.
1910.1030(f)(3)(ii)(B) When the source individual is already known to be infected with HBV or HIV, testing for the source individual's known HBV or HIV status need not be repeated.
1910.1030(f)(3)(ii)(C) Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.
1910.1030(f)(3)(iii) Collection and testing of blood for HBV and HIV serological status;
1910.1030(f)(3)(iii)(A) The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained.
1910.1030(f)(3)(iii)(B) If the employee consents to baseline blood collection, but does not give consent at that time for HIV serologic testing, the sample shall be preserved for at least 90 days. If, within 90 days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.
1910.1030(f)(3)(iv) Post-exposure prophylaxis, when medically indicated, as recommended by the U.S. Public Health Service;
1910.1030(f)(3)(v) Counseling; and
1910.1030(f)(3)(vi) Evaluation of reported illnesses.
1910.1030(f)(4) *Information Provided to the Healthcare Professional*.
1910.1030(f)(4)(i) The employer shall ensure that the healthcare professional responsible for the employee's Hepatitis B vaccination is provided a copy of this regulation.
1910.1030(f)(4)(ii) The employer shall ensure that the healthcare professional evaluating an employee after an exposure incident is provided the following information:
1910.1030(f)(4)(ii)(A) A copy of this regulation;
1910.1030(f)(4)(ii)(B) A description of the exposed employee's duties as they relate to the exposure incident;
1910.1030(f)(4)(ii)(C) Documentation of the route(s) of exposure and circumstances under which exposure occurred;
1910.1030(f)(4)(ii)(D) Results of the source individual's blood testing, if available; and
1910.1030(f)(4)(ii)(E) All medical records relevant to the appropriate treatment of the employee including vaccination status which are the employer's responsibility to maintain.

1910.1030(f)(5) *Healthcare Professional's Written Opinion*. The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation.
1910.1030(f)(5)(i) The healthcare professional's written opinion for Hepatitis B vaccination shall be limited to whether Hepatitis B vaccination is indicated for an employee, and if the employee has received such vaccination.
1910.1030(f)(5)(ii) The healthcare professional's written opinion for post-exposure evaluation and follow-up shall be limited to the following information:
1910.1030(f)(5)(ii)(A) That the employee has been informed of the results of the evaluation; and
1910.1030(f)(5)(ii)(B) That the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials which require further evaluation or treatment.
1910.1030(f)(5)(iii) All other findings or diagnoses shall remain confidential and shall not be included in the written report.
1910.1030(f)(6) *Medical Recordkeeping*. Medical records required by this standard shall be maintained in accordance with paragraph (h)(1) of this section.
1910.1030(g) *Communication of Hazards to Employees* -
1910.1030(g)(1) *Labels and Signs* -
1910.1030(g)(1)(i) *Labels*.
1910.1030(g)(1)(i)(A) Warning labels shall be affixed to containers of regulated waste, refrigerators and freezers containing blood or other potentially infectious material; and other containers used to store, transport or ship blood or other potentially infectious materials, except as provided in paragraph (g)(1)(i)(E), (F) and (G).
1910.1030(g)(1)(i)(B) Labels required by this section shall include the following legend:

BIOHAZARD

1910.1030(g)(1)(i)(C) These labels shall be fluorescent orange or orange-red or predominantly so, with lettering and symbols in a contrasting color.
1910.1030(g)(1)(i)(D) Labels shall be affixed as close as feasible to the container by string, wire, adhesive, or other method that prevents their loss or unintentional removal.
1910.1030(g)(1)(i)(E) Red bags or red containers may be substituted for labels.
1910.1030(g)(1)(i)(F) Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use are exempted from the labeling requirements of paragraph (g).

1910.1030(g)(1)(i)(G) Individual containers of blood or other potentially infectious materials that are placed in a labeled container during storage, transport, shipment or disposal are exempted from the labeling requirement.
1910.1030(g)(1)(i)(H) Labels required for contaminated equipment shall be in accordance with this paragraph and shall also state which portions of the equipment remain contaminated.
1910.1030(g)(1)(i)(I) Regulated waste that has been decontaminated need not be labeled or color-coded.
1910.1030(g)(1)(ii) *Signs*.
1910.1030(g)(1)(ii)(A) The employer shall post signs at the entrance to work areas specified in paragraph (e), HIV and HBV Research Laboratory and Production Facilities, which shall bear the following legend:

BIOHAZARD

(Name of the Infectious Agent)
(Special requirements for entering the area)
(Name, telephone number of the laboratory director or other responsible person.)
1910.1030(g)(1)(ii)(B) These signs shall be fluorescent orange-red or predominantly so, with lettering and symbols in a contrasting color.
1910.1030(g)(2) *Information and Training*.
1910.1030(g)(2)(i) The employer shall train each employee with occupational exposure in accordance with the requirements of this section. Such training must be provided at no cost to the employee and during working hours. The employer shall institute a training program and ensure employee participation in the program.
1910.1030(g)(2)(ii) Training shall be provided as follows:
1910.1030(g)(2)(ii)(A) At the time of initial assignment to tasks where occupational exposure may take place;
1910.1030(g)(2)(ii)(B) At least annually thereafter.
1910.1030(g)(2)(iii) [Reserved]
1910.1030(g)(2)(iv) Annual training for all employees shall be provided within one year of their previous training.
1910.1030(g)(2)(v) Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.
1910.1030(g)(2)(vi) Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.

1910.1030(g)(2)(vii) The training program shall contain at a minimum the following elements:
1910.1030(g)(2)(vii)(A) An accessible copy of the regulatory text of this standard and an explanation of its contents;
1910.1030(g)(2)(vii)(B) A general explanation of the epidemiology and symptoms of bloodborne diseases;
1910.1030(g)(2)(vii)(C) An explanation of the modes of transmission of bloodborne pathogens;
1910.1030(g)(2)(vii)(D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
1910.1030(g)(2)(vii)(E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
1910.1030(g)(2)(vii)(F) An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;
1910.1030(g)(2)(vii)(G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
1910.1030(g)(2)(vii)(H) An explanation of the basis for selection of personal protective equipment;
1910.1030(g)(2)(vii)(I) Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;
1910.1030(g)(2)(vii)(J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
1910.1030(g)(2)(vii)(K) An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;
1910.1030(g)(2)(vii)(L) Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;
1910.1030(g)(2)(vii)(M) An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and
1910.1030(g)(2)(vii)(N) An opportunity for interactive questions and answers with the person conducting the training session.
1910.1030(g)(2)(viii) The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.
1910.1030(g)(2)(ix) Additional Initial Training for Employees in HIV and HBV Laboratories and Production Facilities. Employees in HIV or HBV research laboratories and HIV or HBV production facilities shall receive the following initial training in addition to the above training requirements.
1910.1030(g)(2)(ix)(A) The employer shall assure that employees demonstrate proficiency in standard microbiological practices and techniques and in the practices and operations specific to the facility before being allowed to work with HIV or HBV.
1910.1030(g)(2)(ix)(B) The employer shall assure that employees have prior experience in the handling of human pathogens or tissue cultures before working with HIV or HBV.

1910.1030(g)(2)(ix)(C) The employer shall provide a training program to employees who have no prior experience in handling human pathogens. Initial work activities shall not include the handling of infectious agents. A progression of work activities shall be assigned as techniques are learned and proficiency is developed. The employer shall assure that employees participate in work activities involving infectious agents only after proficiency has been demonstrated.
1910.1030(h) *Recordkeeping* -
1910.1030(h)(1) *Medical Records*.
1910.1030(h)(1)(i) The employer shall establish and maintain an accurate record for each employee with occupational exposure, in accordance with 29 CFR 1910.1020.
1910.1030(h)(1)(ii) This record shall include:
1910.1030(h)(1)(ii)(A) The name and social security number of the employee;
1910.1030(h)(1)(ii)(B) A copy of the employee's hepatitis B vaccination status including the dates of all the hepatitis B vaccinations and any medical records relative to the employee's ability to receive vaccination as required by paragraph (f)(2);
1910.1030(h)(1)(ii)(C) A copy of all results of examinations, medical testing, and follow-up procedures as required by paragraph (f)(3);
1910.1030(h)(1)(ii)(D) The employer's copy of the healthcare professional's written opinion as required by paragraph (f)(5); and
1910.1030(h)(1)(ii)(E) A copy of the information provided to the healthcare professional as required by paragraphs (f)(4)(ii)(B)(C) and (D).
1910.1030(h)(1)(iii) Confidentiality. The employer shall ensure that employee medical records required by paragraph (h)(1) are:
1910.1030(h)(1)(iii)(A) Kept confidential; and
1910.1030(h)(1)(iii)(B) Not disclosed or reported without the employee's express written consent to any person within or outside the workplace except as required by this section or as may be required by law.
1910.1030(h)(1)(iv) The employer shall maintain the records required by paragraph (h) for at least the duration of employment plus 30 years in accordance with 29 CFR 1910.1020.
1910.1030(h)(2) *Training Records*.
1910.1030(h)(2)(i) Training records shall include the following information:
1910.1030(h)(2)(i)(A) The dates of the training sessions;
1910.1030(h)(2)(i)(B) The contents or a summary of the training sessions;
1910.1030(h)(2)(i)(C) The names and qualifications of persons conducting the training; and
1910.1030(h)(2)(i)(D) The names and job titles of all persons attending the training sessions.
1910.1030(h)(2)(ii) Training records shall be maintained for 3 years from the date on which the training occurred.
1910.1030(h)(3) *Availability*.
1910.1030(h)(3)(i) The employer shall ensure that all records required to be maintained by this section shall be made available upon request to the Assistant Secretary and the Director for examination and copying.
1910.1030(h)(3)(ii) Employee training records required by this paragraph shall be provided upon request for examination and copying to employees, to employee representatives, to the Director, and to the Assistant Secretary.

1910.1030(h)(3)(iii) Employee medical records required by this paragraph shall be provided upon request for examination and copying to the subject employee, to anyone having written consent of the subject employee, to the Director, and to the Assistant Secretary in accordance with 29 CFR 1910.1020.
1910.1030(h)(4) *Transfer of Records*. The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).
1910.1030(h)(5) *Sharps injury log*.
1910.1030(h)(5)(i) The employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee. The sharps injury log shall contain, at a minimum:
1910.1030(h)(5)(i)(A) The type and brand of device involved in the incident,
1910.1030(h)(5)(i)(B) The department or work area where the exposure incident occurred, and
1910.1030(h)(5)(i)(C) An explanation of how the incident occurred.
1910.1030(h)(5)(ii) The requirement to establish and maintain a sharps injury log shall apply to any employer who is required to maintain a log of occupational injuries and illnesses under 29 CFR part 1904.
1910.1030(h)(5)(iii) The sharps injury log shall be maintained for the period required by 29 CFR 1904.33.
1910.1030(i) *Dates* -
1910.1030(i)(1) *Effective Date*. The standard shall become effective on March 6, 1992.
1910.1030(i)(2) The Exposure Control Plan required by paragraph (c) of this section shall be completed on or before May 5, 1992.
1910.1030(i)(3) Paragraphs (g)(2) Information and Training and (h) Recordkeeping of this section shall take effect on or before June 4, 1992.
1910.1030(i)(4) Paragraphs (d)(2) Engineering and Work Practice Controls, (d)(3) Personal Protective Equipment, (d)(4) Housekeeping, (e) HIV and HBV Research Laboratories and Production Facilities, (f) Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up, and (g)(1) Labels and Signs of this section, shall take effect July 6, 1992.
[56 FR 64004, Dec. 06, 1991, as amended at 57 FR 12717, April 13, 1992; 57 FR 29206, July 1, 1992; 61 FR 5507, Feb. 13, 1996; 66 FR 5325 Jan., 18, 2001; 71 FR 16672 and 16673, April 3, 2006; 73 FR 75586, Dec. 12, 2008; 76 FR 33608, June 8, 2011; 76 FR 80740, Dec. 27, 2011; 77 FR 19934, April 3, 2012]

Hazard Communication Process

PURPOSE

The purpose of the Hazard Communication standard is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees.

SCOPE

All employees of the company are included within this process as all may have exposure to a product with health or physical hazard.

RESPONSIBILITY

The Safety Director will maintain a Master Chemical List and electronic folder with all safety data sheets provided.

The Project Manager will provide safety data sheets for all products which have a health or physical hazard as required by hazard communication process.

The Superintendent, General Superintendent, Director of Masonry will provide safety data sheets which have a health or physical hazard as required by hazard communication process.

The Master Mechanic will provide safety data sheets which have a health or physical hazard as required by hazard communication process.

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GENERAL INFORMATION

In order to comply with the OSHA Hazard Communication Standard, 29 CFR 1910.1200, the following written Hazard Communication Process has been established for FCI Construction, Inc. The written program is available in the main office, at the jobsite office trailers, and on-line electronically. Information about hazardous chemicals is provided through employee training, container labeling, and use of safety data sheets (SDS). The hazard communication program applies to all physical forms of hazardous chemicals including liquids, solids, gases, vapors, fumes and mists.

No FCI Employee will hesitate to ask the jobsite Superintendent or Safety Director for assistance regarding the storage, handling or use of any chemical product in the workplace. All hazard communication inquiries will be responded to promptly by the FCI Construction, Inc. Safety Director. The Safety Director can be contacted through the FCI office switchboard by phoning (260) 927-8516. *For urgent situations regarding chemical exposure, the Safety Director can and should be contacted at any time via mobile (260) 570-6620.*

Specifically excluded from a hazard communication program are articles, these are solid inert objects that present no exposure hazard unless grinded, shredded, melted or otherwise changed from their original form. A flashlight battery for example, which is not normally cut open during use, would be considered an article. If the battery case was cut open, exposing an employee to the once-sealed contents, an SDS would be required. Other examples of articles include metal alloys unless they are grinded, welded or melted. Welding rods, since they are used under high temperatures and produce fumes, require safety data sheets since metal fumes are generated during use.

Prescription and non-prescription drugs, cosmetics, foods, alcoholic beverages, tobacco products, hazardous waste of any kind, and pesticides are covered under different regulatory requirements and are not covered under the Hazard Communication Standard. FCI Employees who have questions about pesticides, herbicides or hazardous waste will contact the Safety Director.

Chemical exposures during the construction activities of FCI Employees are typical to the construction industry. Flammable fuels (diesel, gasoline, LP and other compressed gases) have commonly understood fire risks, as well as potential skin, eye and inhalation risks. Epoxy components used in adhesives and paint products are used with adequate ventilation as epoxies may have sensitizing or irritating properties. Sealing agents and paint products are typically spray applied over large surface areas resulting in vapor releases that require adequate ventilation. FCI Field Employees use appropriate caution to ensure that carbon monoxide generated by gasoline and diesel engines is adequately vented, and not allowed to accumulate in work areas. Gas detection devices are available to verify that adequate oxygen levels are available in enclosed or confined spaces. Likewise, detection devices are used to measure toxic gases such as carbon monoxide, hydrogen sulfide, and mixtures or potentially explosive gases. Special procedures and protective practices are put in-place whenever a FCI Employee enters into either a confined space or a permit

required confined space. Dusts generated by masonry or other construction activities are minimized by wet saw methods, target ventilation systems, and if needed respirators. The Safety Director will answer all questions regarding how to obtain, and use respiratory protection. The Safety Director serves as the Administrator for the FCI Respiratory Protection Program.

SAFETY DATA SHEETS (SDS)

The Safety Director will be responsible for maintaining the SDS system for the company, will evaluate incoming SDS for new and significant health/safety information, and will add each newly approved product SDS to the FCI master list of chemical products. The Safety Director will rely on Project Managers and Field Superintendents to provide notification of new products prior to procurement and use. Safety data sheets are provided by the manufacturer of the chemical product, they are usually available from the manufacturer on-line. We must have SDS information for each product we use. Beginning in 2013, a standardized 16-section format is mandated by OSHA for each SDS:

- The name of the product with the chemical name of all ingredients which are greater than 1% of the formula, unless the chemical ingredient is identified as a cancer causing agent (carcinogen). Carcinogens are listed if they make up 0.1% or more of the product. The SDS will also list the chemical and common names of all ingredients which have been determined to be health hazards and, the chemical and common names of all ingredients which have been determined to be physical hazards.
- The physical and chemical characteristics of the hazardous chemical ingredients such as boiling point, vapor pressure, flash point, etc.
- The physical hazards associated with the hazardous chemical, including the potential for fire, explosion and reactivity. Gasoline or instance presents a well-known fire risk.
- The health hazards of the hazardous chemical including signs and symptoms of exposure, or medical conditions which could be aggravated by exposure to the chemical.
- The primary routes of exposure (i.e. does the chemical pass through the skin, is it breathed through the lungs, etc.).
- The OSHA permissible exposure levels (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values as are currently established. For instance, OSHA has established a PEL of 50-parts per million as the upper allowable level for ammonia vapor. This information is available from the sd sheet, your safety director, or the Code of Federal Regulations as it applies to the Construction Industry (Look in 29 CFR 1926.55 for a list of the gases, vapors, fumes, dusts and mists which are regulated in the workplace). Any FCI employee can consult with the Safety Director regarding questions about workplace chemical exposure.
- Whether the hazardous chemical is listed as a carcinogen by OSHA or by the National Toxicology Program (NTP), or by the International Agency for Research on Cancer (IARC). Carcinogens are cancer causing agents. Benzene and asbestos are two examples of regulated carcinogens that could be encountered in the workplace.

- Any other information or precautions known by the manufacturer for the safe handling of the chemical product. These other precautions would include protective measures, hygienic practices, procedures to use during maintenance, and information about how to properly respond to spills and leaks.
- Any special control measures such as engineering control measures, work practices, or personal protective measures to minimize exposure to hazardous chemicals.
- Emergency first aid procedures to put in-place immediately when a worker becomes ill due to chemical exposure. These emergency first aid procedures may include instructions such as, remove worker to fresh air for overexposure to a cleaning solvent", or "hold eyelids open and flush eyes with large amounts of clean water immediately after an accidental chemical splash of anhydrous ammonia, seek medical attention immediately".
- The date the SDS was written by the manufacturer, SDS should be dated, newer versions sometimes, not usually, have updated information.
- The name address and phone number of the manufacturer.

Some definitions of common terms found on sd sheets are as follows:

- Carcinogen- The hazardous chemical is listed as a cancer causing agent (or carcinogen) by OSHA or by the National Toxicology Program (NTP), or by the International Agency for Research on Cancer (IARC).
- Corrosive- The hazardous chemical causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.
- Highly Toxic Ingested (eaten)- The hazardous chemical has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when taken orally, or
- Highly Toxic Skin Contact-a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when in contact with skin for less than 24-hours, or
- Highly Toxic Inhaled- a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when inhaled continuously for one-hour or less.
- Irritant-The hazardous chemical is not corrosive but causes a reversible inflammation of living tissue at the site of contact.
- Sensitizer-The hazardous chemical causes some people to develop an allergic reaction in normal tissue after repeated exposure.

Target Organ Effects- Are described on the SDS provided by the manufacturer. Some target organ categories may be listed on the SDS as follows:

- Hepatotoxins-cause liver damage, yellow jaundice skin, liver enlargement and harm. Chemicals such as carbon tetrachloride can be hepatotoxins.
- Nephrotoxins-cause kidney damage. Chemicals such as glycols and uranium can be nephrotoxins.
- Neurotoxins-cause damage to brain and nerves. Chemicals such as mercury and certain pesticides can be neurotoxic.
- Blood forming system toxins-cause damage to body by preventing oxygen distribution. Chemicals such as cyanide and carbon monoxide are examples.
- Pulmonary Toxins-cause damage to lungs. Chemicals such as silica dust and asbestos can be pulmonary toxins.

- Reproductive Toxins-cause damage to reproductive capabilities, damage chromosomes, and harm to unborn babies. Lead is an example of a reproductive toxin.
- Skin hazards-Affect the skin, causing rashes, irritation and defatting which makes the skin dry and brittle. Solvents, and chlorinated compounds can be skin hazards.
- Eye Hazards-Can cause damage to the eyes or vision. Acids and strong caustic (base) compounds can damage vision. Anhydrous ammonia, and battery acid can cause severe eye injuries.

The FCI Safety Director will further explain any aspect of the information contained on the SDS to any employee who requests help. Copies of SDS for all chemicals to which employees may be exposed will be kept in the main office, at the jobsite office trailers, or job-box. Ready available SDS information is provided at each FCI work site. The SDS information will be available to all employees in their work area for review during each work shift. If SDS are not available, or new products in use do not have a SDS, immediately contact the Safety Director.

CONTAINER LABELING

The Superintendent will verify that all containers received for use will be clearly labeled as to contents. Each Superintendent will ensure that all secondary containers are labeled with either an extra copy of the original manufacturer's label or with generic labels that include the identity of the product and the hazard warning associated with the product. Starting in 2013 chemical manufacturers and importers will provide a label with a harmonized signal word and hazard statements for each hazard class and category. All labels will being displaying one or more of the nine special red diamond framed pictographs as shown below. For help with labeling, please contact the Safety Director.

NEW HAZARD COMMUNICATION STANDARD PICTOGRAMS AND HAZARDS

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

The Hazard Communication Program also known as HazCom or the Right-To-Know law informs workers about the hazards associated with the chemical products used in the workplace. Information about chemical products is shared with each worker

through training, use of product safety data sheets (SDS), and warning labels. There are changes in the HazCom regulation.

These changes are part of the Globally Harmonized System (GHS) that provides a universal system for labeling of chemicals and for providing information through a standardized safety data sheet. The goal is that labels and safety data sheets would be the same design throughout the world so that manufacturers, shippers and end users would all have access to the same information, regardless of what country the chemicals go to or come from. The new rules were proposed by the United Nations Conference on Environment and Development and were adopted by most countries, including the USA. These changes will be phased in over the next two years.

There are three changes:

- Hazard classifications have been changed to provide one signal word, and other more detailed hazard information about the chemical product. There can be more than one hazard class, for instance gasoline would be assigned both a Health Hazard and a Flame Hazard.

- Label changes Chemical manufacturers and importers will provide a label with a harmonized signal word and hazard statements for each hazard class and category. All labels will also have one or more of the nine special red diamond framed pictograms shown on page one.

- Safety Data Sheets What used to be called Material Safety Data Sheets will now be called Safety Data Sheets due to Global Harmonization. During the next few years, Safety Data Sheets will be updated by each manufacturer to include a standard 16-section format of information. FCI will continue to maintain hard copies of safety data sheets at each jobsite.

Please ask your Safety Director if you have any questions about transporting, storing or using chemical products. Your Safety Director provides guidance to any FCI Employee who wants to review any information found on the Safety Data Sheets including information about toxicity, or OSHA permissible exposure levels. Any FCI Employee can call the Safety Director at 260 570-6620.

HIGHLIGHTS OF GLOBALLY HARMONIZED SYSTEM REVIEWED

- A written hazard communication program is maintained at FCI Construction.
- Safety data sheets are available for each chemical product we use, and will be updated to the new 16-section format over the next few years.
- Each chemical container must have a label. In 2014 all labels will include hazard signal words and special red diamond pictograms as shown on page one.
- The nine red diamond pictograms are designed to be self-explaining; for instance:
  - The skull and crossbones means *"Poison or toxic"*
  - The body with the star means "*long term Health Hazard"*
  - The exclamation point means *"immediate Health Hazard"*
  - The flame symbol means *"Flame Hazard". Etc., etc.*

- HazCom training is provided during orientation and in periodic field “toolbox talks”.
- Call your Safety Director at (260) 570-6620 at any time if you have questions related to the chemical products we use in the workplace.

DETERMINATION OF HAZARDOUS CHEMICAL

The hazard communication standard requires that all hazardous chemicals in the workplace be evaluated, and that information is transmitted to all employees who will come into contact with that substance. FCI will maintain an inventory of the chemical products used at each site.

Using the information from the label and information from the SDS, the Safety Director will evaluate the hazard properties of each chemical product.

All materials require an SDS to be on record in the main office. Each material on the jobsites will have a readily available SDS for any employee to reference.

EMPLOYEE TRAINING

The Safety Director is responsible for the maintaining the employee hazard communication training program. Prior to starting work, each employee of FCI Construction will attend a health and safety orientation and will receive information and training on the following:

- An overview of the requirements contained in the Hazard Communication Standard.
- Locations of hazardous chemicals in the workplace.
- Location and availability of our written hazard program.
- How FCI determines levels of hazardous chemicals, for instance odors or vapor levels of certain chemicals. FCI will also use measuring devices where needed such as a gas monitoring device where hazardous gases such as carbon monoxide or flammable gases could accumulate. If needed the Safety Director will conduct industrial hygiene evaluations to quantify levels of potentially harmful chemicals.
- The physical and health effects of the hazardous chemicals
- Methods and observation techniques used to determine the presence or release of hazardous chemicals in the work area.
- The physical and health effects of the hazardous chemicals used at work.
- How to lessen or prevent exposure to these hazardous chemicals through use of environmental controls, work practices or personal protective equipment.
- Steps the company has taken to lessen or prevent exposure to these chemicals
- Emergency procedures to follow if workers are exposed to chemicals.
- How to read labels and review sd sheets to obtain appropriate hazard information.
- Location of SDS file and location of the list of chemical products used at FCI Construction.

After attending the training session, each employee will verify that they attended the training, have access to written materials, and understand the FCI Construction, Inc. hazard communication standard.

All FCI Personnel will work with the Safety Director to ensure that each product considered for use at a FCI jobsite is evaluated for potentially hazardous chemical components. All staff are responsible for ensuring that sd sheets for each new chemical product is available by informing the Safety Director of any new chemical requests.

The Superintendent or Safety Director will conduct the hazard communication training for new employees when they are hired. All employees will be made aware of how and where to find the safety data sheets for any hazardous chemical product found in the workplace. Each employee will understand the safe work procedures and precautions to be taken when working with hazardous chemical products. Personal protective equipment needed to limit exposure to workplace chemical hazards will be offered free of charge to each FCI employee. Each employee will find emergency response contact information posted at each job site, hazard communication information will be available for quick use in the event of a health emergency.

Each employee will know where the SDS sheets are kept for their respective work sites (usually placed in binder in job trailer). Each employee understands the safe work procedures and precautions to be taken when working with these products including the use of protective equipment and/or apparel. Ongoing emphasis is placed upon the safe handling of workplace chemicals during the written Daily Safety Review completed each day at each jobsite. Each employee is aware of the locations of emergency supplies kept at each jobsite, such as fire extinguishers, emergency eye wash stations, and personal protective equipment needed to prevent direct chemical exposure. Each employee knows where the emergency phone number and Hazard Communication Information are posted at each job site, usually in a prominent location with the job box or job trailer. Each employee is encouraged to review copies of the hazardous chemical list, written program, and safety data sheets when requested.

LIST OF CHEMICALS

A list of all chemicals used by employees of FCI Construction is maintained by the Safety Director. Further information on each chemical can be obtained by reviewing safety data sheets located in the main office and at the jobsite office trailers.

HAZARDOUS NON-ROUTINE TASKS

Periodically, employees are required to perform non-routine tasks using certain chemical products. Prior to starting work on such projects, each affected employee will be given information by their Superintendent/Safety Director about chemicals to which they may be exposed to during such activity. This information will include information found on the sd sheet such as specific chemical hazards and protective/safety measures the employee will use. The company may use administrative controls to reduce the hazards associated with chemicals including ventilation, use of respirators, or reducing duration of the exposure. If warranted emergency procedures will be included in training for the use of specific chemicals.

SHARING HAZARD COMMUNICATION INFORMATION

All Contractors at each jobsite are responsible for maintaining their own hazard communication program. All Contractors (including FCI Construction) will share hazard communication information with other contractors and clients who request information and after potential exposure to chemical products at each jobsite. All hazard communication inquiries will be responded to promptly by the FCI Construction, Inc. Safety Director. The Safety Director can and should be contacted through the FCI office switchboard by phoning (260) 927-8516 or via mobile (260) 570-6620. For urgent situations regarding potential chemical exposures the affected persons should be immediately transported to an emergency care facility along with the product SDS information.

Hazard Communication Annual Training Verification

- HazCom, the Hazard Communication Standard, or the Right-to-Know law informs workers about the hazards associated with the chemical products used in the workplace. Information about chemical products is shared with each worker through training, use of product safety data sheets (SDS), and warning labels. Safety data sheets are available in a hard-copy form at each job-site.
- Health hazards include signs and symptoms that could be caused by chemical exposure and medical conditions that could result from exposure, such as skin irritation. Health hazards include information about target organs that could be affected by chemical products. Information about routes of exposure explain how a worker can be exposed, by breathing the vapor for instance. Important first aid information is provided in each safety data sheet.
- Physical hazards include properties of a chemical product such as its vapor pressure (how easily it evaporates), the ignition point or the flammability.
- Chemical hazards include details of how a product reacts with other chemicals.
- Environmental hazards inform about how to handle disposal or accidental spills of a product.
- Permissible exposure levels establish a maximum level for many of the chemical ingredients found in the products used in the workplace. The Safety Director can measure and evaluate exposure levels.
- Exposures to chemicals can be avoided by proper control measures such as ventilation, protection of skin with gloves, protection of lungs with respirators, using a different product, or changing the work process. PPE (personal protective equipment) is provided for workers by FCI.
- HazCom information is shared with other contractors or clients who may come into contact with a chemical product used by FCI Construction.
- Any questions about workplace chemical hazards and chemical exposures are answered promptly by Superintendents and/or the Safety Director. The Safety Director can and should be contacted at any time for questions regarding workplace chemical exposures by phoning 260 570-6620.

RESPIRABLE CRYSTALLINE SILICA

RESPIRABLE CRYSTALLINE SILICA

Hazard communication. The employer shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph on employee information and training. The employer shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Millions of U.S. workers are exposed to respirable crystalline silica in a variety of industries and occupations, including construction, sandblasting, and mining. Silicosis, an irreversible but preventable disease, is the illness most closely associated with occupational exposure to the material, which also is known as silica dust. Occupational exposures to respirable crystalline silica are associated with the development of silicosis, lung cancer, pulmonary tuberculosis, and airways diseases. These exposures may also be related to the development of autoimmune disorders, chronic renal disease, and other adverse health effects.

Silica, or silicon dioxide (SiO2) is a mineral that occurs naturally in crystalline or non-crystalline form. The most abundant crystalline form is α-quartz, which is the most common mineral on earth's continents. It is found in sand, sandstone, shale and granite. Drilling, crushing, cutting, chipping, breaking, sawing or polishing materials containing crystalline silica can create a large amount of respirable dust. These dust particles, mostly 10 microns in size and smaller, are too small to see, but can penetrate to the deepest part of the human lung when inhaled. Chronic inhalation of such respirable crystalline silica (RCS) dust can lead to severe lung disease, such as silicosis or lung cancer. Having silicosis can, in turn, increase the risk of developing tuberculosis. RCS exposure has also been linked to kidney and auto-immune diseases.

Respirable crystalline silica is silica containing quartz, tridymite, or cristobalite in a respirable form – normally 10 microns or smaller. FCI Construction has made the effort to limit employee exposure as established in Table 1 by purchasing water suppression systems (water pouring over the cutting blade) and local exhaust systems (HEPA vacuums). Air sampling has been conducted to identify employee exposures completing certain tasks such as, but not limited to, use of masonry saws, partner saws, walk behind saws, jackhammers and chipping tools, handheld grinders, housekeeping, and demolition activities.

For those tasks where the exposure level require respiratory protection, respirators will be provided. Filtering face pieces have been provided to employees with an APF of 10 if worn properly. Superintendents of the jobsites to include Masonry Foremen are competent persons through their experience, training, and authority over the jobsite employees. FCI Construction will make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under the silica regulation to use a respirator for 30 or more days per year. As mentioned, FCI has made the effort in purchasing additional systems to limit employee exposure – HEPA vacuums and water suppression. Employees may

use filtering facepieces as a voluntary measure. A copy of the silica standard is available upon request of Safety Director or Supervision or can be viewed online at osha.gov under 1926.1153 construction standards or 1910.1053 general industry standards.

Emergency Action Plans

PURPOSE

When working in a hazardous environment, employees must be prepared to act in time of emergency. FCI Construction is making the effort in making preparations for such emergencies as injury, fire, inclement weather, catastrophic event, or to prevent such occurrences (i.e. evacuation due to alarm).

SCOPE

Each FCI jobsite will have an emergency action plan posted in a conspicuous location. The Emergency Action Plan is intended to be shared will all contractors and their employees at the job site when work begins. Police, Fire, Ambulance, Evacuation, Severe Weather, Take Cover, and Workplace Violence response information is provided so that all workers can quickly and consistently respond to emergencies that occur at their jobsites.

RESPONSIBILITY

The Project Manager will research the jobsite prior to workers arrival to gather specific emergency response instructions. The Safety Director will review the emergency action plan to verify it meets facility owner's emergency plan and Company's emergency plan.

EMERGENCY RESPONSE COORDINATOR

Crisis Management during an emergency - The Senior FCI Representative on the jobsite will assume the role of the Emergency Response Coordinator during any incident that may attract the attention of the media.

Daily Safety Review

The Daily Safety Review (DSR) is a tool used to increase awareness and reduce workplace accidents injuries and near miss events that happen at construction job sites. The DSR is completed by every FCI Work Team every day. On jobs where FCI Serves as a prime contractor, the DSR may be required for each sub-contractor controlled by FCI. Before each working day the Superintendent will assess the steps of the work assignments, the hazards associated with the job steps, and list how the hazards will be controlled for each step. The Superintendent, Lead Man, or other members of each work team at the jobsite are responsible for completing the DSR each day. At the start of each work shift, all Work groups will take a few minutes, as a Team, review the job steps, hazards, and hazard control methods to be used while completing the daily assignments. When the work Team understands the hazards and how to control the hazards they will sign-off on the Daily Safety Review and go to work. DSR records are saved into the job file in order to maintain an ongoing safety record.

DSRs demonstrate that safety awareness and injury avoidance is a daily part of each workers job assignment.

Fall Protection

PURPOSE

To Define the minimum requirements and responsibilities for the use of an effective fall protection program. The program is designed to protect employees from fall hazards during the work activities at or above 6-feet.

All employees exposed to fall hazards shall be trained to recognize the fall hazards and to properly utilize fall arrest equipment and systems in accordance with all OSHA rules and regulations.

Retraining shall be provided annually, whenever new hazards exist, when the work protocol has changed, when any fall incident or near miss occurs, and when new equipment is being utilized.

All incidents and near misses shall be investigated by Superintendents and Safety Director as soon as possible following the event, not to exceed 24 hours.
When working at heights, a fall protection rescue plan must be in place. Generally, this plan will include use of scissor lifts, telehandler lifts, and other approved man-lifts for rescue. Superintendents will decide the best site-specific rescue plan to be used at each jobsite. Plans shall be reviewed by Safety Director prior to work beginning.

SCOPE

The fall protection requirement applies to all FCI, Employees and all operations.

REQUIREMENTS

A full body harness and shock absorbing lanyard attached to an approved anchor point are used by all employees at each construction project while performing work at locations subject to falls of over 6-feet (when other safeguards such as scaffolding or guardrails cannot be used).

In cases where the possibility of a fall hazard exists, and the use of a safety harness is not felt to be practical or feasible, the Safety Director must approve an alternate plan for fall protection.

Where wearing of all fall protection equipment is required, the lifeline is to be tied off separately and independently of the scaffold of the means of supporting the scaffold work or platform.

Static lines may be used to provide continuous fall protection for safety harnesses, however:

- The minimum diameter for wire rope static lines is 3/8-inches.
- Turnbuckles shall be used to keep static lines taut.

- Each Static line must be capable of withstanding a 5,000-pound static load for each worker attached to the line.

SAFETY HARNESSES AND LANYARDS

An adequate personal fall arrest system at a construction site requires 3-things-

- A full body harness-A properly maintained, inspected, fitted and secured full body harness is worn as part of each personal fall arrest system.
- A Lanyard-A straight lanyard or coil type retractable lanyard is furnished to connect your full body harness to the attachment point. All lanyards and retractable lanyards must have a shock absorbing feature that reduces the jarring impact from a fall. Remember to attach the connector so that the maximum fall is not more than 6-feet. Users will remember that a straight lanyard can stretch or "tear out" up to 42-inches beyond original lanyard length when stressed with the weight of a worker during a fall. Set-up your fall arrest system so that a fall will be slowed and stopped *before* your body hits something below. A retractable lanyard will often provide a shorter tether length than a standard lanyard. A retractable lanyard is to be connected directly to the D-ring xxxx of full body harness, never hook two lanyards together.
- An anchor point-Always secure the lanyard or retractable to a suitable anchor point that is above your work area if possible. All anchor points, connectors and equipment must be capable of withstanding a 5,000-pound static load for each worker attached.

Repair of safety harnesses, equipment and lanyards are done only by the manufacturer. We do not repair fall arrest equipment on-site or through a vendor.

Lanyards should not pass over a sharp edge without padding.

A lanyard is not to be used in a "choking" way as a tie-off point where it is locked onto itself. Each lanyard and retractable has a double locking snap hook for attachment to the full body harness. Two snap hooks, or two lanyards cannot be attached to each other. Use the lanyard and retractable systems as designed by the manufacturer.

Lanyards and harnesses must be completely dried out after they become wet, wet fibers are subject to deterioration and mold which can compromise their strength.

Lanyards and harnesses are to be stored in a protected dry area, off of the floor or ground surface.

Safety harnesses and lanyards are not stored in close proximity to potentially damaging chemicals, fumes, heat, moisture, sunlight, rodents, solvents, acids or caustics. Protect the fabric and fibers that your fall protection equipment is made of. If your lanyard or harness becomes contaminated with any such chemical or damaging agent, it must be taken out of service. Chemical damage and weakening of the lanyard or harness may not be immediately apparent.

If your lanyard or harness shows evidence of damage from heat, flame or slag produced by welding, brazing or thermal cutting it should be removed from service.

The inspection of harnesses, lanyards and other fall arrest equipment is done before each use by a competent person (the user). All fall protection equipment, even new fall arrest equipment, is inspected before each use to make sure that no damage or defect is present before it is used. Reject the use of fall arrest equipment with any of the following:

Inspection details.

- Broken or frayed braids, cut stitching or damaged strands on harness or lanyard
- Discoloration, fading, or rotting damage to fibers, yarns or strands
- Evidence of burns, scorching, or welding slag
- Spots and stains where the equipment has been exposed to chemicals or oils
- Distorted or damaged grommets or buckles
- Missing manufacturers date tag
- Damaged, cut, kinked, cable systems
- Non-functioning retractable mechanisms,
- Equipment that is aged beyond its useful life
- Full body harnesses that are not properly sized can cause severe injuries to the internal organs and limbs of falling workers. Full body harnesses should fit snuggly and firmly around the contours of a workers body. All latches and fasteners must be locked in place. A loose fitting harness can cause serious injury when stops and holds a worker during a fall.

Older style Body Belts are never to be used for fall protection or positioning work. The OSHA standard specifically forbids the use of a body-belt, only full body harnesses are used. Most full body harnesses are equipped with D-rings on the harness front to allow for positioning. Positioning chains are used to assist in holding a workers position while performing a specific task (such as wire tying). Workers must maintain continuous attachment to an approved lanyard and attachment point at all times, whether they are using positioning chains or not.

DO NOT USE a safety harness, lanyard or lifeline with a known defect. Contact your Superintendent or Safety Director for replacements. Tie a Danger Do Not Use Tag to damaged or unsafe fall protection equipment and remove the damaged equipment from service immediately.

Full body harnesses and fall protection lanyards that been deployed, (they have prevented a fall) must be taken out of service and replaced. Any harness, lifeline, or lanyard subjected to in-service loading (as distinguished from static load testing) must be immediately removed from service and destroyed.

Lanyards and harnesses should be thoroughly dried out after they become wet otherwise deterioration will occur regardless of what fiber they are made of. Hang harnesses and lanyards in a dry clean place where air circulation is good. Do not expose fall protection equipment to solvents, acids, caustics, cement, or paints.

Minimum diameter 3/8-inch wire rope static lines can be used to provide for fall protection. Each saddle clamp used to install the static line must match the diameter of the cable, in other words use only 3/8 saddle clamps with 3/8 wire rope. Turnbuckles are used to keep static lines taut. A static line and all hardware used to install that static line, must be capable of withstanding a 5,000-pound load for each worker attached. All wire rope clips (saddle clamps) used in securing wire rope static lines will be installed using two or more saddle clamps. The first clip is applied one base width (widest dimension of saddle) from the dead end of the wire rope. The live end of the cable rests in the saddle. NEVER SADDLE A DEAD HORSE.

The second clip is applied as near the loop or thimble as possible. When three or more saddle clamps are required, space the additional clips equally between the first two. Always smooth out any rope slack so that the live leg and dead leg of the wire rope are parallel before tightening the saddle clamp nuts. Tighten the nuts evenly, alternate from one nut to the other until reaching the recommended torque.

If splicing of a wire rope is necessary, use twice the number of saddle clamps as used for a turnback termination. The rope ends are placed parallel to each other overlapped 13-inches for 3/8-inch wire rope, and 23-inches for 1/2-inch wire rope. The minimum number of clips should be installed on each dead end.

All harnesses and lanyards conform to OSHA regulations found in 29 CFR 1926.104.

Jobsite Name _____ Date _____

Weekly Safety Topic Presented by _____

1. Personal Fall Arrest Equipment has three parts: the anchor point, a full body harness, and a connector. If a lifeline, full body harness, or lanyard actually takes a full service load (saves a worker from a fall) it is to be removed from service immediately, tagged out and inspected by a competent person before being used for fall protection.
2. Only the manufacturer can repair fall arrest equipment.
3. Each component of a fall arrest system must be inspected by a competent person (the user) before each use.
4. Employees immediately remove damaged or worn fall protection equipment from service. Damaged equipment is tagged out with the Danger Do Not Use Tag. Call Safety for replacement of damaged fall protection equipment.
5. Most of the old style belt type with front D-rings were phased out in the 1980's, they are NOT an acceptable alternative to a full body harness. We do have positioning chains that can be used but only with an approved full body harness that will allow a worker to position in-place. Positioning chains do not take the place of a full body harness with lanyard or other fall protection.
6. Approved full body harnesses have leg/chest/shoulder straps that keep the worker inside the harness in the event of a fall.
7. A properly fitted and worn full body harness will spread out the body weight to minimize the cutting-off blood flow when a worker is suspended after a fall.
8. All parts of each personal fall arrest systems must be capable of withstanding a 5,000-pound static load for each worker.

Thank you participating! Please return this signed form to the FCI Safety Office. If you have any questions or concerns about this or any safety issue, please call (260) 570-6620.

PLEASE PRINT YOUR NAME AND SIGN

Printed name	Signature
1.	
2.	
3.	
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8.	

Scaffolding

PURPOSE

To develop process ensuring scaffolding meets minimum injury prevention requirements.

SCOPE

This process applies to all scaffold use company-wide.

RESPONSIBILITY

Director of Masonry – Will provide equipment to help reduce injuries, maintain compliance, and assist with all training requirements.

Site Superintendent – Will designate competent person(s) and establish the competent person's responsibilities. Daily safety review can be used to identify competent person(s).

Director of Safety – Will coordinate training, audit use of scaffolding, and ensure updated process.

A "competent" person or persons is designated to inspect and tag all scaffolds at the beginning of each work shift. It is the responsibility of those working on scaffolds to insure the integrity of the scaffold throughout the workday. All employees shall receive training in accordance with this document prior to being permitted to work on a scaffold. A signature of received training shall be obtained and sent directly to the safety officer, as well as the original record to remain on the jobsite for the duration of the project.

Competent person as defined per OSHA- "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous to employees, and who has the authorization to take prompt corrective measures to eliminate them." This document is not intended as "competent person" training. While erecting or dismantling a scaffold, a competent person shall determine the feasibility of providing a safe means of access and fall protection during these operations. Scaffolds will be tagged and signed by the designated "competent' person using the following methods:

- Red Tags- A red tag shall signify a scaffold that is not OSHA compliant. NO employees of ANY trade will be authorized to be on any scaffold having a Red Tag. The sole exception to this rule is during any erection or dismantling procedures. A Red Tagged scaffold can remain Tagged and Signed for any duration without being checked on a daily basis. If the scaffold is intended to be used at a later date, it will then be re-inspected and re-tagged.

- **Yellow Tags**- A yellow tag shall signify any scaffold defect deviating from the standards set forth in this document. It must be built in a manner meeting these requirement to the best of their ability. The scaffold shall be inspected and signed before each shift and shall receive additional attention by employees utilizing the scaffold to insure extra precautions are taken to avoid any potential hazards. Yellow tagged scaffolds shall have approval of use by a foreman, masonry project manager, or safety director prior to being occupied.

- **Green Tags**- A green tagged scaffold shall signify the scaffold meets ALL of the following guidelines set forth in this document including additional OSHA standards not mentioned. Green tagged scaffolds shall be inspected and signed off before each shift by a competent person.

CRITERIA FOR SUPPORTED SCAFFOLD

Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates and mud sills or other adequate firm foundation.

Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

Unstable objects shall not be used to support scaffolds or platform units.

Unstable objects shall not be used as working platforms.

Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.

Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.

Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.

CONSTRUCTION OF SCAFFOLDING

Effective September 2, 1997, the employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Employers are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

Effective September 2, 1997, access for employees erecting or dismantling supported scaffolds shall be in accordance with the following:

a) The employer shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not

create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

b) Portable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.

c) When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.

Working platform scaffolds are to be planked with a minimum of 5 plank.

Feeder scaffolds are to be double stacked with 6 plank on the landing surface.

2 planked scaffolds shall meet the following requirements: Frames shall be braced at a minimum of 2 points on both the front and back. Counter weighted with additional plank (minimum of 2) on the back side or single plank on the back side with CMU placed on top of the plank, over the frames.

*NOTE: bricklayers shall NEVER use the top jump of any "2 planked" scaffold. If the top jump must be used, the scaffold must be plank solid as to provide a larger working surface. No additional safety precautions are required, as long as the scaffold is still below the 10' threshold.

Pre-inspect scaffold plank prior to use*.

- Split ends, bows, or cracks
- Fork spears, dents, or gouges
- Saw kerfs, notches, or holes
- Fungus, decay, and insect damage
- Platforms shall not deflect more than 1/60 of the span when loaded.

*Note: If a plank with any of the aforementioned defects is found, remove it from service immediately. Have a designated location on the job site for "bad" plank to be stored until cut into usable sections. These need to meet requirements of shorter plank, mudsills, etc.

Each platform on all working levels of scaffolds shall be planked or decked between the front uprights and the guardrail supports as follows:

a) Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch (2.5 cm) wide, except where the employer can demonstrate that a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform).

b) Where the employer makes the demonstration provided for in paragraph (a), the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 9 1/2 inches (24.1 cm). *Exception to paragraph (b): Full planking or decking does not apply to platforms used solely as walkways or solely by employees performing scaffold erection or dismantling. In these situations, only the planking that the employer establishes is necessary to provide safe working conditions is required.*

Each scaffold ***platform and walkway*** shall be at least 18 inches (46 cm) wide, except: Where scaffolds must be used in areas that the employer can demonstrate are so narrow that platforms and walkways cannot be at least 18 inches (46 cm) wide, such platforms and walkways shall be as wide as feasible, and employees on those platforms and walkways shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.

The ***front edge*** of all platforms shall not be more than 14 inches (36 cm) from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used to protect employees from falling. The maximum distance from the face for side bracket scaffolds shall be 3 inches.

Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least 6 inches.

Each end of a platform ***10 feet or less*** in length shall not extend over its support more than 12 inches (30 cm) unless the platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.

Each platform ***greater than 10 feet in length*** shall not extend over its support more than 18 inches (46 cm), unless it is designed and installed so that the cantilevered portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the cantilevered end.

On scaffolds where scaffold planks are ***abutted to create a long platform***, each abutted end shall rest on a separate support surface. This provision does not preclude the use of common support members, such as "T" sections, to support abutting planks, or hook on platforms designed to rest on common supports.

On scaffolds where platforms are ***overlapped to create a long platform,*** the overlap shall occur only over supports, and shall not be less than 12 inches (30 cm) unless the platforms are nailed together or otherwise restrained to prevent movement.

At all points of a scaffold where the platform ***changes direction***, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first, and platforms which rest at right angles over the same bearer shall be laid second, on top of the first platform.

Wood *platforms shall not be covered with opaque finishes*, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.

Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component to a level below that required by paragraph (a)(1) of this section.

Mudsills shall meet a minimum of 2"x10"x12" for scaffolds up to 4 frames in height. Mudsills for scaffolds greater than 4 frames in height shall be 2"x10"x18" (nominal dimensions)

*Note: current mudsills in use are approximately 1 5/8" thick and 9 5/8" wide. It is the consensus of the safety director and management, these mudsills are acceptable as long as they are a length of 12" or greater.

When *terrain is compromised or unleveled*, use a minimum of 2-16 penny nails to secure the screw jack to the mudsill. Drive the nail through the hole in the base plate of the screw jack approximately half way. Bend the nails 90 degrees in opposite directions. Screw jacks shall not be used in excess of 18". When on concrete slab or hard surfaces, use metal base plates (screw jacks, flat feet, etc.) for ALL frames.

Cross-bracing shall be put in place on any scaffold bearing weight.

Only remove bracing on working surfaces for access of operations. Removal of braces may only occur at locations where no additional weight is bearing above with the exception of plank or frames. Always replace removed bracing before changing working levels or after completion of scaffolds intended purpose. Scaffold pins/pigtails are to be used in ALL locations on scaffolds. (Front & Back)

Feeder scaffolds shall have the bottom section of scaffold double braced at a minimum of at least one side.

If only one side is double braced, it is preferred the backside closest to the machine operator be the single location as it will most often bear the most weight.

When building feeder scaffolds, it is suggested they be built 1-½" lower than the working scaffold to create a level surface for placement of plywood to span any gaps. This 1 ½" will allow for the additional layer of plank required on feeder scaffolds.

Feeders are to have CDX plywood spanning the gap between the feeder scaffolds and working scaffold. Plywood shall be a minimum of 5/8"x78"x24". When plywood spanning this gap is less than 48" wide, it is suggested to use a minimum of 2-8 penny nails on the feeder side of the scaffold to help keep the plywood from being displaced.
Feeders shall also have mid and top rails that can be removed when landing material, but replaced immediately.

Scaffolds shall be secured to the wall or the like at a minimum of every 3 frames in height as well as every 4 frames in length.

Acceptable methods of bracing scaffold include stiff arms or #9 wire attached to a notched 2"x4" pressed firmly against the structure on the flat end with the notch fitting around the frame. Bracing MUST be attached at a location with a horizontal member that supports both the inner and outer leg of the frame.

Swing gates, or the equivalent of, shall be placed on the appropriate side of the feeder as an access point. Swing gates shall be placed in a manner providing access while swinging inward towards the scaffold.

USE

Scaffolds and scaffold components shall not be ***loaded in excess*** of their maximum intended loads or rated capacities, whichever is less.

Any part of a scaffold damaged or weakened such that its strength is less than that required by paragraph (a) of this section shall be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.

Scaffolds shall not be ***moved horizontally*** while employees are on them, unless they have been designed by a registered professional engineer specifically for such movement or, for mobile scaffolds, where the provisions of 1926.452(w) are followed.

The clearance between scaffolds and ***power lines*** shall be as follows*: Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

<u>Insulated Lines (this requires power company, or the like, to apply protective covering)</u>

Voltage	Minimum distance	Alternatives
Less than 300 volts	3 feet (0.9 m)	
300 volts to 50 kv.	10 feet (3.1 m)	
More than 50 kv.....	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kv over 50 kv.	2 times the length of the line insulator, but never less than 10 feet (3.1 m).

Uninsulated lines – condition of power lines in typical use

Voltage	Minimum distance	Alternatives
Less than 50 kv.....	10 feet (3.1 m).	
More than 50 kv.....	10 feet (3.1 m) plus 0.4 inches (1.0 cm) for each 1 kv over 50 kv.	2 times the length of the line insulator, but never less than 10 feet (3.1 m).

*Exception: Scaffolds and materials may be closer to power lines than specified above where such clearance is necessary for performance of work, and only after the utility company, or electrical system operator, has been notified of the need to work closer and the utility company, or electrical system operator, has deenergized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a ***competent person qualified in scaffold erection, moving, dismantling or alteration***. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

Where *swinging loads* are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.

Weather

Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.

FALLING OBJECTS

Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:

a) The area below the scaffold to which objects can fall shall be barricaded, and employees shall not be permitted to enter the hazard area; or
b) A toeboard shall be erected along the edge of platforms more than 10 feet (3.1 m) above lower levels for a distance sufficient to protect employees below, or
c) Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below, or
c) A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects; or
d) A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over the employees below.

Toeboards must be a minimum of 3 ½" above the walking platform. A maximum of ¼" of air space is permitted between the walk plank and toe board. Toe boards must be secured to the frame in some aspect. A minimum of 2"x4"s are suggested for scaffolds with 6 plank. A minimum of 2"x6"s are suggested for scaffolds with 5 plank. When using wood toeboards, it is suggested to either nail the toe boards to the walk plank or tie wire them to the outer leg of the frame. 8"x8" bent steel plate is acceptable for all working conditions. When using the steel bent plate, the lap of the plank act as the anchor to the frame.

Non-working* levels shall be cleared of debris prior to removal of toe boards.

Toeboards are not required on landing zones of feeder scaffolds and scaffolds that are "2 planked". However, it is mandatory on feeder scaffolds without toeboards are kept clean and clear of any and all debris.

*NOTE: Non-working platforms are designated as any level of scaffold not currently occupied by a FCI employee performing masonry operations.

In addition to wearing hardhats each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When the falling objects are too large, heavy or massive to be contained or deflected by any of the above-listed measures, the employer shall place such potential falling objects away from the edge of the surface from which they could fall and shall secure those materials as necessary to prevent their falling.

Canopies, when used for falling object protection, shall comply with the following criteria:

a) Canopies shall be installed between the falling object hazard and the employees.

FALL PROTECTION

Guardrail systems installed to meet the requirements of this section shall comply with the following provisions:

Guardrail systems shall be installed along all open sides and ends of platforms. Guardrail systems shall be installed before the scaffold is released for use by employees other than erection/dismantling crews.

When midrails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.

Each toprail or equivalent member of a guardrail system shall be capable of withstanding, without failure, at least 200 pounds (890 n) for guardrail systems installed on scaffolds.

When the loads specified in this section are applied in a downward direction, the top edge shall not drop below the height above the platform surface that is prescribed in this section.

Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point of at least 150 pounds (666 n) for guardrail systems with a minimum 200 pound toprail capacity.

Guardrails shall be surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

The ends of all rails shall not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.

Steel or plastic banding shall not be used as a toprail or midrail.

Working layers of scaffold above 10' shall have the following

1) End gates, or equivalent, are to be placed at ALL ends of open frames
2) Walk-off protection is to be placed at ALL ends of open walk plank
3) The top edge height of toprails or equivalent member on supported scaffolds manufactured or placed in service after January 1, 2000 shall be installed between 38 inches (0.97 m) and 45 inches (1.2 m) above the platform surface. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria.

4) Crossbracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches and 30 inches above the work platform or as a toprail when the crossing point of two braces is between 38 inches (0.97 m) and 48 inches (1.3 m) above the work platform. The end points at each upright shall be no more than 48 inches (1.3 m) apart.
5) When an X-brace is placed in the upper position, it is no longer used as a guardrail as the center exceeds the maximum height for a top rail. In this instance a top rail and mid rail must both be put in place in addition to the X-brace.
6) Guard post and safety rails can be used as mid and top rail system on final level of scaffold. Guard post MUST be pinned with appropriate couplings.

Makeshift devices, such as but not limited to boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of employees.

Ladders shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where employers have satisfied the following criteria:
a) When the ladder is placed against a structure which is not a part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder;
b) The platform units shall be secured to the scaffold to prevent their movement;
c) The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection, and
d) The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.

Each employee on a *walkway located within a scaffold* shall be protected by a guardrail system (with minimum 200 pound toprail capacity) installed within 9 1/2 inches (24.1 cm) of and along at least one side of the walkway.

Each employee performing *overhand bricklaying operations* from a supported scaffold shall be protected from falling from all open sides and ends of the scaffold (except at the side next to the wall being laid) by the use of a personal fall arrest system or guardrail system (with minimum 200 pound toprail capacity).

Personal fall arrest systems used on scaffolds shall be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member. Vertical lifelines shall

not be used when overhead components, such as overhead protection or additional platform levels, are part of a single-point or two-point adjustable suspension scaffold.

When *vertical lifelines* are used, they shall be fastened to a fixed safe point of anchorage, shall be independent of the scaffold, and shall be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but do not include standpipes, vents, other piping systems, electrical conduit, outrigger beams, or counterweights.

When *horizontal lifelines* are used, they shall be secured to two or more structural members of the scaffold.

CAPACITY

Each tubular scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.

Side bracket (outrigger) shall be used to extend the working platform for personnel ONLY. At no time shall any material be landed on any portion of a walk platform supported by side brackets.

ACCESS

When scaffold platforms are more than 2 feet above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used.

Working layers of scaffold above 6' must have appropriate access.

Step ladders must be fully opened, extend a minimum of 3' above the working level, and tied off.
Extension ladders must extend a minimum of 3' above the working platform and tied off.
In all cases where possible, extension ladders shall be placed next to the feeder scaffold, leaning against the working scaffold.
Extension ladders (portable) shall be raised a minimum of 3' above the current working level at a 4:1 ratio and tied off. Portable ladders shall be positioned so as not to tip the scaffold;

Crossbraces shall not be used as a means of access.

Stairway-type ladders shall shave ALL appropriate pins and safety rails in place.

Stairways will be positioned such that their bottom step is not more than 24 inches (61 cm) above the scaffold supporting level;

a) Be provided with rest platforms at 12 foot (3.7 m) maximum vertical intervals;
b) Have a minimum step width of 16 inches (41 cm), except that mobile scaffold stairway-type ladders shall have a minimum step width of 11 1/2 inches (30 cm); and
c) Have slip-resistant treads on all steps and landings.
d) Stairtowers (scaffold stairway/towers) shall be positioned such that their bottom step is not more than 24 inches (61 cm.) above the scaffold supporting level.
e) A stairrail consisting of a toprail and a midrail shall be provided on each side of each scaffold stairway.
f) The toprail of each stairrail system shall also be capable of serving as a handrail, unless a separate handrail is provided.
g) Handrails, and toprails that serve as handrails, shall provide an adequate handhold for employees grasping them to avoid falling.
h) Stairrail systems and handrails shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
i) The ends of stairrail systems and handrails shall be constructed so that they do not constitute a projection hazard.
j) Handrails, and toprails that are used as handrails, shall be at least 3 inches (7.6 cm) from other objects.
k) Stairrails shall be not less than 28 inches (71 cm) nor more than 37 inches (94 cm) from the upper surface of the stairrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
l) A landing platform at least 18 inches (45.7 cm) wide by at least 18 inches (45.7 cm) long shall be provided at each level.
m) Each scaffold stairway shall be at least 18 inches (45.7 cm) wide between stairrails.
n) Treads and landings shall have slip-resistant surfaces.
o) Stairways shall be installed between 40 degrees and 60 degrees from the horizontal.
p) Guardrails shall be provided on the open sides and ends of each landing.
q) Riser height shall be uniform, within 1/4 inch, (0.6 cm) for each flight of stairs. Greater variations in riser height are allowed for the top and bottom steps of the entire system, not for each flight of stairs.
r) Tread depth shall be uniform, within 1/4 inch, for each flight of stairs.

Ramps and walkways 6 feet or more above lower levels shall have guardrail systems.

No ramp or walkway shall be inclined more than a slope of one (1) vertical to three (3) horizontal (20 degrees above the horizontal). If the slope of a ramp or a walkway is steeper than one (1) vertical in eight (8) horizontal, the ramp or walkway shall have cleats not more than fourteen (14) inches (35 cm) apart which are securely fastened to the planks to provide footing.

Steps and rungs of ladder and stairway type access shall line up vertically with each other between rest platforms.

Direct access to or from another surface shall be used only when the scaffold is not more than 14 inches (36 cm) horizontally and not more than 24 inches (61 cm) vertically from the other surface.

HOUSEKEEPING

Debris shall not be allowed to accumulate on platforms.

TRAINING

The employer shall have each *employee who performs work while on a scaffold* trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following areas, as applicable:

a) The nature of any electrical hazards, fall hazards and falling object hazards in the work area;
b) The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
c) The proper use of the scaffold, and the proper handling of materials on the scaffold;
d) The maximum intended load and the load-carrying capacities of the scaffolds used; and

The employer shall have each *employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold* trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:

a) The nature of scaffold hazards;
b) The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question;
c) The design criteria, maximum intended load-carrying capacity and intended use of the scaffold;

When the employer has reason to believe that an *employee lacks the skill or understanding needed for safe work* involving the erection, use or dismantling of scaffolds, the employer shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

a) Where changes at the worksite present a hazard about which an employee has not been previously trained; or
b) Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or
c) Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

CLOSING: This document will, for all intended purposes, be the outline of how scaffolds shall be built and maintained during operations. Please note not all circumstances can be covered in any one document. If a need arises to alter any portion of this document, please get verification from the foreman, masonry project manager, or safety director to proceed. All employees reserve the right to report safety violations to their supervisor as well as to stop production and vacate a scaffold during times in which there is believed to be imminent danger.

What type of scaffold is it?
_____
What is the height of the scaffold?
_____
What is the width of the scaffold?
_____
What is the length of the scaffold?
_____
What is the height of the work platform?
_____
Are there guardrails on all open sides and edges?
_____
Are work platforms fully planked?
_____
Are work platforms at least 18 inches in width?
_____
What is the working distance from the scaffold and the face of the work?
_____
Is the planking overlapping another plank by at least 12 inches and over a support beam? _____
Is the planking secure from displacement or overlapping the support bar 6-12 inches?
_____
What type of access is being used?
(describe)_____
Is the scaffold properly crossed braced?
_____
Are base plates, screw jacks, or casters being used and inserted into the legs?
_____
Is scaffold on firm foundation (mud sills or other firm foundation) and is the scaffold plumb? _____
Are toe boards being used when required?
_____
Are scaffold frames pinned together vertically to prevent uplift?
_____
How many employees are exposed? (Interview them)_____
How long are the employees exposed
_____

What is the maximum fall distance
_____
What is the fall
surface?_____
Is the scaffold secured from tipping? (4 to 1 ratio on height & every 26 feet horizontally)
The weather conditions (rain, ice, snow, wind, lightning).
Public, pedestrian, or other Trades access or in close proximity to scaffolds.

Ladder Safety

PURPOSE

Falls from portable ladders are one of the leading causes of occupational fatalities and injuries.

SCOPE

This process applies to all employees who use portable ladders (step, straight, combination, and extension).

RESPONSIBILITY

The Yard Master is to inspect all ladders which are taken from the Yard or Shop out to jobsites to ensure they are ready for service and meet OSHA requirements.

The Site Superintendent and Employees are to visually inspect ladders during their use to ensure they meet OSHA requirements.

The Safety Director is to conduct periodic inspection of all ladders to ensure they meet OSHA requirements.

About 1/3 of all fall injuries at a construction jobsite are falls from ladders. Do not use the wrong ladder or use a damaged ladder as this contributes to worker injuries.

Inspect each ladder before each use, reject any ladder with these flaws:

- Reject for missing or loose cleats at the bottom
- Reject for loose or missing ladder hardware, bolts, and screws.
- Reject for cracked, split, dented, or worn rungs, cleats, or side rails.
- Reject for splinters on fiberglass or wood ladders
- Reject for discolored stress or crush fractures and cracks on fiberglass ladders.

LADDER USE

- Use the right ladder for the right job.
- Always face the ladder when climbing up or down.
- Ladders are inspected by the worker before each shift of use.
- Use a three point contact when climbing a ladder. Two feet and one hand, or two hands and one foot should be in contact with the ladder at all times.
- Do not set the ladder in a doorway, door opening or traffic zone unless the ladder is barricaded and equipped with warning signs.
- Keep the area at the top and bottom of the ladder free of tools, materials, and clutter. Remove mud, ice and snow accumulations from the ladder rungs and rails. Clear areas at the top and bottom ladder landings.

- Set the ladder on solid footing. Secure the ladder at the base if it is not on a stable level surface.
- Do not leave tools (screwdrivers, hammers, etc.) on an unoccupied step ladder, the tools may fall if the ladder is moved, and strike those below.
- Slope the ladder so there is a distance from the wall to the base of the ladder equal to one quarter of the working height of the ladder.
- When using an extension ladder the ladder must extend 3-feet in vertical height beyond the landing platform. Firmly and securely fasten the top of extension ladders to prevent the ladder from sliding.
- Do not lean to the side when using a ladder. Maintain a three point contact with your feet and hands when climbing a ladder.
- Do not use a closed step ladder, fully open and lock the legs before climbing a step ladder.
- Always face any ladder when climbing or descending.
- Always tie-off an extension ladder to hold the ladder securely in place. Use substantial rope or wire to tie-off the ladder. Bungee cords are not acceptable for securing the top of the ladder.
- Only one person is allowed on a ladder at a time.
- Not a step, means do not use the top of a step ladder as a step. Standing on the apex of a step ladder is very unstable and more likely to result in a fall.
- While using a ladder, do not carry tools and materials that could cause a worker to lose balance and fall. Use a tie line and bucket or other means to safely move tools and materials up and down.
- If you find a ladder in unsafe condition take it out of service immediately and tag the ladder with the danger do not use tag. Notify the site Superintendent who can arrange for ladder replacement. Damaged ladders are returned to the shop or destroyed in the field. Never use any equipment that is tagged with a danger do not use tag.
- When transporting ladders they should be carried in the horizontal position to prevent contact with overhead electrical conductors.
- A stairway or ladder is provided between work levels when there is a break of 19-inches or more between the different levels.
- Each ladder must be designed to support at least 4 times its maximum load.
- Do not attempt to increase the height of a ladder by placing it on scaffolds, pallets, boxes or other materials. Use on scaffolds puts worker above protective guard rails resulting in no fall protection.
- Use caution when moving or transporting ladders. Lulls and lifts can easily crush the side rails or damage the rungs of a ladder. Materials stacked or pushed against a ladder can spilt and deform the rails and rungs.
- Metal ladders are not used by FCI Workers. Metal ladders conduct electricity and can increase the chance of getting shocked with electricity.
- Never tape over, paint, or otherwise cover parts of any ladder. You must be able to inspect every part of the ladder before each use. Paint and tape hides cracks and other flaws that could compromise the integrity of the ladder.
- Straight or extension ladders have cleats at the bases of the rails to prevent sliding of the ladder while it is in place. Verify that the cleats are secure and working properly. If the ladder is on a slick surface, tie off or block the bottom too.

- When it is necessary to place a ladder in a doorway, traffic zone, or aisle way barricades are erected to provide a warning of the ladder placement, and to provide protection for those using the ladder.
- Ladders are not to be used as scaffolding.
- Do not overreach when using a ladder, workers should always keep their belt buckle within the rails of the ladder.

Silica Exposure Control Plan

FCI Construction (FCI) follows the IOSHA guidelines as written in 29 CFR 1926.1153 (Standard) to keep silica dust exposures below the action level of 25 micrograms/m3. IOSHA has provided specific exposure control methods to use when sanding, sawing, grinding, chipping or drilling silica containing building materials in Table 1 of the Standard. The guidelines mandate that wet methods or high efficiency type vacuum shroud systems be used on equipment that saws, grinds, chips, breaks or drills silica containing (e.g. cristobalite, tridymite, quartz) concrete, stone, brick, block, tile, and masonry products at any of our jobsites. Alternative methods of control will be used for the tasks not identified where Employees have exposure.

The guidelines are designed to limit dust exposures for all construction employees. The guidelines are not optional. All Employees now use these guidelines. All Employees work together to ensure that the water delivery and dust collection systems are working effectively. The guidelines are followed when the dust exposure is during a short task or long-term job. The guidelines are followed whether working indoors or outdoors. The guidelines are followed during the day or night. The guidelines are followed when working alone or in a group.

The Health and Safety Director (H&S Director) with assistance from Bricklayers, Carpenters, Finishers, Laborers, and Project Management have identified tasks where there is exposure. Industrial hygiene sampling will be conducted to evaluate exposure of all tasks by the H&S Director. By using the controls as detailed for those tasks in Table 1, FCI is not required to conduct routine industrial hygiene sampling for exposures to respirable silica dust where respirators are not required.

In the alternative, for those tasks not listed in Table 1, or which are listed which require respiratory protection, the H&S Director will assess the 8 hour TWA exposure for each employee with potential exposure to respirable crystalline silica at or above the action level. Equipment designed to suppress the generation of dust will be properly maintained, repaired when necessary, and operated to minimize exposure.

FCI has implemented the specified exposure control plans as detailed in the OSHA Silica Standard Table 1 as the preferred method to control silica dust exposures in our workplaces. FCI and Corporate have adopted and implemented the OSHA Construction Industry Standard 1926.1153, with a written exposure control plan that contains the following:

1) A description of the tasks in the workplace that involve exposure to respirable crystalline silica.

2) A description of the engineering controls, work practices and respiratory protection used to limit employee exposure to respirable crystalline silica for each task.
3) A description of the housekeeping measures used to limit employee exposures to respirable crystalline silica
4) A description of the procedures used to restrict access to work areas and to minimize the number of employees exposed, and to reduce their levels of exposure.

The following are tasks where employees have an exposure. These tasks include Controls, Work Practices, Respiratory Protection, Housekeeping, Procedures used to restrict access to work areas:

1. Task - Cutting Masonry Block, Stone, and Brick using Stationary Masonry Saws outdoors and indoors

Control – Table 1 engineering and work practice control methods will be fully and properly implemented. Saw will be equipped with an integrated water delivery system that continuously feeds water to the blade. Saw operator will ensure that enough water is available, and a steady stream of water is capable of neutralizing all dust particles. Operator will refill and/or change water reservoir to maintain water flow to the blade. The saw will not be operated without this control method. Employees have Stop Work authority.

Work Practices – Operator will use saw in accordance with manufacturer's instructions to minimize dust. If visible dust can be seen, stop work and clear waterways if partially or completely blocked.

Respiratory Protection – No respiratory protection is required indoors or outdoors. A portable fan to exhaust air and prevent the sludge / slurry mist from the employee breathing zone will be provided. Voluntary use of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

Housekeeping – Slurry generated by the saw will be properly disposed. Do not dry sweep slurry which has dried to the point of creating dust nor blow with compressed air.

Procedures used to Restrict Access to Work Areas – When controls for saw fully and properly implemented access does not need to be restricted to other trades. Traffic cones, barrier tape, or signage can be used by competent person to warn other trades of possible exposure to silica dust.

2. Partner saws, Quickie saws, any handheld power saws of any blade diameter

Control – Table 1 engineering and work practice control methods will be fully and properly implemented. Saw will be equipped with an integrated water delivery system that continuously feeds water to the blade. Saw operator will ensure that enough water is available, and a steady stream of water is capable of neutralizing all dust particles. Operator will refill and/or change water reservoir to maintain water flow to the blade. The saw will not be operated without this control method. Employees have Stop Work authority.

Work Practices – Operator will use saw in accordance with manufacturer's instructions to minimize dust. If visible dust can be seen, stop work and clear waterways if partially or completely blocked. If water reservoir empties or delivery system fails, shut down saw immediately. Fill reservoir with clean water only – read manufacturer's instructions. Fix malfunction so steady stream of water is flowing. If practical use wind direction to keep dust particles away from Employees; if practical isolate Operator away from others. Additionally fan/LEV (local exhaust ventilation) may be used also, to prevent the buildup of dust/mist in work area.

Respiratory Protection – No respiratory protection is required if operating saw less than four hours outdoors. When operating saw for more than four hours outdoors and no personal air sampling has been completed which shows employees are below PEL, respiratory protection is required with the equivalent of APF 10 (assigned protection factor). When operating saw indoors or in an enclosed area and no personal air sampling has been completed which shows employees are below PEL, respiratory protection of at least APF 10 is required at all times with the equivalent of APF 10. Voluntary use (first four hours outdoors) of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

Housekeeping – Slurry generated by the saw will be properly disposed or left on the ground, if applicable. Do not dry sweep slurry which has dried to the point of creating dust nor blow with compressed air.

Procedures used to Restrict Access to Work Areas – When controls for saw fully and properly implemented access does not need to be restricted to other trades. Traffic cones, barrier tape, or signage can be used by competent person to warn other trades of possible exposure to silica dust.

3. Walk behind saw indoor and outdoor

Control – Table 1 engineering and work practice control methods will be fully and properly implemented. Saw will be equipped with an integrated water delivery

system that continuously feeds water to the blade. Saw operator will ensure that enough water is available, and a steady stream of water is capable of neutralizing all dust particles. Operator will refill and/or change water reservoir to maintain water flow to the blade. The saw will not be operated without this control method. Employees have Stop Work authority.

Work Practices – Operator will use saw in accordance with manufacturer's instructions to minimize dust. If visible dust can be seen, stop work and clear waterways if partially or completely blocked. If water reservoir empties or delivery system fails, shut down saw immediately. Fill reservoir with clean water only – read manufacturer's instructions. Fix malfunction so steady stream of water is flowing. If practical use wind direction to keep dust particles away from Employees; if practical isolate Operator away from others. Additionally fan/LEV may be used also, to prevent the buildup of mist in work area. If practical schedule work when other employees are not in work area.

Respiratory Protection – No respiratory protection is required outdoors. Respiratory protection is required indoors and in an enclosed area if no personal air sampling has been completed which shows employees are below PEL. Use respiratory protection that is equivalent of APF 10. Voluntary use of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

Housekeeping – Slurry/dust generated by the saw will be properly disposed of. Wet sweep only (to include dust inhibitor). Or use dry vacuum system with HEPA filter. Dispose of vacuum bags sealed. Do not dry sweep slurry which has dried to the point of creating dust or blow with compressed air.

Procedures used to Restrict Access to Work Areas – When controls for saw fully and properly implemented access does not need to be restricted to other trades. Traffic cones, barrier tape, or signage can be used by competent person to warn other trades of possible exposure to silica dust.

4. Jackhammers and handheld powered chipping tools

Control – Table 1 engineering and work practice control methods will be fully and properly implemented. Tool may be equipped with shroud and vacuum dust collection system with flow rate recommended by manufacturer. Filter must be at least 99% efficient with filter cleaning mechanism. Or tool may be equipped with an integrated water delivery system that supplies continuous stream or spray at point of impact. Saw operator will ensure that enough water is available, and steady stream of water is capable of neutralizing all dust particles. Operator will refill and/or change

water in reservoir to maintain water flow to blade. Either system (i.e. vacuum or water) must be used outdoors or indoors Employees have stop work authority.

WORK PRACTICES

Operator will use jackhammer and handheld power chipping tools in accordance with manufacturer's instructions to minimize dust.

- Check shrouds and hoses to make sure they aren't damaged
- While operating ensure hoses don't become kinked or bent
- Dependent upon type of vacuum (e.g. VC 125, VC 150, Dewalt, VC 40), use filter cleaning button on vacuum to activate filter cleaning at frequency recommended by manufacturer.
- Replace vacuum bags as needed to prevent overfilling
- Use jackhammer/chipping tool and vacuum controls according to manufacturer's instructions for reducing the release of visible dust. If visible dust increases, check controls, and adjust as needed.

When using water delivery system and dust becomes visible, stop work and clear waterways if partially or completely blocked. If reservoir empties or delivery system fails Shut down saw immediately. Fix malfunction and/or fill reservoir (clean water only) so steady stream of water is reestablished. If practical use wind direction to keep dust/mist away from employees. Additionally fan/LEV may be used also, to prevent buildup of dust/mist in work area and schedule work when other employees are not in work area.

RESPIRATORY PROTECTION

If personal air sampling has not been conducted follow Table 1 which states:

A. when using water system outdoors under 4 hours no respiratory protection needed; over 4 hours requires respiratory protection with APF (assigned protection factor) 10 (e.g. filtering facepiece).
B. when using water system indoors or enclosed area requires respiratory protection with APF 10 (e.g. filtering facepiece).
C. when using dust collection system outdoors no respiratory protection needed
D. when using dust collection system indoors or enclosed area requires respiratory protection with APF (assigned protection factor) 10 (e.g. filtering facepiece).

Respiratory protection is not required if personal air sampling has been completed which shows employees are below PEL. Voluntary use of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

Housekeeping – Slurry generated by the saw will be properly disposed, if applicable. Do not dry sweep slurry which has dried to the point of creating dust nor blow with compressed air. Dust containing silica on work surfaces and equipment must be cleaned up using wet methods or HEPA filter vacuum. Never use compressed air for cleaning.

Procedures used to Restrict Access to Work Areas – When controls for jackhammer chipping hammer are fully and properly implemented access does not need to be restricted to other trades. If practical schedule task when work area is isolated. Work area may need to be restricted due to falling and/or flying debris. Traffic cones, barrier tape, or signage can be used by competent person to warn other trades of possible exposure to silica dust.

5. Handheld and stand-mounted drills (including impact and rotary hammer drills

Controls-Table 1 engineering and work practice control methods will be fully and properly implemented. Drill must be equipped with shroud or cowling with dust collection system. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.

WORK PRACTICES

Operator will use and maintain drill in accordance with manufacturer's instructions to minimize dust.

- Check shrouds and hoses to make sure they aren't damaged
- While operating ensure hoses don't become kinked or bent
- Use filter cleaning button on vacuum to activate filter cleaning at frequency recommended by manufacturer
- Replace vacuum bags as needed to prevent overfilling
- Use tool and vacuum controls for reducing the release of visible dust
  If visible dust increases, check controls/filter adjust as needed
- Use HEPA-filtered vacuum when cleaning holes

Employees have stop work authority.

RESPIRATORY PROTECTION

If control methods are working properly No respiratory protection is required. This task can be executed outdoors and indoors. Voluntary use of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

Housekeeping- Dust generated by drill on work surfaces and equipment must be cleaned up by using HEPA filtered vacuum. Dispose of sealed bags. Never use compressed air or dry sweeping for dust containing silica.

Procedures used to Restrict Access to Work Areas – When controls for drill are fully and properly implemented access does not need to be restricted to other trades. Traffic cones, barrier tape, or signage can be used by competent person to warn other trades of possible exposure to silica dust.

6. Handheld Grinders for mortar removal

Control –Table 1 engineering and work practice control methods will be fully and properly implemented. Grinder must be equipped with shroud and vacuum dust collection system with 25 cubic feet per minute (cfm) or greater of air flow per inch of wheel diameter. Filter must be at least 99% efficient – HEPA Filter. Dust collector (vacuum) must be equipped with a cyclonic pre-separator or filter-cleaning mechanism.

WORK PRACTICES

Operator will use and maintain grinder in accordance with manufacturer's instructions to minimize dust.

- Check shrouds and hoses to make sure they aren't damaged
- While operating ensure hoses don't become kinked or bent
- Use filter cleaning button, if applicable (VC 125 has button where VC 150 does not), on vacuum to activate filter cleaning at frequency recommended by manufacturer
- Replace vacuum bags as needed to prevent overfilling
- Use grinder (for example, reduce speed of grinder) and vacuum controls for reducing the release of visible dust
- If visible dust increases, check controls adjust as needed

If practical use wind direction to keep dust particles away from other employees. Additionally fan/LEV may be used also, to prevent the buildup of dust in work area. Employees have stop work authority.

RESPIRATORY PROTECTION

If personal air sampling has not been conducted follow Table 1 which states:

If operating grinder for less than four hours, respiratory protection with APF 10 is required outdoors or indoors at all times. When operating grinder for more than four

hours respiratory protection with APF 25 is required outdoors and indoors at all times.

Voluntary use of filtering face pieces are available if sampling shows employees are below PEL; employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Dust generated by grinder on work surfaces and equipment must be cleaned up using wet methods or HEPA filtered vacuum. Dispose of sealed vacuum bags. Wet sweep only (to include dust inhibitor). Never use compressed air or dry sweeping for cleanup of dust containing silica.

Procedures used to Restrict Access to Work Area - When controls for grinding are fully and properly implemented access does not have to be restricted to other employees. If practical schedule task when work area is isolated. Traffic cones, tape or signage can be used to warn other employees of possible exposure to silica dust.

7. Handheld Grinders for uses other than mortar removal / Booger Hog

CONTROL

Table 1 engineering and work practice control methods will be fully and properly implemented. Grinder must be equipped with shroud and vacuum dust collection system with 25 cubic feet per minute (cfm) or greater of air flow per inch of wheel diameter. Filter must be at least 99% efficient. Dust collector/vacuum must be equipped with a cyclonic pre-separator or filter-cleaning mechanism. Can be used outdoors, indoors or in an enclosed area. Grinder can be equipped with an integrated water system. But this control method can be only be used when task is outdoors.

WORK PRACTICES

Operator will use and maintain grinder in accordance with manufacturer's instructions to minimize dust.

A. When using dust collection system:

- Check shrouds and hoses to make sure they aren't damaged
- While operating ensure hoses don't become kinked or bent
- Use filter cleaning button on vacuum to activate filter cleaning at frequency recommended by manufacturer
- Replace vacuum bags as needed to prevent overfilling

- Use grinder (reduce speed) and vacuum controls for reducing the release of visible dust
- If visible dust increases, check controls adjust as needed

B. When using integrated water system (NOT APPLICABLE TO BOOGER HOG):

When using water delivery system and dust becomes visible Stop work and clear waterways if partially or completely blocked. If reservoir empties or delivery system fails Shut down grinder immediately. Fix malfunction and/or fill reservoir (clean water only) so steady stream of water is reestablished. If practical use wind direction to keep dust/mist away from employees. Additionally fan/LEV may be used also, to prevent buildup of dust/mist in work area and schedule work when other employees are not in work area.

RESPIRATORY PROTECTION

If personal air sampling has not been conducted follow Table 1 which states:

A. When using grinder with integrated water delivery system. Grinder can only be used outdoors. No respiratory protection is required outdoors.

B. When using grinder / Booger Hog with dust collection system. No respiratory protection is required outdoors. When using grinder / Booger Hog indoors or in an enclosed area for less than four hours no respiratory protection is required. If using grinder / Booger Hog four hours or longer respiratory protection is required, with the equivalent of APF 10. Voluntary use of filtering face pieces are available; employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Dust/slurry generated by grinder / Booger Hog on work surfaces and equipment must be cleaned up using wet methods or HEPA filtered vacuum. Dispose of vacuum bags sealed. Wet sweep only (to include dust inhibitor). Do not dry sweep slurry which has dried to the point of creating dust. Never use compressed air or dry sweeping for cleanup of dust containing silica.

Procedures used to Restrict Access to Work Area When controls for grinding / Booger Hog are fully and properly implemented access does not have to be restricted to other employees. If practical schedule task when work area is isolated. Traffic cones, tape or signage can be used to warn other employees of possible exposure to silica dust.

8. Demolition Activities involving a Bobcat Breaker

CONTROL

Table 1 engineering and work practice control methods will be fully and properly implemented. If possible, operate equipment from an enclosed cab with a sealed operator compartment and heating/air conditioning system that isolates or filters outside air to protect the operator from silica dust. When employees outside of the cab are engaged in the task, apply water and or dust suppressants as necessary at point of impact to minimize dust emissions. Employees have stop work authority.

WORK PRACTICES

Operator will use and maintain equipment in accordance with manufacturer's instructions to minimize dust. Inside of cab should be maintained as free as practicable from settled dust. Door seals and closing mechanisms need to be in good working order. Must have appropriate gaskets and seals in place and in good working condition. Cab should be under positive pressure maintained through continuous delivery of fresh air. Intake air should be filtered at 95% efficient in 0.3-10.0 um range. Prior to demolition ensure water is available. The cab should have heating and cooling capabilities (windows remain closed).

RESPIRATORY PROTECTION

No respiratory protection is required for operator or ground crew. When ground crew engaged in task, they must apply water and/or dust suppressants at the point of impact to minimize dust emissions. Air sampling may be needed to indicate if ground crew is below PEL. Voluntary use of filtering face pieces are available employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Dust collection system with HEPA filter of 99% or greater efficiency should be used for eliminating dust containing silica inside of cab. Wet method wipes, and/or wet towel can be used to clean interior of cab. Hosing down interior with water may damage electrical components and/or wiring.

Procedures used to Restrict Access to Work Area - When controls for demolition are fully and properly implemented access does not have to be restricted to other employees. If practical schedule task when work area is isolated. Work area may need to be restricted due to flying debris. Traffic cones, tape or signage can be used to warn other employees of possible exposure to silica dust.

9. Housekeeping

CONTROLS

Dust and/or waste material expected to contain silica, needs to be disposed while keeping dust emissions below the PEL. When debris is nearly all dust (e.g. no nails or wire) and indoors or in an enclosed area, a dust collection system with HEPA filter can be used. Care must be taken that no sharp objects are vacuumed up that would puncture vacuum bag. If debris has sharp objects and others that will be too large for vacuum system to handle, Wet method will have to be used by spraying water on debris by means of hose directly or reservoir system; Or by using a dust inhibiter, then swept and shoveled into bags sealed and/or dumpster.

WORK PRACTICES

Use and maintain vacuum system according to manufacturer's instructions. Check hoses to make sure they are not damaged. While operating ensure hoses do not become kinked or bent. Use filter cleaning button on vacuum to activate filter cleaning at frequency recommended by manufacturer. Replace vacuum bags as needed to prevent overfilling and an increase in visible dust. Additionally fan/LEV may be used also, to prevent buildup of dust/mist in work area. And, schedule work when other employees are not in work area. Employees have stop work authority.

RESPIRATORY PROTECTION

Never use compressed air, or dry sweep when other means are feasible. If necessary only use compressed air or dry sweeping in conjunction with ventilation system (LEV). Can use negative vacuum machine if available. Air sampling will be needed to verify if employees are below PEL. Voluntary use of filtering face pieces are available employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Task being executed.

Procedures used to Restrict Access to Work Areas- If practical, schedule task when work area is isolated. Workers or competent person can use traffic cones, tape, and/or signage to warn other workers of possible exposure to silica in the area affected.

10. Rubbing Walls with Stone/Finishing

CONTROLS

This task is not listed in Table 1. The only control for consideration of employee exposure in an enclosed area is the use of a Negative Air Machine with HEPA filter.

WORK PRACTICES

Use and maintain Negative Air Machine system according to manufacturer's instructions.

RESPIRATORY PROTECTION

Personal sampling was conducted which showed employees were not exceeding the PEL. Voluntary use of filtering face pieces are available and employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Never use compressed air, or dry sweep when other means are feasible. If necessary only use compressed air or dry sweeping in conjunction with ventilation system (LEV). Use vacuum with HEPA filter.

Procedures used to Restrict Access to Work Areas- If practical, schedule task when work area is isolated. Workers or competent person can use traffic cones, tape, and/or signage to warn other workers of possible exposure to silica in the area affected.

11. Tear-Down Scaffold

CONTROLS

This task is not listed in Table 1. The only control for consideration of employee exposure in an enclosed area is the use of a Negative Air Machine with HEPA filter.

WORK PRACTICES

Use and maintain Negative Air Machine system according to manufacturer's instructions.

RESPIRATORY PROTECTION

Personal sampling has not been conducted to show employees were not exceeding the PEL. Voluntary use of filtering face pieces are available and employees will need to review Appendix D of 29 CFR 1910.134.

HOUSEKEEPING

Never use compressed air, or dry sweep when other means are feasible. If necessary only use compressed air or dry sweeping in conjunction with ventilation system (LEV). Use vacuum with HEPA filter.

Procedures used to Restrict Access to Work Areas- If practical, schedule task when work area is isolated. Workers or competent person can use traffic cones, tape, and/or signage to warn other workers of possible exposure to silica in the area affected.

12. Mixing Mortar

CONTROLS

This task is not listed in Table 1. Per the Preamble, Federal Register, Vol. 81, Number 58, Friday, March 25, 2016 page 16706, column 1, paragraph 1 states that mixing mortar, pouring concrete footers, slab foundation, and foundation walls, and the removal of concrete formwork would be covered by the standard; OSHA finds that these tasks, when performed in isolation from activities that do not generate significant exposures to respirable crystalline silica do not create respirable crystalline exposure that exceed 25 ug/m3 as an 8 hour TWA. The only control for consideration of employee exposure in an enclosed area is the use of a fan or Negative Air Machine with HEPA filter.

WORK PRACTICES

Use and maintain Negative Air Machine system according to manufacturer's instructions.

RESPIRATORY PROTECTION

Personal sampling was conducted to show employees were not exceeding the PEL. Voluntary use of filtering face pieces are available and employees will need to review Appendix D of 29 CFR 1910.134. Recommendation of required use when in confined mortar hut.

HOUSEKEEPING

Never use compressed air, or dry sweep when other means are feasible. If necessary only use compressed air or dry sweeping in conjunction with ventilation system (LEV). Use vacuum with HEPA filter.

Procedures used to Restrict Access to Work Areas- If practical, schedule task when work area is isolated. Workers or competent person can use traffic cones, tape, and/or signage to warn other workers of possible exposure to silica in the area affected.

The written silica exposure control plan will be made available to all Employees via the FCI and Corporate Construction Health and Safety Manual. The plan will be reviewed and evaluated for effectiveness at least annually by the Health and Safety Director or designated silica Competent Person who will update the plan if necessary. The silica exposure Competent Person function will be filled by the onsite Field Supervision (i.e. Superintendents, Foremen) and H&S Director. The Silica Competent Person will make frequent and regular inspections of jobsite(s), materials, equipment, and work processes to implement and verify the effectiveness of the written exposure control plan.

Employer required use of a respirator will mandate Employee participation in a respiratory protection program consisting of a physical exam, fit test, and training. The H&S Director manages both the Respiratory Protection Program and the Silica Program to include the Exposure Control Plan. Employees will participate in safety topics and formal training to teach you how we will limit silica dust exposures at all jobsites. Any FCI or Corporate Employee can contact their H&S Director at any time by calling 260 570 6620.

All employee records associated with silica exposure (e.g. air sampling, medical surveillance) will be kept by the H&S Director in confidential records. These records shall be kept in compliance with 29 CFR 1910.1020 for 30 years.

Stair, Roofs, Wall Openings, Walking and Working Surfaces

Working on and around stairways and ladders can be hazardous. Stairways and ladders are a major source of injuries and fatalities among construction workers. The employer shall provide training that enables the employee to recognize hazards related to ladders and stairways, and how to minimize those hazards.

GENERAL

- When there is a break in elevation of 19 inches or more and no ramp, runway, embankment or personnel hoist is available, employers must provide a stairway or ladder at all worker points of access.
- When there is only one point of access between levels, employers must keep it clear of obstacles to permit free passage by workers. If free passage becomes restricted, employers must provide a second point of access and ensure that workers use it.
- When there are more than two points of access between levels, employers must ensure that at least one point of access remains clear.

RULES FOR STAIRWAYS

The rules covering stairways and their components generally depend on how and when stairs are used. Specifically, there are rules for stairs used during construction and stairs used temporarily during construction, as well as rules governing stair rails and handrails.

Stairways Used During Construction - The following requirements apply to all *stairways used during construction*:

- Stairways that will not be a permanent part of the building under construction must have landings at least 30 inches deep and 22 inches wide (76 x 56 cm) at every 12 feet (3.7 m) or less of vertical rise.
- Stairways must be installed at least 30 degrees- and no more than 50 degrees- from the horizontal.
- Variations in riser height or stair tread depth must not exceed 1/4 inch in any stairway system, including any foundation structure used as one or more treads of the stairs.
- Doors and gates opening directly onto a stairway must have a platform that extends at least 20 inches (51 cm) beyond the swing of the door or gate.
- Metal pan landings and metal pan treads must be secured in place before filling.
- Stairway parts must be free of dangerous projections such as protruding nails.
- Slippery conditions on stairways must be corrected.
- Workers must not use spiral stairways that will not be a permanent part of the structure.

TEMPORARY STAIRS

The following requirements apply to *stairways used temporarily during construction*.

Except during construction of the stairway,

- Do not use stairways with metal pan landings and treads if the treads and/or landings have not been filled in with concrete or other materials unless the pans of the stairs and/or landings are temporarily filled in with wood or other materials. All treads and landings must be replaced when worn below the top edge of the pan.
- Do not use skeleton metal frame structures and steps (where treads and/or landings will be installed later) unless the stairs are fitted with secured temporary treads and landings.

  Note: Temporary treads must be made of wood or other solid material and installed the full width and depth of the stair.

STAIR RAILS

The following general requirements apply to all stair rails:

- Stairways with four or more risers or rising more than 30 inches (76 cm) in height- whichever is less- must be installed along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the height of the top edge must be no more than 37 inches (94 cm) nor less than 36 inches (91.5 cm) from the upper surface of the stair rail to the surface of the tread.
- Stair rails installed after March 15,1991, must be not less than 36 inches (91.5 cm) in height.
- Top edges of stair rail systems used as handrails must not be more than 37 inches (94 cm) high nor less than 36 inches (91.5 cm) from the upper surface of the stair rail system to the surface of the tread. (If installed before March 15, 1991, not less than 30 inches [76 cm]).
- Stair rail systems and handrails must be surfaced to prevent injuries such as punctures or lacerations and to keep clothing from snagging.
- Ends of stair rail systems and handrails must be built to prevent dangerous projections, such as rails protruding beyond the end posts of the system.
- In addition,
- Unprotected sides and edges of stairway landings must have standard 42-inch (1.1 m) guardrail systems.
- Intermediate vertical members, such as balusters used as guardrails, must not be more than 19 inches (48 cm) apart.
- Other intermediate structural members, when used, must be installed so that no openings are more than 19 inches (48 cm) wide.
- Screens or mesh, when used, must extend from the top rail to the stairway step and along the opening between top rail supports.

HANDRAILS

Requirements for handrails are as follows:

- Handrails and top rails of the stair rail systems must be able to withstand, without failure, least 200 pounds (890 n) of weight applied within 2 inches (5 cm) of the top edge in any downward or outward direction, at any point along the top edge.
- Handrails must not be more than 37 inches (94 cm) high nor less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread.
- Handrails must provide an adequate handhold for employees to grasp to prevent falls.
- Temporary handrails must have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stair rail systems and other objects.
- Stairways with four or more risers, or that rise more than 30 inches (76 cm) in height- whichever is less- must have at least one handrail.
- Winding or spiral stairways must have a handrail to prevent use of areas where the tread width is less than 6 inches (15 cm).
- Stairways should not be slippery or have hazardous projections. (ex. nails)

FLOOR OPENINGS/HOLES

- The definition of a hole is a gap or void 2-inches or more in its least dimension, in a floor, roof or other walking or working surface.
- All floor openings or floor holes are to be guarded by using a standard guard railing and toeboard or they must be covered with a material that is capable of supporting the maximum expected weight load.

Fire Prevention and Protection

PURPOSE

To define the responsibilities and requirements for implementing a fire prevention and protection program.

SCOPE

This process applies to all employees who have fire watch responsibilities and volunteer to fight incipient fires.

RESPONSIBILITIES

Site Superintendent or Foreman (in the absence of Superintendent) will be responsible for fire extinguisher placement and monthly inspection. As the jobsite changes, supervision will ensure no fire extinguishers are blocked, it is conspicuous, and that the fire extinguishers meet the requirements of this program. Supervision shall ensure any hot work has fire extinguisher in near proximity and proper documentation is completed per Section 24 Welding, Brazing, Thermal Cutting, Sparks from Grinding when required.

Master Mechanic will be responsible for placement of fire extinguisher on motor vehicle equipment while the equipment is at the Shop.

Operator will be responsible for inspecting motor vehicle equipment daily checking the fire extinguisher.

Safety Director will ensure fire extinguishers located at the Shop in storage are inspected and ready for use in the field; in addition, Safety Director will ensure employees are provided annual training. The Safety Director will inspect fire extinguishers at the Shop and Yard monthly and modify placement as needed.

MONTHLY FIRE EXTINGUISHER INSPECTION

FCI Employees check each extinguisher on a monthly basis, we inspect for these items:

1. Heft-does the extinguisher feel like it weighs enough (bad gauge)?
2. Hose- Is the hose and nozzle of the extinguisher in good shape, not deformed or cracked?
3. Gauge-Does the dial read in the full range?
4. Pin and tamper seal, is the pin seated as it should be, with a plastic break away tamper seal holding the pin in place?
5. Dents-Is the extinguisher dented or corroded?
6. Annual inspection- does the extinguisher have its annual inspection tag? The cards are punched with the year and month of the last authorized service. If the extinguisher tag is missing or older than 12-months it needs to be removed from service.

7. Monthly inspections are done by FCI Employees by checking the items 1-6 above. When you are satisfied with the monthly inspection place the month and year in the space on the back of the tag with your initials. We write *only* the month and year on the monthly inspection, for example an inspection done in November of 2012 would have 11/2012 and the monthly inspector's initials.

Used or damaged extinguishers are to be tagged out of service using the Danger Do Not Use tag which are available at each jobsite. When any piece of equipment (including fire extinguishers) is removed from service contact appropriate personnel for replacement/repair.

FIRE EXTINGUISHER PLACEMENT AND SIZE

A fire extinguisher, rated not less than 2A is provided for every 3,000 square feet of *building area*. Maximum travel distance to the extinguishers cannot exceed 100-feet. Based upon square feet at least one or more 2A extinguisher is provided on each floor, and at least one 2A extinguisher is placed adjacent to each stairway.

A fire extinguisher rated not less than 10B shall be provided within 50 feet of wherever more than *5 gallons of flammable or combustible liquids or 5 pounds of flammable gas* are being used on the jobsite.

A fire extinguisher, rated not less than 20B is provided at *diked outdoor fuel tanks* and placed between 25-feet and 75-feet distance from the fuel tank. This distance allows workers to retrieve the extinguisher without having to get too close to the fuel source. The fire extinguisher should be mounted on a suitable and visible support. NO smoking, NO open flames signage is posted at fuel depot areas. Fuel storage areas must be protected from traffic by location and/or jersey barriers and/or highly visible barricades. The secondary containment used to hold the jobsite fuel tanks must be plugged and leak-proof, and be periodically checked to make sure it is containing any potential leak from the primary tank. Check the secondary containment periodically making sure it is not too full of rainwater. Pools of stagnant water breed mosquitoes. Fuel leaks into a secondary containment could float right out of the containment vessel if it holds too much rainwater.

Light Duty Motor Vehicles (less than 10,000 pounds) must be equipped with a minimum 2 1/2 lb. fire extinguisher, ABC type, rated at 1A:10BC. Local managers can use their discretion with vehicles less than 10,000 pounds with regard to fire extinguisher type. *Motor Vehicles weighting between 10,000 and 26,000 pounds* must have a 2 1/2 lb., ABC type fire extinguisher rated at 1A:10BC. *Heavier vehicles* (as outlined by the Part 243 FW-1 statute) require a 5 lb., ABC type fire extinguisher.

Liquid propane gas (LPG) storage locations shall be provided with at least one approved portable fire extinguisher having a rating of not less than 20 B:C.

HOT WORK

Welding, brazing, soldering, metal grinding, or any generation of sparks or open flame require the use of a Hot Work Permit as required by exposure or Owner's Facility Policy. A Hot Work Permit is opened and closed on a per-shift basis. Hot work permits are used indoors and often outdoors where dry vegetation, debris, building materials or high winds could stoke an outdoor fire at a jobsite. Hot work permits require at least one fire extinguisher for use within immediate proximity of the hot work. Do not rob a fire extinguisher already in-place from a different area of the jobsite. Obtain a separate designated extinguisher for hot work use. Form 12 is the hot work permit, it includes use directions. All hot work permits require a fire watch of at least 30-minutes. The fire watch begins after all spark/flame generation work stops. The Fire Watch is to remain at the hot work location until the 30-minute watch is over before closing out the hot work permit.

TRAINING

All employees will be provided training annually as an incipient stage fire fighter. No employee is required to fight a fire. Fire extinguishers are provided as required for compliance. If there is a fire, employees are to call 911 or Owner's Facility fire-fighting team/brigade.

Welding, Brazing, Thermal Cutting, Sparks from Grinding

Welding, brazing, thermal cutting, grinding for FCI employees involves intermittent work involving material such as rebar, steel I beam, and steel H beam where trace amounts do not create an exposure meeting the hot work on chromium-containing material. The following is required when hot work is performed.

1. Hot Work Permits are opened *before* starting flame and spark producing work including soldering, welding, brazing, thermal-cutting, grinding or open flames. Hot work permits are posted at the hot work task, closed out at the completion of the hot work task, and held on-site after the hot work is completed. Hot work permits are opened, posted, closed and submitted to the FCI Superintendent at the end of each shift of work.
2. The jobsite Superintendent must verify that all Employees involved in hot work know the precautions to take, how to use a fire extinguisher, the emergency procedures to take in the event of a fire, and how to notify all building occupants in the event of a fire. The hot work area, whether indoors or outdoors must be clear of all combustible and flammable material within a 35-foot radius. If these materials cannot be moved, use fire blankets or other fire-resistant materials to contain ignition sources.
3. A fully operational, twenty-pound or larger, dry-chemical fire extinguisher must be in the immediate area of the hot work. The extinguisher will have passed both the annual and monthly inspections. Two smaller (10-pound) extinguishers can be substituted for a single 20-pounder.
4. Sparks and slag must be confined to the work area. When working on walls, floors, or ceilings, the transfer of heat or sparks may cause a fire hazard to an adjacent area. Always protect adjacent areas from sparks and slag. Employees will continually check any areas affected by the hot work (above, below, around) to ensure that they are free of fire or, excessive heat or smoldering. Workers will prevent slag, sparks, and embers from entering cracks, crevices, and hidden areas where an ignition source can remain undetected. This *continual checking* (or fire watch) will continue during work activities, during breaks and for at least ½ hour after the hot work is completed.
5. Hot Work Permits are closed at least ½ hour *after stopping* spark and flame producing work that includes soldering, welding, brazing, thermal cutting, grinding or open flames. A hot work permit lasts for only one work shift. Multiple separate permits are used for multiple-shift hot work.
6. To use a fire extinguisher follow the PASS method. PASS stands for Pull the pin, Aim the nozzle, Squeeze the handle, Spray towards the base of the fire.

IGNITABLE

Although OSHA does not define ignitables, let me define them as solids that can burn when sufficient heat is applied. Examples are paper, plastics, wallboard coverings, and wood; this also would apply to flammable metals, such as aluminum and magnesium.

Sodium and potassium also are known as flammable metals, but only if they come in contact with moisture. Aluminum, magnesium, and several others will burn furiously if heated enough.

HOT WORK

Expanding on OSHA's definition, hot work means welding, brazing, cutting, soldering, thawing pipes, using heat guns, torch applied roofing and chipping operations, or the use of spark-producing power tools, such as drilling or grinding. It could also be mechanical friction from gears rubbing or a static discharge from an employee's shoes. Flammable, combustible, or ignitable materials should be kept a minimum of 20 to 35 feet away from the hot work, or those materials should be covered with a flame-retardant covering for protection.

HOT WORK PROGRAM

Companies that have flammable, combustible, or ignitable materials and need to perform hot work in and around these materials need to have a Hot Work Program. The program should:

- Be in writing

- Require an inspection of the work area before the work starts

- Have a permit signed to show that all phases of the work have been inspected and approved.

DEVELOPMENT OF THE PROGRAM

Develop a written Hot Work Program that is specific for your facility. In developing the program, the safety or engineering professional who will be heading up the development should ensure all necessary precautions are discussed in the program.

SAFETY EQUIPMENT

Look at safety equipment first. Does the facility have fire sprinklers, and are they in service? Are there extinguishers of the correct type? Are there extinguishers throughout the work area? Does maintenance have a sufficient number of backup extinguishers for use during hot work projects?

FIRE WATCH

Another vital piece of the safety setup is the fire watch. This is a person whose only duty is to scan the hot work area looking for potential fires or hot spots. This person has a fire extinguisher and a means of communication to reach emergency service personnel. The fire extinguisher should be the correct type for the materials in the area and of a large enough size to be useful in the event of a flare-up only after the fire department has been notified.

PERMIT

To show that all of the above steps were checked, inspected, cleaned, or evaluated, a written permit is used. You can find examples of hot work permits on the Internet, but your permit should be developed so that it provides your personnel with the specific information they need for your facility.

HEXAVALENT CHROMIUM

Hexavalent chromium can be formed during “hot work”, such as welding, brazing, and cutting of stainless steel or other chromium-containing metals and the melting of chromium metal. In these situations, the chromium metal is not originally hexavalent, the high temperatures involved in the process result in oxidations that convert the chromium to a hexavalent state.

Hexavalent chromium is essential to a number of industrial applications: chromate pigments are used in dyes, ink and plastics, chromic acid is used in chrome plating and chromates are used to prevent corrosion in paints and other coatings. While these compounds can be very beneficial, they can also be harmful or lethal to those employees exposed to them. This program discusses the safe work practices Employees must follow to avoid exposures to this hazardous substance. Topics include characteristics and properties of hexavalent chromium, effects of exposures, engineering and work practice controls, medical surveillance, the respiratory protection program, protective clothing and equipment, proper housekeeping and responding to exposures.

Chromium is an element which may have various valence states. A valence state refers to how many electrons are available to bond with other elements and compounds. Hexavalent chromium compounds are almost always man-made and are used in a variety of industries. Some of the prominent uses of hexavalent chromium in industry include chromate pigments in dyes, inks, and plastics, chrome-plating in which chromium metal is deposited on a surface using chromic acid and chromates used to prevent corrosion in paints, primers and other coatings. In addition, hexavalent chromium can also be found as a byproduct of industrial processes and maintenance operations. In fact, OSHA estimates that 48 percent of

all workers affected by hexavalent chromium will be welders. Welders can be exposed to chromium 6 when fumes are released while welding stainless steels, chromium alloys and chrome-coated metal. Particles may also be released during smelting of ferro-chromium ore and trace amounts may also be found in portland cement. Chromium 6 compounds are essential in many industrial applications; however they can be harmful or lethal to those employees who are exposed to them. This is why it's so important to understand the hazards, routes of entry and exposure symptoms of hexavalent chromium.

There are several ways chromium 6 can enter our bodies; these are called "routes of entry". Inhalation is the primary route of entry. Employees can inhale dusts, mists and fumes containing chromium 6 while performing tasks such as welding on stainless steel or applying paints and coatings containing chromates. Repeated or prolonged exposure to the inhalation of hexavalent chromium can lead to harmful health effects including bronchitis, pneumonia, asthma, and lung cancer. Some symptoms of inhalation exposure to chromium 6 include a runny nose, sneezing, coughing, itching and a burning sensation. Chronic exposure may also produce sores in the nose, nosebleeds and in severe cases a perforation of the wall separating the nasal passages.

Direct skin contact with hexavalent chromium can lead to a variety of ailments. Some employees who come in contact with hexavalent chromium may develop an allergic reaction known as allergic contact dermatitis. When an employee becomes allergic, brief skin contact causes swelling and a red, itchy rash; allergic contact dermatitis becomes longer-lasting and more severe with repeated skin exposure. Direct skin contact with chromatic substances can also lead to skin ulcers. These are small crusted skin sores that heal slowly and leave scars. These are commonly referred to as "chrome holes."

Direct eye contact with chromate dust or chromic acid can cause permanent eye damage. Dust particles of chromium can contaminate clothing, hands, food and other items and lead to ingestion by employees. Damage to the liver, kidneys and gastrointestinal system has been experienced by individuals who have ingested high levels of hexavalent chromium. Some symptoms of chromium 6 ingestion include severe abdominal pain, vomiting and hemorrhaging.

To prevent workers from suffering one or more of these ailments, OSHA has established regulations to protect workers from the hazards of hexavalent chromium. FCI Construction and Corporate Construction do not have Welders who are exposed to chromium 6 when fumes are released while welding stainless steels, chromium alloys and chrome-coated metal. FCI and Corporate Construction have incorporated the OSHA regulation into this safety and health program for Employee information.

FCI and Corporate Construction will provide this training annually providing the contents of OSHA's Hexavalent Chromium Standard applicable to your work and a copy of the standard will be made readily available for your review at no cost.

FCI will implement controls to limit exposures when there is an average exposure of five micrograms of chromium 6 per cubic meter of air over the course of any eight-hour work shift. The five microgram per cubic meter measurement is known as the permissible exposure limit, or PEL. To protect workers, exposure to hexavalent chromium must be reduced to the permissible exposure limit or below. Engineering and work practice controls are the primary means used to reduce exposure. Examples of engineering controls include substituting a less toxic material for chromium 6.

Changing a process to reduce exposure is another example. For example, TIG welding on stainless steel reduces exposure compared to traditional stick welding. Also, isolating the source of exposure with barriers and reducing the hazard with ventilation and exhaust systems are examples of engineering controls. If engineering and work practice controls do not sufficiently reduce exposure, then appropriate respirators must be used to further reduce employee exposure to the permissible exposure limit or below.

When levels of hexavalent chromium cannot be reduced below 2.5 micrograms per cubic meter of air averaged over an 8-hour work shift, a program of exposure assessments will be established. This 2.5 microgram per cubic meter measurement is known as the action level. Exposure assessments use air sampling and measurements to determine an Employee's exposure to chromium 6. The purpose of the exposure assessment is to ensure that employee exposure levels do not exceed the permissible exposure limit. When changes occur in the workplace that may affect exposure levels, such as the introduction of new materials, additional exposure assessments will be performed. Employees will be notified if their exposure to hexavalent chromium is determined to be above the permissible exposure limit and informed of the actions being taken to reduce your exposure to the PEL or below.

When the action level is reached, a program of medical surveillance is implemented. Medical surveillance is the process by which an employee is examined to a) determine if he or she can be exposed to chromium 6 without experiencing adverse health effects; b) identify chromium 6 related adverse health effects, so appropriate intervention measures can be taken; and c) determine the employee's fitness to use personal protective equipment such as respirators. These tests, which must be conducted by a physician or other licensed health care professional, will be provided to employees who are exposed at or above the action level for 30 days or more per year, experiencing signs or symptoms of adverse health effects associated with

hexavalent chromium or involved in significant and unexpected exposures. The medical exam will consist of a medical work history that focuses on your past, present and anticipated future exposure to chromium 6 and any health problems that could be compounded by exposure. You will undergo an examination of your skin and respiratory tract as well as any additional tests the health care professional deems appropriate. After the exam, a written medical opinion will be issued within 30 days to Employer. This written opinion will include whether you have a medical condition which places you at increased risk of impaired health from further exposure to chromium 6; any medical conditions related to chromium 6 exposure that require further evaluation or treatment; and, any recommended limitations that should be placed on your exposure to chromium 6 or any limitations in the use of a respirator or other PPE. The written medical opinion, by law, will not reveal to your Employer specific findings or diagnoses unrelated to occupational exposure to chromium 6. • You will be provided with a written copy of the opinion within two weeks of it being received by your employer; however, the health care professional will also explain the results to you in person.

When airborne concentrations of chromium cannot consistently be reduced below the permissible exposure limit, respiratory protection will be necessary. When this is the case, your employer will implement a respiratory protection program which establishes procedures for the proper selection and use of respirators in the workplace. Part of the respiratory protection program requires employees receive a medical evaluation to ensure they are physically able to use a respirator and undergo a series of fit testing procedures to ensure a proper fit. Employees will be provided a respirator that will protect you against airborne chromium exposures. Employees receive training on the proper use, storage and maintenance of the respirator.

Employees will also be supplied with protective clothing and equipment if skin or eye contact with hexavalent chromium is likely. Be sure you know precisely what protection is needed for each job task you perform and be sure you wear it. Simple tasks may only require gloves for adequate protection while others may require a higher level of protection. If you must change out of your street clothes to use protective clothing and equipment, you are required to do so in a change room. Change rooms must have separate storage facilities for street and work clothing to prevent contamination of employees' street clothes. You are only required to use the change room if you have to remove your street clothes. If you can wear gloves, aprons or other equipment effectively over your street clothes, putting them on in a change room is not necessary.

After coming in contact with chromium while performing a job task, don't attempt to blow or shake it off of your equipment or clothing. This can disperse it into the air or onto your body. The Employer will set aside a specific area for you to remove

contaminated clothing. Make sure to place contaminated items in the lockers or containers designated by your company. After removing your clothing, you should go to an approved washing facility to cleanse any areas where skin contact has occurred. Make sure to thoroughly wash your hands and face. If you have a break room or other area at the facility where food and beverages are consumed, remove any contaminated clothing and decontaminate yourself before entering these areas.

OSHA's industrial regulation for chromium 6, 1910.1026, requires that "regulated areas" be established when an Employee's exposure to chromium 6 is expected to be above the permissible exposure limit. These areas will be marked with signs, barricades or other methods. Make sure you know how your company designates these areas. Do not drink, eat, smoke or apply cosmetics in regulated areas. If fact, do not even bring food, drinks, cigarettes or similar items into these areas at all; they can easily become contaminated. Only authorized persons wearing required protective equipment are permitted to enter regulated areas.

When dealing with chromium 6, proper housekeeping is critical to minimize exposure. Chromium 6 that settles on ledges, equipment, floors and other surfaces should be removed as soon as possible to prevent it from becoming airborne and to minimize the risk of skin contact. Clean surfaces contaminated with Chromium 6 with a HEPA-filtered vacuum or by wet sweeping or wet scrubbing. Dry brushing, sweeping and using compressed air are usually prohibited because they disperse chromium into the air.

Despite our best efforts, Chromium 6 may come in contact with our skin or eyes. It's important to know what to do if this occurs. If hexavalent chromium comes into contact with the skin, go to an approved washing facility to cleanse any areas where skin contact has occurred. When there is substantial contact, the area should be washed with mild soap and water. If chromium 6 contacts your eyes, get to an eyewash station as soon as possible and flush your eyes for at least 15 minutes with a steady stream of water. You will need a prompt examination by a physician after flushing your eyes to determine the need for additional treatment. The exposure will be kept for recordkeeping purposes per 1910.1020.

HEXAVALENT CHROMIUM EMPLOYEE TRAINING REVIEW QUIZ

Name_____Date_____

The following questions are provided to check how well you understand the information presented during this program.

1. What is the primary route of entry for hexavalent chromium?
    a. eye contact
    b. inhalation
    c. skin contact

2. What is the permissible exposure limit (PEL) for hexavalent chromium?
    a. 1 microgram per cubic meter
    b. 2.5 micrograms per cubic meter
    c. 5 micrograms per cubic meter

3. Using TIG welding rather than stick welding is an example of a(n) _____ for chromium 6.
    a. engineering control
    b. work practice control
    c. exposure assessment

4. When airborne concentrations of chromium cannot consistently be reduced below the permissible exposure limit (PEL), respiratory protection is required.
    a. true
    b. false

5. You should use compressed air to blow any hexavalent chromium particles off of your clothes after your shift.
    a. true
    b. false

6. Which of the following is not a recommended way to clean up surfaces contaminated with
chromium 6?
    a. using a HEPA-filtered vacuum
    b. wet sweeping
    c. dry sweeping

7. Who is required to use a change room to put on protective clothing and equipment?

a. employees who must change out of their street clothes to put on protective clothing and equipment

b. employees who can put protective clothing and equipment on over their street clothes

c. all employees

ANSWERS TO THE REVIEW QUESTIONS

1. b
2. c
3. a
4. a
5. b
6. c
7. a

Contractor Doing Hot Work

_____

Date of Hot Work _____Start Time of Hot Work

_____

Hot Work Location (List Building, Floor, Room, Roof Surface, and Location

_____

_____

_____

_____

Description of Hot Work

_____

List Special Precautions

_____

List Employees Performing Hot Work	

Name, contact information and other notification requirements from Owner Representative or Controlling Contractor

_____

This Hot work permit closed by: _____
on Date: _____ Time: _____.

Hot work permits are closed at least ½-hour AFTER hot work has stopped, the ½-hour is used by the Worker(s) to verify that there are no ignition hazards remaining before closing out the hot work permit.

For Fire call 911, inform the dispatcher of the exact location of the fire and Make notification to all building occupants.

FCI Hand and Power Tools Policy

PURPOSE

This policy restricts the issuance and use of unsafe hand tools.

SCOPE

This policy applies to all FCI employees who use hand and power tools.

RESPONSIBILITIES

The FCI General Superintendent is responsible for ensuring hand and power tools are distributed from the Shop in a safe and operable condition per manufacturer.

The FCI Site Superintendent is responsible for the safe condition and maintenance of all tools and equipment to be used by all employees. Employees are responsible for conducting daily checks on their tools and equipment to ensure they are in good working order. Any tool not maintained in a safe working condition shall immediately be removed from service and affixed with a Do Not Operate tag as applicable.

All FCI Employees shall understand the established sign out/in procedure and proper safe use of all hand and power tools.

GENERAL CONDITIONS

Employees and supervision should work together to maintain safe working conditions at the jobsite. If a hazardous situation is encountered, it should be brought immediately to the attention of the proper individual for hazard abatement.

PROCEDURE

- Sign out / sign in procedure
    - When you require a tool / equipment, coordinate the delivery with the General Superintendent (GS).
    - When the need is more immediate, access the tool room, grab the tool required, then SIGN OUT the tool. This lets the GS know what tool went out and where. When the tool is returned, sign back in. The sign out/in sheets are located on the door of the tool room with instructions.
    - Purchasing of tools are through the GS, for the purpose of consistency and purchasing leverage, unless authorized otherwise.
- PPE

- At minimum, Safety Glasses must be always worn, especially when using various tools. Additional PPE including but not limited to Hearing protection, gloves, face shields, hardhats, and protective sleeves may be required.

PROPER SELECTION AND USE

- Know the application, limitation, and potential hazards of the tool used
- Select proper tool for the job
- Keep all tools in good condition with regular maintenance (e.g. lubrication, sharpening blades, change oil)
- Use the right tool for the job
- Operate tools according to manufacturer recommendations
- Remove adjusting keys and wrenches before turning on tools
- Do not use tools with frayed cords and/or loose or broken switches
- Keep guards in place and in working order
- Maintain working areas free of clutter
- Keep alert to potential hazards in the working environment such as damp location or the presence of highly combustible materials
- Do not surprise or distract anyone using a power tool
- Do not remove or alter any guards. The exposed moving parts of power tools need to be safeguarded. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded. Machine guards, as appropriate, must be provided to protect the operator and others from the following:
    - Point of operation.
    - In-running nip points.
    - Rotating parts.
    - Flying chips and sparks.

GENERAL HAND TOOLS

- The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.
- Wrenches, including adjustable, pipe, end, and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.
- Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.

ELECTRIC-POWERED HAND TOOLS

- Portable circular saws must be equipped with guards above and below the base plate or shoe. The lower guard must retract when the blade is in use and automatically return to the guarding position when the tool is withdrawn from the work.
- The use of electric cords for hoisting or lowering tools shall not be permitted.
- All hand-held portable electrical equipment must have its frame grounded or be double insulated and identified as such a tool.

PNEUMATIC POWER TOOLS

- Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.
- In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection, shall be provided.
- Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
- Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
- Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi. and then only with effective chip guarding and personal protective equipment. The 30 psi. requirement does not apply for concrete form, mill scale and similar cleaning purposes.
- The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded
- The use of hoses for hoisting or lowering tools shall not be permitted.
- All hoses exceeding 1/2-inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

FUEL POWERED TOOLS

- All fuel powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored in accordance with fire prevention practices.
- When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment shall apply.

HYDRAULIC POWER TOOLS

- The fluid used in hydraulic powered tools shall be fire-resistant fluids approved under Schedule 30 of the U.S. Bureau of Mines, Department of the Interior, and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.
- The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.

POWDER ACTUATED TOOLS

- Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool.
- The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer's recommended procedure.
- Any tool found not in proper working order, or that develops a defect during use, shall be immediately removed from service and not used until properly repaired.
- Personal protective equipment shall be used as required per IOSHA and/or company policy.
- Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands shall be kept clear of the open barrel end.
- Loaded tools shall not be left unattended.
- Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick, or hollow tile.
- Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
- No fastener shall be driven into a spalled area caused by an unsatisfactory fastening.
- Tools shall not be used in an explosive or flammable atmosphere.

- All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer.
- Powder-actuated tools used by employees shall meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.
- When magazine-fed, explosive powder actuated hand tools are inspected, OSHA does not consider explosive powder loads to be a part of the firing cycle until single loads are fed into the ram or firing chamber. A separate operation on the part of the operator has to be made to place the load in the firing position.

Personal Protection Equipment

PURPOSE

To provide employees means of protection when elimination, engineering controls, administration controls, and substitution is not feasible.

SCOPE

This process applies to all employees who are required to wear personal protective equipment.

RESPONSIBILITY

Employees – maintain personal protective equipment and have available for work each day.

Site Superintendent – during the daily safety review, hazards are identified and personal protective equipment is provided.

Safety Director – audit jobsites, maintain inventory of personal protective equipment, review daily safety reviews.

TRAINING

Training must be given to employees about when to wear PPE, what PPE should be worn, how to put on and take off and adjust PPE. The limitations of the PPE and its use, care, and maintenance should also be included in the training. PPE training should be documented. The certification should include the employee name, the dates of training, and the training content.

Each affected employee must demonstrate an understanding of training received and the ability to use PPE properly. When there is a reason to believe that any employee who has been trained does not have the required understanding and skill or there are changes in the workplace, the employee must be retrained.

The PPE employees use must be kept clean and not give the employees risk of illness. For example, a welding mask used by several employees could have virus or bacteria from one employee that could be transferred to other employees who use the same welding mask. Lysol spray and wipes kill 99.9 of viruses and bacteria.

Consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

DAILY SAFETY REVIEW

The workplace is assessed to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present: (a) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment; (b) Communicate selection decisions to each affected employee; and (c) Select PPE that properly fits each affected employee. The hazard assessment shall be certified by the person who completed the hazards assessment and the date the assessment was completed.

EYE AND FACE PROTECTION

To avoid eye injury you must protect your eyes from trauma, flying particles, chemicals, dusts, liquids, and radiant energy. Appropriate eye protection must be worn by every Employee at all times. Appropriate eye protection is provided for each employee. All FCI employees wear ANSI approved eyewear with side shields as the minimum eye protection while working at construction job-sites. Your Safety Director will ensure that all types of eye and face protection are readily available. No employee should wear damaged eye or face
protection. The Safety Director and Superintendent/Foreman will provide and replace damaged PPE that you need to do your work.

The human eye can be damaged by flying particles or moving objects that contact your eye. Examples are dust, sawdust, chunks of wood, metal shards/slivers, ricochette from use of powder actuated tools, flyback from banding straps, operation of a masonry saw or grinder, insects, a rake or shovel handle, tree branch, building materials, etc.

The human eye can be damaged by chemicals. Examples of chemicals that cause damage to your eyes are: Acids, protect your eyes when servicing a battery, acid washing masonry, etc. Caustics, protect your eyes when using anhydrous ammonia, toilet bowl cleaner, bleach, coil cleaner, soaps, detergents and other caustics. Other Chemicals protect your eyes when using glues, adhesives, paints, sealers, lubricants, liquid fuels, etc.

The human eye can be damaged by Radiant energy. Protect your eyes from exposure to radiant energy sources such as laser light, welding arc, thermal cutting “arc”. Some radiant energy can be seen, some is not seen. Infra-red, X-rays, ultra-violet light, microwaves, gamma rays are invisible forms of energy that cause serious damage to your eyes. These invisible forms of energy damage the cells in your eyes. When you expose your eyes to these energy sources the effects can be quick/acute (think blindness) or slow/chronic (think cataracs and gradual vision loss). Use the proper filter shade when welding, cutting or thermal brazing, use the darkest shade that allows you to see for the task you are doing. Welding requires the darkest shade, thermal cutting and brazing typically require a less dense shade. Laser light requires special laser goggles-never look directly into laser light even the low intensity lasers used in levels, transits, sights, and pointers. Potential exposure to medical or

industrial lasers, require special eyewear. X-ray, gamma and infrared radiant energy sources are not normally encountered and will require special protective measures.

Both tinted and non-tinted polycarbonate lens safety glasses provide excellent protection from the ultraviolet light *found in normal sunlight*; However regular and tinted safety glasses are NEVER acceptable protection from the radiant energy produced during welding, or to protect from commercial UV sources as are used in sewage treatment or medical sterilizing.

Eyewear will be made available through your Superintendent. Plain (clear) lens eyewear will be issued to each employee. Gray or green tinted eyewear can be used outdoors. Avoid the use of mirror lenses, most customers object to mirror lens glasses, some sites ban their use. Folks want to see your eyes when they talk to you.

Converting your regular prescription eyewear to "safety glasses" with slide-on, side shields is not acceptable eyewear at a construction jobsite. Those who wear non-ANSI approved prescription glasses are required to wear ANSI approved over-glasses over their prescription glasses. Some field workers that wear corrective lenses purchase ANSI approved prescription safety glasses, this is an option you may want to consider. Employees may have private insurance that covers all or part of the cost of ANSI approved prescription eyewear. Over-glasses are available from your Superintendent. Damaged and scratched eyewear should be swapped out with your Superintendent for replacement. Wash dirt and dust off of the lenses before wiping your glasses dry, this will prevent some scratching of the lenses caused by dry dust and grit.

All FCI employees will wear a face shield over their ANSI approved eyewear when chipping, metal stud cutting, metal grinding, machining, and during any task that produces metal shards, metal dust, and metal particles. Any use of a partner or masonry saw requires the use of ANSI approved eye and face protection. Clear face shields or mesh face-shields will be made available through your Superintendent. High velocity metal particles, masonry saw grit, and other debris *can and does* find its way into the eyes of workers who are wearing *only* ANSI approved safety glasses with sideshields. We need to wear BOTH ANSI approved eyeglasses AND a faceshield when chipping, cutting, machining, grinding metals, operating a masonry saw, using a partner saw, and during other tasks that present a high velocity particle risk. The face shield adds an important extra barrier that bounces high velocity particles away from your face. Metal or grit particles can become imbedded into the whites of your eyes (sclera), colored part of your eye (iris) or the pupil where light passes into your eye. Particles in the eye can scratch or perforate the surface of your eye. If the embedded metal contains iron, it can cause a rust ring in your eye, resulting in further damage to your vision. A particle in your eye is often not detected until hours/days later when the eye tissue starts to swell.

EYE AND FACE PROTECTION USE CHART

Task	Hazards	Protector to Use	Comments
General Construction	Exposure to dust and impact from objects and debris. Hand tool and hand power tool use, moving building materials.	As a minimum use ANSI approved safety glasses with side-shields at all times while working.	Safety glasses are the minimum general all-purpose eye protection for construction tasks.
Acetylene-Burning, cutting, and welding	Sparks, molten metal, harmful rays, flying particles.	Welding goggles with proper shade number. See chart for Welding Shade breakdown.	Use proper shade number as shown on welding, brazing, thermal cutting chart.
Chemical Handling	Splash, acid/caustic burns, fumes	Goggles with hooded ventilation, use under face shield if warranted to protect face.	Snug fitting goggles with hooded ventilation keep liquids out of eyes while reducing lens fogging.
Chipping, metal-stud cutting, metal grinding, machining. Operation of masonry saw, operation of partner saw.	Flying particles, metal shards, metal shavings, metal dust, aggregate grit and dust.	ANSI approved safety glasses with side-shields AND a face shield.	Face shield must be worn over ANSI approved eyewear to protect eyes from flying debris. Wear both.
Electric Arc Welding	Sparks, harmful rays which damage your sight, molten metal,	Welding helmet with proper shade number. See chart for Welding Shade breakdown	Use proper shade number as shown on welding, brazing, thermal cutting chart.
Spot Welding	Flying Particles, sparks, slag	ANSI approved safety glasses with side-shields AND a face shield.	Use both ANSI approved eyeglasses and face shield during spot welding.

ANSI stands for the American National Standards Institute. ANSI physically tests and certifies safety equipment for manufacturers. ANSI assures that eye and face protective equipment meet consistent standards for design, durability, impact resistance, etc. The eye/face protective specific standard is ANSI Z87.1-2010-Industrial Eyewear Impact Standard.

Use the proper filter shade when welding, cutting or thermal brazing. Use the darkest shade that allows you to see for the task you are doing. The higher the shade number, the darker the lens will be. Welding requires the darkest shade. Thermal cutting and brazing typically require a less dark shade. Regular and tinted safety glasses are NEVER acceptable eye protection from the radiant energy produced during welding, cutting or thermal brazing.

Laser light requires special laser goggles-never look directly into laser light, even the low intensity lasers used in levels, transits, sights, and pointers can cause damage to your vision. Some special UV (ultraviolet) light sources such as medical sterilization lamps, and UV sewage treatment systems require the use of special protective eyewear to protect your eyes from this invisible but damaging UV light threat.

Choosing the Proper Shade for Welding/Cutting/Brazing Operations	Shade Number
Shielded metal arc welding 1/16, 3/32, 1/8-5/32 inch diameter electrodes	10
Nonferrous gas-shielded welding arc 1/16, 3/32, 1/8-5/32 inch diameter electrodes	11
Ferrous gas-shielded welding arc 1/16, 3/32, 1/8-5/32 inch diameter electrodes	12
Shielded metal arc welding 3/16, 7/32-1/4 inch diameter electrodes	12
5/16, 3/8-inch diameter electrodes	14
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing, Light cutting up to 1-inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting over 6 inches	5 or 6
Gas Welding (light) up to 1/8 inch	4 or 5
Gas Welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas Welding (heavy) over 1/2 inch	6 or 8

HARD HATS

FCI Workers wear their hard hats at all times at all job sites. Hard hats are an important and necessary piece of equipment that must be worn at all times on the construction site.

A hard hat provides **impact protection** for your head by distributing the impact through the shell of the hard hat, and by dissipating the impact through the inside cradle suspension of your hard hat. Never place any objects (cell phone, etc.) inside of your hard hat during use, keep the gap between the inner shell and the suspension empty. An object placed inside your hard hat can be driven into your skull if the hard hat is impacted. Inspect your hard hat regularly. Hard hats are to be worn as designed, do not reverse the cradle assembly or wear your hardhat backwards.

Hard hats provide **penetration protection** from falling objects of limited weight. America's first designated "Hard Hat Area" was set up at the Golden Gate Bridge construction site. One problem the bridge project faced was falling rivets, which caused serious injuries and deaths from skull fractures. A hard hat is designed to deflect and dissipate the impact of falling objects.

Hard hats provide some **weather protection** from the sun and rain encountered outdoors. Brimmed hardhats provide solar protection for ears, necks and noses. Long term exposure to the sun can cause skin damage and lead to an increased risk for skin cancer. Cancer and non-cancer growths are more common on the face, neck and ears of those who have spent a lot of time outdoors without protection. Sunburns increase the chance of developing skin cancer later in life. New and replacement hard hats issued by FCI will be the brimmed style, to provide sun protection for the face, neck and ears.

All plastic hard hats provide some **electrical protection** from contact with sources of electricity. Special (different) high-voltage hard hats are worn by power line and electrical workers to provide the additional electrical protection these workers require. Placing decals and stickers on the hardhat can interfere with the electrical insulation provided by the outer shell.

Regularly inspect your hard hat, replace damaged hardhats immediately. It is not acceptable to drill ventilation holes in your hard hat shell, or to otherwise modify your hardhat. Ask your Superintendent or Safety Director for a replacement if any part of your hard hat is damaged including the inner cradle. Stickers and decals can cover or mask damage to the outer shell of your hard hat, therefore inspect both the inside and outside surfaces of the hardhat shell. Cracked, chipped, deeply gouged, aged, weathered, or chemically damaged hard hats need to be replaced.

Other forms of personal protective equipment are made available when needed for FCI Employees. This gear includes hearing protection, various types of gloves, dust masks and respirators (covered in detail in section 30 of this manual).

Material Handling Equipment

Rough Terrain Forklifts and Telehandler, Fork Lifts of all kinds and motorized pallet jacks are hereafter referred to as material handling equipment or MHE.

Training is required for all MHE Operators. Only Authorized and Certified Persons can operate a fork lift, telehandler, or motorized pallet jack. Authorized means you have permission to operate the lift. Certified means an Operator has demonstrated adequate knowledge of how the lift operates, *and* the Operator has passed a field evaluation that demonstrates proper operating skills by successfully passing a field operation test. The knowledge and skills tests are conducted and documented by a Competent Trainer, who is certified in operating the specific type of material lift, and is authorized and certified to do so. The employer shall certify that employees have been trained in operating and inspecting the material lift by preparing a training certification record which includes the identity of the person being trained, the signature of the employer or the person who conducted the training, the date that training was completed, the operating history of the driver, and the type material lifts for which training was provided. Most FCI Tradesmen have been safely operating material lifts for years, even decades. Regardless of operating experience, recertification is required at least every three years. Training certification records are maintained in the FCI Safety Office. Operators are issued certification wallet cards. ONLY Authorized and Certified FCI Employees are allowed to operate FCI owned or leased equipment (including any material lift). FCI Superintendents and Project Managers can chose to loan or lease a material lift owned by FCI to other Contractors, as long as a FCI Operator is provided.

Refresher training must be provided to each material lift Operator when any of the following occur:

- The Operator has been observed to be using the material lift lift in an unsafe manner,
- The Operator has been involved in an accident or near miss event,
- The Operator has received an evaluation that reveals the Operator is not using the material lift safely,
- The Operator is assigned to use a different type of material lift equipment for which he/she is not familiar,
- A condition in the workplace changes in a manner that could affect the safe operation of the material lift equipment,
- At least every three years each Operator must update current status with refresher training.

Inspect the MHE. Each MHE Operator must complete a pre-use inspection prior to use on each shift. A material lift not used during a shift does not have to undergo an inspection during that shift. Pre-use inspections are documented using the daily pre-use inspection ledger that is kept in each material lift. Please keep the inspection ledgers in the plastic zip lock bag to keep them dry. Each Operator must document the results of the pre-use inspection prior to beginning the use of the material lift. All Operators will immediately remove from service any equipment that has an safety

issue. When removing equipment from service, always securely material lift attach a DO NOT OPERATE tag to the main controls of the unit. Write your name, date, and reason for taking the equipment out of service on the DO NOT OPERATE tag. As an additional precaution remove the keys from any unit removed from service, and notify the Superintendent. Make certain that the equipment problem is communicated to the FCI Maintenance Shop. It is best to send a written notice to the Maintenance Shop regarding equipment problems. A thorough inspection of the material lift is documented periodically by the FCI Maintenance Shop. Only authorized persons will perform material lift repairs and adjustments. Contact the FCI Maintenance Shop to arrange for repairs, adjustments or to answer questions regarding inspections. Ask for and obtain the oil, grease and hydraulic fluids you will need to conduct the daily maintenance required for the lifts you operate at your jobsite.

Always operate the material lift from the Operators seat, or in the case of pallet jacks from the standing position. Using the control levers as grab points to pull yourself into the Operator's seat can cause unwanted movement of parts of the lift. Never reach through the front forks or carriage of the lift to operate the controls from outside the operator's seat. Always keep your hands and legs inside the operator's compartment. Always wear the seatbelt in your lift and any equipment furnished with a roll over protective system (ROPS). The ROPS is designed to prevent you from being crushed in the event the equipment rolls over. Your seat belt keeps you within the safety cage of the ROPS. Most fatalities involving fork trucks or telehandlers are caused by tipovers (42% of deaths) or crushing/pinning injuries (36% or deaths). Tragically at least 100 workers are killed in material lift accidents every year in America, about 25% of the fork lift and telehandler deaths occur on construction sites. Motorized pallet jacks are not intended to be ridden.

Wear safety glasses and a hard hat while operating a material lift, as you would at any construction site.

A material lift is basically a lever on wheels. Very heavy objects can be moved short distances easily by the use of a lever. Although a lever can lift and move heavy objects, it is limited in the amount of height it can reach and in its ability to move a load while in its raised position. A lever is affected by three factors:

1. The weight of the load to be lifted
2. The length of the lever
3. The location of the pivot point (sometimes called the fulcrum)

Each fork lift (lever) has its lifting limits, which has an effect on its safe operation. These limits are affected by three factors:

1. The weight of the load on the forks and the center of that weight, called the load center.
2. A combination of the length, design, and the weight distribution of the fork truck itself.
3. The pivot point, which is the front axle located between the load in front and the remainder of the fork lift.

A simple way of explaining the leverage principle is to compare it to a teeter-totter. The simple teeter-totter principle applies to the amount of load a fork truck can move safely; however there are other hazards with a fork lift which are not present in a simple teeter-totter. Wheels, steering, forward, backward and sideways movement, and the ability to lift and lower loads greatly increase the possibility of overturning.

Safe limits have been carefully determined by the manufacturers of each type of fork lift. These limits are listed on the load chart, which is attached to each fork lift. The information is also included in the operator's manual of each piece of equipment.

The center of gravity of a fork lift is the point around which its weight is evenly distributed or balanced. The exact location of the center of gravity is constantly shifting when the equipment is being used to lift and extend loads. The center of gravity is closer to the rear of an unloaded fork truck, since the engine and counterweight are located to the rear of the machine. When the forks pick-up a load the center of gravity shifts to the front of the fork truck. When the load is raised the center of gravity shifts even farther forward. When the load is raised the center of gravity is higher than when the load is in a lowered position. The center of gravity must always be on the opposite side of the pivot point from where the load is; otherwise the fork lift will tip.

Momentum is the force that is brought about by the movement of an object. Momentum keeps an object moving in its original direction. When a piece of MHE moves (forward, backward, or in a turn) it will lean in the direction opposite to that in which it is moving. Momentum is increased as speed and load weight increase.

The Stability Area of fork truck is a designed amount of built in protection to prevent overturning when the center of gravity or momentum changes during the operation of your fork truck. The stability areas of different models and types of fork truck vary widely. Weight distribution, axle width, and wheel-base influence the stability area of a fork truck. Most types of fork trucks, especially those with high reach capabilities have a wide wheel-base to increase stability. When momentum is increased, or the center of gravity moves away from the front axle of a fork truck, the stability of the fork truck decreases. A tip over is the end result of pushing a fork truck beyond its stability area. Fatalities, serious injury, and property damage can result when a fork truck is pushed beyond its stability area. The Load Chart, or Capacity Rating of a fork truck is a critical piece of information which must be understood and followed by each Operator of a fork truck. Operators must know or determine the weight of the materials they are lifting, in order to make sure the lift is capable of lifting the load to the desired height and distance.

Forward tipping occurs when the rated load capacity is passed on fork truck. Most fork lifts use the rear wheels to control steering, when the load capacity is exceeded the rear wheels can lose contact with the ground, this results in loss of steering. Picking up too heavy of a load, or extending the load too far in front of the pivot point can cause forward tipping. Sudden stopping of a fork truck that is moving forward can also result in forward tipping because momentum keeps an object moving in its original direction. Carry loads low so the load does not block your ability to see where you are traveling.

Side Tipping can also happen if the center of gravity goes beyond the stability area. If a load is raised when the fork truck is on uneven ground, the center of gravity will shift in the direction that the fork truck is leaning. If your fork truck has load leveling, level the fork truck before raising the load, mast, or boom. Never use the frame leveling feature of your fork truck to position loads while the forks are elevated, this could result in a tip over. As a load is raised higher the center of gravity moves higher and follows the direction of movement. Once the center of gravity has shifted to a point outside the stability area a tip over can occur. Side tipping can occur as a result of momentum when a load is raised while turning for example. Loads should always be moved low and slow when the fork lift is moving or turning.

Backward tipping can occur when a fork truck is backing down a hill and the center of gravity is too high, and too far towards the rear of the machine. Backward tipping can also occur when backing motion is suddenly stopped, sudden braking occurs, or when one of the wheels drops into a rut or hole in the ground. Front wheel braking can be lost when backing down a hill since more weight is put onto the rear wheels, and less weight is being applied to the front braking wheels.

Some rough terrain fork trucks are designed with four-wheel steering. On four-wheel-steering the front and rear wheels can point in opposite directions. This provides a much shorter turning radius. Four-wheel steering can also be of the crab action type, with all of the wheels pointing in the same direction. Crab action steering allows the fork truck to move the load forward while maintaining a right angle between the landing point and the fork truck. Never use four-wheel steering when transporting a fork truck on roadways, highways, or at high speeds.

All fork trucks and telehandlers are designed to have only one person operate and ride on it.

No riders, not ever, no, no, never, ever. No riders on any part of the fork truck.

Because most MHE is designed with counterweights in the back, an unloaded MHE has most weight on the rear wheels. When the fork truck is loaded, the weight is transferred more to the front wheels, therefore the front wheels act like the pivot point. The load being carried provides the front wheels with the traction they need.

Do not stop the forward movement of the fork truck by shifting into reverse before the fork truck has come to a complete stop.
Only the brakes should be used to slow down the fork truck. If the fork truck has a standard clutch, do not ride the clutch. Riding the clutch causes damage to the fork truck and can prevent complete engagement of the clutch.

The speed that the hydraulic system operates is determined by two things: engine speed, and the distance the controls are moved. When you are operating the hydraulics avoid jerky movements, especially while you are placing the load. Do not ram a hydraulic control to the end of its stroke, since the jolt can cause the load to fall when the stroke stops suddenly. Develop a "feathering technique" when operating the controls of your fork truck. Ease the control into full power, and then

back down on the hydraulic control prior to stopping the travel. If a hydraulic control, or the lift system of your fork truck becomes stuck in a raised position and will not come down in response to the controls, do not attempt to free it. Prevent anyone from entering the area under the elevated load, and notify your Supervisor. No one is to walk under, work under, or travel under a raised load. The raising mechanism may have been damaged and the load may come down without resistance, crushing anything underneath it..

Stopping the fork truck is done with the foot brakes only. If the fork truck is equipped with individual wheel brakes for steering purposes, they should be locked together so that both wheel brakes operate when slowing, stopping, or turning with a load. Using individual wheel brakes to control steering when carrying a load can be dangerous, resulting in jerky turns. Do not use the emergency brake for routine stopping. Once the fork truck has been stopped using the foot brakes, and the drive controls have been placed into neutral, the parking brake can be applied. The parking brake is used to prevent the fork truck from moving on level ground. If parking on a slope the wheels should be chocked or blocked.

If the fork truck is parked and left unattended for any length of time follow these guidelines:

1. Park out of traffic lanes.
2. Park on level ground.
3. Do not park in mud or water especially in freezing weather. The forks and wheels could become frozen down.
4. Lower and tilt the forks down. Never leave a fork truck with the forks or bucket elevated.
5. Neutralize all controls.
6. Set the parking brake.
7. Turn off the engine and remove the keys.
8. Close the valve(s) on the LP gas tank if so equipped.
9. Block the wheels if the fork truck is parked on an incline.

Modifications of the MHE cannot be made without the written approval of the manufacturer.

Inspect the job-site conditions- Not only does an Operator inspect the telehandler or fork truck unit before each shift of operation, he or she must inspect the worksite for safe operating conditions before each shift of operation. Monitor the amount of wind at each jobsite while using a telehandler or fork truck. Use special caution when moving loads that could become airborne in winds that exceed 25-miles per hour, such as plywood or insulating sheets. Carefully examine the surface the telehandler or fork truck will travel, fork trucks are designed to be used on a solid, smooth, LEVEL floor surface. The base of a fork lift does not have a high suspended carriage like a telehandler, therefore it requires a travel surface free of holes, ruts and other obstacles. Fork truck lifts are never intended for use in a rough or uneven terrain or floor surface. The narrow base and small wheels of a fork lift make it more likely to tip-over than the wide base and larger wheels found on a telehandler. Ice covered surfaces can result in loss of traction and affect the ability of the brakes to operate on any telehandler or fork truck. Saturated soils, even those that appear level, can

cause telehandler or fork truck wheels to sink and possibly tip over. Never operate a telehandler or fork truck when there is the possibility of a lightning strike. Do not drive a telehandler or fork truck through puddles, unless you know the puddle depth and the solidness of the surface under water. Avoid traveling over construction debris which could damage the telehandler or fork truck tires or carriage. Verify that the weight capacity of any bridge, dock, floor surface, or elevator is sufficient to withstand the weight of the telehandler or fork truck.

Be especially wary of electric and phone transmission overhead cables, contact with an electric source can cause fatal electrocution. The telehandlers and fork trucks owned by FCI are not designed or insulated for use near energized circuits. Contact with high voltage power lines can result in Operator death. The following approach distances to energized electrical lines are to be maintained:

Minimum distances to maintain from energized electrical lines While operating Personnel Lift Devices	
Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (MSAD) in Feet
0 to 300V	Avoid contact
300V to 50 KV	10
>50KV to 200KV	15
>200KV to 350KV	20
>350KV to 500KV	25
>500KV to 750KV	35
>750KV to 1,000KV	45

Before operating any telehandler or fork truck lift the Operator must understand the following concepts:

- Center of Gravity-The center of gravity of an object is the point where all forces of gravity are equal. As the load is lifted up and down the center of gravity moves up and down as well. A higher center of gravity results in less stability. Side-slope is the right to left tilt in the ground or floor surface. Grade is the up or down tilt of the floor or ground surface. Generally fork truck type lifts are not intended for use on non-level surfaces, small changes in the floor or ground surface can cause a fork lift tipping incident or upset load.
- Fulcrum Point- Is the point where the load being lifted by the forks is balanced over the wheels. The fulcrum point is raised as the forks are raised, the fulcrum point will move towards the direction of the load being lifted.
- Rated Work Load or Load Capacity Rating-Is the maximum allowable weight load allowed to be placed on the forks. LOOK FOR, READ, UNDERSTAND, AND FOLLOW THE LOAD CAPACITY PRINTED ON THE LOAD CAPACITY PLATE MOUNTED CLOSE TO THE OPERATOR STATION OF EACH FORK LIFT AND TELEHANDLER. This maximum allowable weight limit includes the entire load being lifted, pallets included in the lift, and other any other materials being lifted. A lift chart is included in all telehandlers and some fork lifts, the chart will help calculate the maximum allowable lift based upon the weight of the load being lifted and the distance the forks will be raised or extended from the fork lift or telehandler. The Operator must be able to understand and apply

the load limits from the lift chart when deciding whether a lift is safe to make. It may be necessary to weigh or estimate the weight of a lift to verify that the load limit is not exceeded.

- Sideslope and Grade of the travel surface-Fork lifts are to be used on a level flat surface. Fork lifts are not intended to be used on sloped or graded surfaces as the risk of tip over greatly increases on an graded or uneven surface.

GENERAL PRECAUTIONS FOR THE OPERATION OF TELEHANDLERS OR FORK LIFTS ARE AS FOLLOWS:

- Pay attention to the direction of travel, clearances above, below and on all sides and the load it is carrying.
- A telehandler or fork truck can be moved when the forks are elevated obstructing view in the slow/creep speed only. Sudden movements can cause tipping or shifting of the load.
- Fork Lifts are generally not to be operated on grades, side slopes or ramps. Use a Rough Terrain or telehandler style lift for these type of lifts.
- The travel speed shall be limited according to the conditions of the ground surface, congestion, visibility, slope, location of people, and other factors that may cause hazards to other nearby personnel.
- Stunt driving and horseplay are not permitted.
- Prior to raising or lowering a load make certain that coworkers are aware and vigilant of the load being lifted. Unstable loads or loads that could fall and strike coworkers must be wrapped or tied to prevent falling off of the forks.
- Use barricades or a designated watch-person to keep bystanders and other non-construction people at a safe distance from the congested area (e.g. public) around the telehandler or fork truck when necessary.
- Use the slow/creep drive controls to maneuver in-close to any object or obstacle. High speed maneuvers are never allowed, especially when carrying a load.
- Operators are to call for assistance if any part of the equipment becomes entangled. Do not try to “break-away” when the mast, load or forks seem to be stuck.
- The Operator must maintain a clear view of the path of travel and maintain a safe distance from any personnel. The driver will maintain a clear view or the travel path for other obstacles such as debris, drop-offs, holes, depressions, slopes, overhead hazards, and other vehicles.
- The telehandlers and fork trucks used at FCI are not intended to be used in hazardous locations such as those situations where explosive or flammable gases or particles could be present.
- Operators must ensure that the area surrounding the elevated load is clear of personnel and equipment before lowering the platform.
- Seat belts must be worn when operating any fork lift. Fork lift use is covered by the General Industry Standard, *not* the Construction Industry Standard. General Industry standards mandate the use of seat belts whenever a fork truck is used.

AVOID TELEHANDLER OR FORK TRUCK ROLL OVERS. HEED THESE WARNINGS TO AVOID TIP-OVERS

- Inspect the job site work area before each use
- Never exceed the manufacturer's rated load capacity limits
- Avoid unnecessary travel with the forks in the elevated position
- Establish a work area perimeter and vigilantly watch out for pedestrians and vehicles that could pass through your work area perimeter.
- Do not drive near leading edges such as a loading dock drop-off, stairs or any drop in floor surfaces. A sudden drop-off in the surface can easily result in tip-over.
- Remain well away from the edges of any excavations, the edge can crumble.
- When operating a telehandler or fork truck check holes for depth, what appears to be a shallow puddle may be a water filled excavation or hole which can upset equipment.
- Do not raise the forks while traveling on a slope or drive onto a slope when the forks are elevated. Stop first, then use extreme caution when raising the forks while on an incline or slope.
- Avoid lifting lightweight large objects during windy conditions (wind gusts greater than 25 miles per hour). Sheet goods, and lightweight materials can be blown off.
- Do not exceed the weight bearing capacity of a floor, bridge, elevator, or dock on which you drive.

EACH LULL OR FORK TRUCK IS REQUIRED TO HAVE THE FOLLOWING FEATURES WHICH EACH OPERATOR MUST BE FAMILIAR WITH

- A load capacity plate
- A functioning seat belt to keep the operator in the ROPS (Roll Over Protective System) or "cage".
- An audible back up alarm in good working order, to be checked daily

When climbing into or out of a powered industrial truck, face the machine and maintain a three point hand/foot contact when climbing. Never use operating controls as a hand hold when climbing in or out. Never step on foot controls when mounting or climbing off. Never attempt to climb into or out of a moving machine.

Never exceed the lift and load capacity of the telehandler or fork truck as specified by the manufacturer and displayed on the data plate attached to each powered industrial truck.

If a Forklift ever becomes unstable and starts tipping brace yourself, stay ON the forklift, keep your seat belt fastened, hold on firmly and away from the point of impact. Indecision and trying to escape from a tipping forklift can result in death or serious injury.

Shut down and fueling-Turn the engine off when filling the fuel tank. Never smoke or allow open flames near the battery compartments, large amounts of explosive hydrogen gas can be generated by the battery. Ground the fuel funnel or fuel dispensing hose against the filler neck to prevent the generation of sparks. Always replace the fuel tank cap. When shutting down the powered industrial truck, utilize a suitable parking area, place the forks in the fully lowered position, place the controls in neutral, turn off/power down the engine, and take the steps needed to prevent unauthorized use (e.g. remove keys).

The hydraulic system is under tremendous pressure whenever the engine is running and may hold pressure even after the engine is shut off. An experienced Mechanic should service hydraulic systems and be certain to relieve the trapped pressure in the lines after the forks and other attachments are resting on the ground. Hot hydraulic fluid can cause severe burns - always wait for fluid to cool down before disconnecting lines. DO NOT use your hand to check for leaks, use a piece of cardboard. Hydraulic fluid under pressure can be injected from a pinhole in a hydraulic line under your skin causing serious tissue damage. Likewise, always wear eye protection when servicing or checking hydraulic lines. Obtain medical attention immediately if you have been injected with hydraulic fluid or your eyes have been sprayed.

Pedestrian and Coworker Traffic- Operators must be constantly aware of their surroundings. Operators are responsible for the safety of people in the vicinity of the lifting equipment. Operators will take special precautions (e.g. staging of material) to ensure that work is isolated from pedestrian traffic; truck should never have its fork or load positioned above pedestrians. If a powered industrial truck must be used in an area near pedestrian traffic, Operators are required to isolate the work area by establishing a well-marked perimeter and diverting the pedestrian traffic. Pedestrian traffic is to be safely diverted, for instance, do not divert pedestrian traffic from a sidewalk into a street without providing additional traffic safety measures for the pedestrians. Danger signs, danger tape, barrier flagging, and barriers are examples of what should be used to mark the perimeter of the work area.

Special note about motorized pallet jacks. Just like powered industrial trucks, motorized pallet jacks are covered under the OSHA Standard as material handling equipment that require operator training prior to use. Serious injuries can result from using motorized pallet jacks - crushing or pinning of the Operator. The motorized pallet jack has a special safety device built into the handle that prevents movement of the jack when the handle is not in a “safe angle of operation”. The safe angle of operation is approximately in the 10-o’clock to 11-o’clock range. This prevents movement when the handle is lowered too far, or when the handle is up in the resting position. NEVER DISABLE THE PROTECTIVE SAFE ANGLE OF OPERATION DEVICE which is integrated into the handle of the pallet jack. There have been cases of Operators getting pinned or crushed because the handle angle safety device was not working, or because the safety device had been disabled.

Since motorized pallet jacks are powered by battery and engine systems similar to standard fork lifts, those precautions that apply to safe battery charging and

maintenance must be followed – PPE is chemical resistant apron, chemical resistant full faceshield with safety glasses, and chemical resistant gloves to mid arm. Those pallet jacks equipped with a gasoline or compressed gas engine require the same precautions used for any internal combustion motor.

Questions related to the operation of any Lull, fork truck, pallet jack can be provided by the FCI Safety Director, 260 570 6620.

References used to develop this scissor lift training program: OSHA Standard-Aerial Lifts-29 CFR 1926.453

Association of Equipment Manufacturers-Aerial Platform Safety Manual

Personnel Lift Devices

Training is required for all personnel lift device (PLD) Operators-Personnel lift devices are boom or scissor type lifts. Personnel lift devices such as a boom or scissor lifts are referred to as PLDs in this training packet. Only Authorized and Certified Persons can operate a scissor or boom lift. Authorized means you have permission to operate the scissor or boom lift while being trained. Certified means an Operator has demonstrated adequate knowledge of how the PLD lift operates, *and* the Operator has passed a field evaluation that demonstrates proper operating skills. The knowledge and evaluation tests are conducted and documented by a Competent Trainer who is certified in operating the specific type of PLD and is authorized and certified to do so. FCI certifies that employees have been trained in operating and inspecting the PLD with both a skills and knowledge written test. These tests are maintained in the FCI Safety Office and Site Superintendent or General Superintendent. Operators are issued certification wallet cards. ONLY Authorized and Certified FCI Employees are allowed to operate FCI owned or leased equipment (including any scissor and boom lifts). Never loan or lease a personnel lift device owned by FCI Construction to anyone. The Project Manager or Superintendent may decide to lease the use of a PLD WITH A FCI OPERATOR to a subcontractor.

Refresher training must be provided to each PLD Operator when any of the following occur:

- The Operator has been observed to be using the PLD lift in an unsafe manner,
- The Operator has been involved in an accident or near miss event,
- The Operator has received an evaluation that reveals the Operator is not using the PLD safely,
- The Operator is assigned to use a different type of equipment for which he/she is not familiar,
- A condition in the workplace changes in a manner that could affect the safe operation of the equipment,
- At least every three years each Operator must update current status with refresher training.

Inspect the PLD- Each PLD Operator must complete a pre-use inspection prior to use on each shift. PLD not used during a shift do not have to undergo an inspection during that shift. Pre-use inspections are documented using the daily pre-use inspection ledger that is kept in each PLD. Each Operator must document the results of your pre-use inspection prior to beginning the use of the PLD. All operators will immediately remove from service any equipment that has an identified safety issue. When removing equipment from service, always securely attach a DO NOT OPERATE tag to the main controls of the unit. Write your name, date, and reason for taking the equipment out of service on the DO NOT OPERATE tag. As an additional precaution remove the keys from any unit removed from service, and notify the Superintendent. A thorough inspection of the PLD must be documented at least annually by the FCI Maintenance Shop.

Only authorized persons will perform PLD repairs and adjustments. Contact the FCI Maintenance Shop to arrange for repairs, adjustments or questions regarding inspections.

Inspect the job-site conditions- Not only does an Operator inspect the PLD unit before each shift of operation, he or she must inspect the worksite for safe operating conditions before each shift of operation. Monitor the amount of wind at each jobsite while using a PLD. Consult the manufacturers operating manual for specific wind precaution information. As a general rule, scissor and boom lifts should not be operated in winds that exceed 25-miles per hour, although this can vary depending on the equipment. Carefully examine the surface the PLD will travel, scissor lifts are designed to be used on a solid, smooth, LEVEL floor surface. The base of a scissor lift does not have a high suspended carriage like a boom lift, therefore it requires a travel surface free of obstacles, holes and ruts. Scissor lifts are never intended for use in a rough or uneven terrain or floor surface. The narrow base and small wheels of a scissor lift make it more likely to tip-over than the wide base and larger tires found on a boom lift. Ice covered surfaces can result in loss of traction and affect the ability of the brakes to operate on any PLD. Saturated soils, even those that appear level, can cause PLD wheels to sink and possibly tip over. Never operate a PLD when there is the possibility of a lightning strike. Do not drive a PLD through puddles, unless you know the puddle depth and the solidness of the surface under water. Avoid traveling over construction debris which could damage the PLD tires or carriage. Verify that the weight capacity of any bridge, dock, or floor surface is sufficient to withstand the weight of the PLD lift.

Be especially wary of electric and phone transmission overhead cables, contact with an electric source can cause fatal electrocution. The scissor lifts, boom lifts and other aerial lift machines owned by FCI Construction are not designed or insulated for use near energized circuits. In America about 30% of all PLD accidents are caused by electric contact, many of these contacts are with high voltage and result in the death of the Operator. The following approach distances to energized electrical lines are to be maintained while operating any PLD:

MINIMUM DISTANCES TO MAINTAIN FROM ENERGIZED ELECTRICAL LINES WHILE OPERATING PERSONNEL LIFT DEVICES	
Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (MSAD) in Feet
0 to 300V	Avoid contact
300V to 50 KV	10
>50KV to 200KV	15
>200KV to 350KV	20
>350KV to 500KV	25
>500KV to 750KV	35
>750KV to 1,000KV	45

Before operating any boom lift the Operator must understand the following concepts:

- Center of Gravity-The center of gravity of an object is the point where all forces of gravity are equal. As a PLD is operated up and down the center of gravity moves up and down as well. A higher center of gravity results in less stability of the PLD. The center of gravity is displaced when the work deck is extended forward or backwards. Some PLD such as scissor lifts may be equipped with a platform extension feature which will also displace the center of gravity. Any sloping grade surface also affects the center of gravity. Side-slope is the right to left tilt in the ground or floor surface. Grade is the up or down tilt of the floor or ground surface. Scissor lifts are not intended for use on non-level surfaces.
- Fulcrum Point- Is the point where the load of the platform is balanced over the wheels. The fulcrum point is raised as the platform is elevated, the fulcrum point will move towards the direction of the work deck.
- Rated Work Load or Load Capacity Rating-Is the maximum allowable weight load allowed to be placed in the platform of the PLD. This maximum allowable weight limit includes the Operator(s), their tools and any materials being lifted. The load must be contained within the lift platform, not sticking out or extended beyond the platform rails.
- Sideslope and Grade of the travel surface-Scissor lifts are to be used on a level flat surface. Scissor lifts are not intended to be used on sloped or graded surfaces.

General precautions for the operation of boom lifts are as follows:

- A PLD is never to be used as a crane or other lifting device.
- Pay attention to the direction of travel, clearances above, below and on all sides of the PLD.
- A PLD can be moved when the platform is elevated in a working position with employees in the basket in the slow/creep speed only.
- Never place a PLD lift against another object to steady the elevated platform.
- Scissor lift devices shall not be operated on grades, side slopes or ramps.
- If outrigger supports are provided for the PLD, do not stand between the outrigger and another object when the outrigger is being retracted because the center of gravity might have shifted during lifting activities. The sudden release of the outrigger could cause the PLD to lunge.
- Always bring an outrigger straight down, never at an angle.
- To avoid crushing injuries, make certain feet and hands are well clear of outrigger pads when engaging the outrigger.
- The travel speed of a personnel lift device shall be limited according to the conditions of the ground surface, congestion, visibility, slope, location of people, and other factors that may cause hazards to other nearby personnel.
- Stunt driving and horseplay are not permitted.
- The area surrounding the elevated platform shall be cleared of all persons and equipment prior to lowering the elevated platform.
- Use barricades or a designated watch-person to keep bystanders and other people at a safe distance from the area around the elevated work platform.

- The slow/creep drive controls of PLD are used to maneuver in-close to any object or obstacle. High speed maneuvers, or turns are never allowed in a scissor lift.
- Operators are to call for assistance if any part of the lift device becomes entangled.
- The Operator must maintain a clear view of the path of travel and maintain a safe distance from other obstacles such as debris, drop-offs, holes, depressions, slopes, overhead hazards, and other vehicles.
- The personnel lift device machines used at FCI Construction are not intended to be used in hazardous locations such as those situations where explosive or flammable gases or particles could be present.
- Operators should never position themselves between overhead hazards such as joists, beams, or the rails a PLD platform. Accidental movement of the lift could result in a crushing hazard to body parts outside of the platform.
- Operators must ensure that the area surrounding the aerial work platform is clear of personnel and equipment before lowering the platform.
- Falls from PLD tip-overs make-up 23% of aerial lift accidents, tip over accidents can result in Operator and ground personnel fatalities.

Avoid PLD tip-overs. Heed these warnings to avoid PLD tip-overs

- Inspect the job site work area before each use
- Never exceed the manufacturer's rated load capacity limits
- Avoid unnecessary travel with the lift in the elevated position
- Establish a work area perimeter and vigilantly watch out for pedestrians and vehicles that pass through your work area perimeter
- Do not drive near leading edges such as a loading dock drop-off, stairs or any drop in floor surfaces. A sudden drop-off in the surface travelled by a PLD can easily result in tip-over.
- Remain well away from the edges of any excavations, the edge can crumble.
- When operating a PLD check puddle depth, what appears to be a shallow puddle may be a water filled excavation or hole which can topple a PLD.
- Do not raise the platform of a scissor lift on a slope or drive onto a slope when the work platform is elevated. Use extreme caution when raising the platform of a boom lift while on an incline or slope.
- PLD are not intended to be driven on soft or uneven surfaces, shifting or settling of the wheels can cause the personnel platform to shift unexpectedly.
- Avoid using the platform during windy conditions (wind gusts greater than 25 miles per hour).
- Avoid excessive horizontal forces when working from an elevated platform, e.g. do not push or pry excessively on materials outside of the PLD platform, the excessive forces can result in tip over.
- Do not exceed the weight bearing capacity of a floor, bridge, elevator, or dock where the PLD is staged.
- Never suspend, support, or hang loads from the PLD. The PLD is intended to support a worker and a limited weight of tools only.
- Never support rails or pipes from the PLD platform.
- Secure the limited materials inside of the scissor lift platform to prevent them from falling, pinning or crushing the platform occupants.

Each PLD is required to have the following features which each Operator must be familiar with:

- Upper and lower controls
- A platform with guardrails and toe boards
- A load capacity plate
- A passive (automatic) brake that is capable of holding the unit on any slope it is capable of climbing.
- An Operators Manual
- Emergency stop controls which are located at both the top and the lower control stations. E-stops will stop all powered functions that affect platform movement.
- The vehicle has a reverse signal alarm audible above the surrounding noise level or: The vehicle is backed up only when an observer signals that it is safe to do so.

When climbing into or out of a PLD, face the machine, and maintain a three point hand/foot contact when climbing. Never use operating controls as a hand hold when climbing in or out. Never step on foot controls when mounting or climbing off. Never attempt to climb into or out of a moving machine. Never walk or climb the scissor arms or boom to gain access to the platform or to the leave the platform. Make certain that all handrails, toe-boards, gates, and entry chains are in-place and secured before raising the platform. Operators must stand firmly in the floor of the basket at all times while in the personnel lift device and will not climb on the edge of the basket or onto the side rails. The use of planks, ladders or other devices to gain height within the platform is forbidden. Never stand on the toe boards, sides or guardrails that enclose the platform to gain extra height. Toe boards are intended to keep the tools and materials within the platform from falling to the ground. The floor of the aerial lift device must be kept free of debris, tools, and other loose items that could interfere with the operator standing firmly on the platform surface.

Scissor Lifts are considered mobile work surfaces equipped with a full guardrail consisting of a top rail, mid rail and toeboard; for this reason scissor lifts do not require Full Body Harness and Lanyard Use.

Boom Lifts DO require the use of a full body harness and proper length lanyard.

A satisfactorily inspected full body harness and lanyard attached to an approved anchoring point within the basket must be worn while working from any boom lift. The safety lanyard tie-off ring is usually located close to the operator control station. Tying off, attaching to, or belting-off to an adjacent pole, structure or equipment while working from any aerial lifts is never permitted.

Never exceed the lift and load capacity of the PLD as specified by the manufacturer and displayed on the data plate attached to each PLD.

Shut down and fueling-Turn the engine off when servicing batteries or filling the fuel tank. Many scissor lifts are battery operated since they are for indoor use. Never

smoke or allow open flames near the battery compartments of a scissor lift, large amounts of explosive hydrogen gas can be generated by the scissor lift battery bank. Never refuel while the engine is running. Never put fuel into the hydraulic tank. Ground the fuel funnel or fuel dispensing hose against the filler neck to prevent the generation of sparks. Always replace the fuel tank cap. When shutting down the PLD utilize a suitable parking area, place the platform in the fully lowered position, place the controls in neutral, shut down the power or engine, and take the steps needed to prevent unauthorized use (remove keys).

Pedestrian and Coworker Traffic- Operators must be constantly aware of their surroundings. Personnel Lift Device Operators are responsible for the safety of people in the vicinity of the lifting equipment. Operators will take special precautions to ensure that work is isolated from pedestrian traffic. An aerial lift should never be positioned above pedestrians and other workers. If an aerial lift must be used in an area near pedestrian traffic, Operators are required to isolate the work area by establishing a well-marked perimeter and diverting the pedestrian traffic. Danger signs, caution tape, and barriers should be used to mark the perimeter of the work area. Operators are to position the aerial lift only as far as the established and marked perimeter. Pedestrian traffic is to be safely diverted, for instance, do not divert pedestrian traffic from a sidewalk into a street without providing additional traffic safety measures for the pedestrians.

Questions related to the operation of any aerial lift device including scissor lift operation guidelines, can be provided by the FCI Construction Safety Director.

References used to develop this scissor lift training program:

OSHA Standard-Aerial Lifts-29 CFR 1926.453

Association of Equipment Manufacturers-Aerial Platform Safety Manual

Electrical Safety

Another common electrical hazard on a construction site is the potential to hit live wires overhead and/or while excavating. It is possible that old utility lines can still be energized. It is important to verify the location of all electrical lines on the site and make sure that they are not live in the area that is being excavated.

Additionally, generators must be tagged out for non-use and “needs repair” conditions. Not doing this can lead to a serious incident if the generator is energized.

1926.403

FCI uses GFCI's as the method to prevent possible electrocution due to contact with 120 volt, single-phase 15 and 20 ampere temporary wiring at construction sites.

Electrical Exposure Table-What can happen when you make electric contact 1-second contact with a 60-Hertz current flow from hand to foot for an average adult male. (mA = milliamp = 1/1,000 of an amp).	
Current	**Effect**
1 mA	Barely perceptible
1-3 mA	People notice in most cases
3-9 mA	Painful sensations
9-25 mA	Muscular contractions (may not be able to let go of contact)
25-60 mA	Respiratory paralysis (may be fatal)
60 mA or more	**Ventricular fibrillation (probably fatal)**
4 Amps or more	Heart paralysis (may restart the heart through CPR)
5 Amps or more	Tissue burning (fatal if vital organ is burned)

All 120-volt single-phase receptacle outlets used by employees at construction sites must have Ground Fault Circuit Interrupters (GFCI) for protection. This *includes* the 120-volt outlets on portable generators. A GFCI device instantaneously detects amperage drops of about 5 mA, and cuts the "leaking" circuit. The best practice is to stay out of the circuit by avoiding contact. The GFCI must be hooked up closest to the power supply. Only the circuit beyond the GFCI is protected.

In addition to the use of GFCI protected circuits, all electrical equipment, tools, power cords, drop cords, and devices in use on construction sites must be maintained in a safe condition and be either double insulated, or equipped with a 3-prong plug on the power cord. Only extension cord wire of 14-guage or higher is acceptable for use on jobsites, most cords are 12-guage. Double insulated

equipment will have a decal or embossed case to indicate that it is double insulated and can be operated with the two-prong plug furnished by the manufacturer. Double insulated equipment must still be used with a GFCI protected power source. All power tools will display the UL (underwriters laboratory) or Factory Mutual seal of approval.

Always remove tools and electrical cords from service immediately if they are damaged or missing the 3rd-prong. Inspect power cords, extension cords, and electrical equipment before each use. Lighting at the job site must have a protective grill to prevent burns or fires caused by contact with hot light bulbs. Always tag damaged electrical equipment with the "Danger Do Not Use Tag". Return the damaged electrical equipment, tool, power cord, or drop cord to the shop after tagging out of service and removing from use.

TAG OUT AND REMOVE DAMAGED CORDS IMMEDIATELY.

CALL SAFETY IF YOU NEED MORE CORDS OR GFCIS.

1) FCI uses GFCI devices as our method to prevent electrical shock, every 110-volt power source at the job site must be GFCI protected. Superintendents and Employees should ask for and obtain the GFCI units they need.
2) All Employees shall be trained in Electrical awareness, including hazard identification.
3) Electrical Work shall only be performed by qualified individuals. Insulating shields and barriers shall be used as necessary. Non-conductive apparel shall be required for all qualified individuals working with energized equipment. FCI does not have any qualified electricians and subsequently will subcontract this work to qualified parties.
4) Lock Out Tag Out Procedures shall be utilized whenever working on energized equipment. Authorized Individuals include the Master Mechanic. All other Affected Individuals shall be trained in LOTO awareness.
5) When working in and around equipment, employees shall treat all exposed de-energized parts as electrically live. Additionally, employees are not permitted to enter work areas containing exposed energized parts without proper illumination of the area.
6) Tag and remove from service any tool or cord that is damaged. GFCI's will prevent electrocution from damaged cords, however damaged cords found on site are cited by OSHA and can "cost" hundreds or thousands of dollars in fines
7) FCI policy requires non-conductive ladders to be used at all times.
8) Temporary electrical service at the job-site must have fully covered breaker boxes with no holes or uncapped knockouts. The breakers within the breaker box must be firmly in place, or if missing, they must be capped with a blank

breaker cover. Duct or electrical tape is not adequate to seal access inside of a breaker box.

9) **If you receive an electrical shock at work, immediately notify your Superintendent and Safety Director,** you may need to have an EKG done to make sure your heart rhythm is normal and that there is no risk of fibrillation. Fibrillation is where your heart beats out of sync. Fibrillation can occur minutes or hours after you get shocked. Having an EKG done will identify irregular patterns in your heart beat before you go into atrial fibrillation.
10) Please bundle-up and tag out all damaged cords at the jobsite, send them back to the shop. Undamaged cords will be delivered to the jobsite, please request more cords and replacement cords that are needed at the jobsite.
11) If you need extension cords or GFCI devices please contact the Safety Department. You should have extra cords and gfcis so you can replace damaged ones immediately. Ask for what you need.

Respiratory Protection Program

PURPOSE

To protect employees from harmful exposure to dusts, fumes, mists, gases, and vapors when engineering or administrative controls are not feasible.

SCOPE

The respiratory protection policy applies to all FCI Construction operations and each employee who may be required to use respiratory protection in the workplace. The Safety Director is the Administration of the Respiratory protection program.

DEFINITIONS

- Respiratory hazards. Normal breathing atmosphere is made up of approximately 78.0 % nitrogen, 20.8% oxygen and 1.2% inert gases and carbon dioxide. Breathing air with toxic contaminants can be a hazard to health even at very low concentrations. Some contaminants can displace or decrease the percentage of oxygen in the air leading to asphyxiation.
- Oxygen deficiency is defined as any level less than 19.5 percent oxygen. Loss of consciousness and death occurs when the oxygen level in air drops below 16%. 19.5% oxygen is the lowest safe concentration of oxygen. No FCI employee will work in an oxygen deficient atmosphere.
- Oxygen enrichment (too much oxygen) is defined as levels of oxygen of 23.5% or higher. Oxygen enriched atmospheres present extreme fire and explosion hazards. Normally safe materials such as lubricating oil, hair, and clothing, even skin and other human tissue can burst into flames explosively when ignited in an oxygen enriched atmosphere. No FCI employee will work in an oxygen enriched atmosphere.
- Aerosols are a type of contaminant with fine suspended particles up to 50 microns in diameter. Larger aerosols are trapped in the tube like trachea and bronchiole branches of lungs. The human body has some capability to sweep and flush these larger contaminants out of the lungs through a mechanism called the mucocilliary escalator. Very small aerosols find their way to the sac-like alveoli where oxygen exchange occurs, some of these fine aerosols are deposited and remain in the alveoli.
- Lung contaminants are classified into several categories. A nuisance contaminant does not cause permanent lung injury but can cause discomfort and temporary reduction in lung function. An example of a nuisance dust exposure would be cleaning a dusty garage or barn. A Fibrosis causing contaminant can cause nodules to develop deep in the lungs, or damage the ability of the alveoli to

transfer oxygen. Silicosis and asbestosis are examples of these fibrotic diseases. Damage from chemicals inhaled into the lungs can cause irritation, inflammation, or damage to lung tissue. Examples of lung damage from inhaled chemicals would be inhaling of ammonia vapor from an anhydrous ammonia leak, or inhaling hydrogen sulfide from a sewage pit. Systemic lung poisons affect other parts of the body, examples or systemic toxins are inhaling exhaust fumes and carbon monoxide, the carbon monoxide passes quickly into the bloodstream and prevents oxygen from being transferred. Allergy producing lung toxins can cause allergic hypersensitivity reactions such as itching, sneezing or swelling of the trachea. Examples of allergy producing contaminants include pollen, mold and many sensitizing chemicals.

- Gas and vapor contaminants are inhaled into all parts of the lungs. Depending on the chemical they can be readily absorbed into the bloodstream or exhaled. Chemical effects of gases and vapors are as follows: Acid Gases such as hydrochloric acid react with water to form damaging acids inside the lungs. Base (or alkaline) gases and vapors such as ammonia vapor react in the lungs to form damaging caustics that corrode lung tissue. Organic vapors from solvents, fuels, and chlorinated compounds can damage lungs and pass readily into the bloodstream affecting other organs. Inert gases such as helium and neon do not react chemically but can cause displacement of oxygen resulting in death or injury.
- Physiological effects of lung contaminants are divided into several categories. Irritants are materials that can injure and irritate lung tissue. Asphyxiates are substances that displace oxygen and/or prevent the body from using oxygen. Carbon monoxide and methylene chloride are common asphyxiates. Anesthetics depress the central nervous system and cause intoxication or loss of consciousness. Systemic poisons pass through the lungs and can cause disease in other organ systems. Benzene and vinyl chloride are systemic poisons that cause cancer to target organs outside of the lungs after long term exposures.

RESPIRATORY PROTECTION PROCEDURES

- Employees will be required to wear appropriate respirators when working in areas of potential overexposure based upon the OHSA Permissible Exposure Levels (PEL) for air contaminated with harmful dusts, mists, fumes, gases, or vapors.
- The Safety Director will administer the respiratory protection program for FCI Construction.
- Employees must be clean shaven if they are required to wear a form fitting respirator on their face as part of their job requirement. Disposable dust masks without a form fitting (elastomeric) face seal do not require clean shaving.
- Employees who are required to wear a respirator as part of their job must be medially certified by a Physician to do so. For those employee's, a periodic

pulmonary function test is part of the medical certification process for use of a respirator.

- Employees may choose to wear a filtering face piece type respirator (such as a disposable dust mask) in a non-hazardous atmosphere for their own comfort or convenience provided they have confirmed their understanding of appendix D from the respiratory protection standard (29 CFR 1910. 134 Appendix D). Confirmation of Appendix D is done through FCI form # 19.

HAZARD IDENTIFICATION

- All job classifications, operations, or areas where respiratory protection is required to prevent employee overexposure against specific health risks will be identified. Possible respiratory risks are identified using industrial hygiene monitoring results, a review of operations and procedures, and information obtained from the material safety data sheets. Proper selection of respiratory protective equipment will be made by the FCI Safety Director, a competent person who has been trained on specific hazards and requirements of the respiratory protection standard. The following are considered when selecting the proper respiratory protection:
  - The identity of the substance(s) present in the work environment,
  - The physical state of the contaminant,
  - The Permissible Exposure Level (PEL), Short Term Exposure Limit (STEL), or Threshold Limit Value (TLV) established for the contaminant,
  - Measurements of exposure for the concentration of contaminant,
  - The protective factor of the respiratory protection being used,
  - The possibility of an oxygen deficient atmosphere,
  - Any limitations or restrictions applicable to the type of respirators being used.

Employees of FCI Construction use only air purifying type respiratory protection. Air purifying respirators are ONLY capable of removing contaminants from ambient air. Examples of purifying respirators used by FCI Construction Employees are either 1. a snug fitting molded half-mask with proper cartridges; 2. a disposable N95 respirator. Air purifying respirators DO NOT provide additional oxygen. For this reason, air purifying respirators can only be used when the identity and concentration of the contaminant is known. Air purifying respirators can only be used when they are approved for protection from the specific contaminant at a concentration level known to be safe. Air purifying respirators, when used in a hazardous atmosphere must be fit tested by the Respiratory Protection Program Administrator.

Voluntary use of dust mask type air purifying respirators. Appendix D is a part of the respirator protection standard (1910.134) that provides information for Employees using respirators when not required under the standard. Respirators can be an effective method of protection against designated hazards when properly selected

and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure the respirator itself does not present a hazard. The Employer (FCI) Safety Director or jobsite Superintendent will make a determination that wearing of the dust mask will not pose a hazard to workers and be sure that any FCI Employee who voluntary uses a dust mask has signed-off on the information contained in Appendix D. This mandatory information is placed onto FCI Form # 19, it is required that users of disposable dust masks understand and sign-off on form 19 when choosing to use a respirator

You should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning, and care and warnings regarding the respirators limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH (National Institute for Occupational Safety and Health) is the agency that certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. This will explain what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you from gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Training for respirator use is provided for those employees who may be required to wear respirators as part of their normal job. Training is provided before respirator use and annually thereafter. Training includes the following:

- The nature of the respiratory hazard and what could happen if the respirator is not used correctly.
- The administrative and engineering controls put in place to control the hazard and the reason respiratory protection is required.
- What decisions were made for the selection of a particular type of respirator.
- The limitations of the respirator what the respirator can and cannot remove.
- How to properly inspect, wear, clean, maintain, and store the particular type of respirator.

- How to respond to an emergency situation that may be encountered during respirator use.
- How to fit test the respirator qualitatively and quantitatively. Formal fit testing is done by the Respiratory Program Administrator. Employees must be shown how to fit check a form fitting respirator before each use with a positive and negative pressure check in an uncontaminated atmosphere.

Fit Testing can be qualitative, meaning the respirator wearer is responding as to whether they can smell, or taste a test agent. Qualitative tests are subjective, and it is not possible to determine an exact factor of protection. Saccharin dust, banana oil, and irritant fume are three agents used to challenge a respirator user to determine if the protection is adequate. Irritant smoke can cause a strong cough response for those who get a whiff, so it can provide a more accurate qualitative fit test than banana oil or saccharin. When conducting fit tests the respirator wearer is trained and medically certified for the respirator they are wearing prior to beginning a fit test.

Please submit questions or comments regarding the FCI Respiratory Protection program to the Safety Director.

Excavation

PURPOSE

To protect employees working on the jobsite from hazards and mishaps during digging and excavation.

SCOPE

This policy applies to all FCI and Corporate Construction Employees and Subcontractors working on sites owned or controlled by FCI Construction, Inc. All Subcontractors are responsible for administering this program as it relates to their employees.

PROGRAM DEFINITIONS

Competent Person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, dangerous, or hazardous to employees. A Competent Person has the authority to make prompt corrective actions.

Excavation is any man-made cut, trench, cavity or depression in the surface of the earth formed by the removal of earth.

Hazardous atmosphere is an atmosphere which by reason of being poisonous, corrosive, irritating, deficient in oxygen, toxic, explosive or otherwise harmful. A hazardous atmosphere may cause illness, injury or death.

Protective system is a method of protecting employees from cave-ins and collapses whereby soil, rock and other material could fall back into an excavation. Nearby structures could also fall into an excavation. Protective systems include support systems, sloping, benching, and other systems that provide protection.

Trench is a narrow excavation in regards to its length made below the surface of the ground. Usually the depth is greater than the width, however the width of a trench measured at the bottom is no more than 15-feet (as measured from inside the protective system.

RESPONSIBILITIES

The Job site Superintendent is responsible for all aspects of the safe excavation and trenching. These responsibilities include the following:

- Evaluation of soil types

- Implementing the shoring, benching, sloping, or shielding or other means to protect workers and the public from cave-in accidents.
- Inspection of the trench and excavation operations at least daily and whenever conditions could exist that would compromise soil stability, or the stability of the shielding system
- Ensure that proper barricades are erected to prevent the public from accidentally entering the excavation.
- Locating of all underground or other affected utilities.
- Remove workers from trenches and excavations whenever conditions appear like they may endanger a worker.

PROCEDURES BEFORE EXCAVATING

- Call Holey Moley at 1 800 382 5544 at least 48-hours before you dig. Definitely document this contact in writing in your Daily Safety Review (DSR).
- Brace, remove or support object in the excavation area that could be a hazard to employees. These objects could be trees, rocks, sidewalks and portions of foundation.
- Classify the type of soil and/or rock found at the site as either stable rock or type A, Type B, or Type C soil. The classification must be made based on the results of at least one visual test and at least one manual test – thumb penetration test.
- Decide if protective systems are required. Use the "Selection of Protective Systems" flowchart attached to this section (C 18-6) for the determination of the proper protective systems.
- If sloping or benching is selected, make sure that the method complies with the soil type in which you will be working:

MAXIMUM ALLOWABLE SLOPES

Soil or Rock Type	Maximum Allowable Slopes (H:V) (1) For Excavations Less than 20 Feet Deep (3)
Stable Rock	Vertical (90 Deg.)
Type A (2)	¾ : 1 (53 Deg.)
Type B	1 : 1 (45 Deg.)
Type C	1 ½ : 1 (34 Deg.)

Notes:

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 (63 degrees) is allowed in excavations in Type A soil that are 12 feet (3.67m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67m) in depth shall be ¾ H:1V (53 degrees).
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

- If you are not able to provide sloping or benching for an excavation, more complicated methods of shoring are required. These methods require careful consideration and must comply with OSHA's specifications regarding materials, stress loads, and other engineering applications. Consult the OSHA regulations contained in 1926 Subpart P Appendix C, D, and E if considering these types of systems. Always follow manufacturer's recommendations when using hydraulic shoring equipment.
- Make sure that supervisors and employees assigned to the excavation crew has been adequately trained in safe trenching and excavation regulations.

DURING EXCAVATION

- A competent person must inspect the excavation and the adjacent areas on a daily basis for possible cave-ins, failure of protective systems and equipment, hazardous atmospheres, or other hazardous conditions. Inspections are also required after the occurrence of any natural (such as rain) or man-made events (such as blasting) that could increase the potential for hazards. Complete Daily Trenching Log and keep logs on file.
- Adequate protection must be provided to protect employees from falling rock, soil, or other materials and equipment. Keep all loose material at least 2 feet from the edges of the excavation.
- Employees should not be permitted to work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken. Diversion ditches, dikes, or other means must be used to prevent surface water from entering and excavation and to provide drainage to the adjacent area. Pump water from the trench before allowing workers to enter the area. The water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
- Before an employee enters an excavation greater than 4 feet in depth, a competent person must test the atmosphere whey oxygen deficiency or a hazardous atmosphere exists or could reasonable exist. Emergency rescue equipment must be readily available and must be attended when hazardous atmospheric conditions exist or may develop.
- Employees should not be permitted under loads that are handled by lifting or digging equipment. Employees should not be allowed to work in the excavation above other employees unless the lower level employees are adequately protected. IOSHA requires hard hats when in trench.
- While the excavation is open, underground installations must be protected, supported, or removed as necessary to safeguard employees. Adjacent structures must be supported to prevent possible collapse.
- Sufficient means for exiting excavations 4 feet deep or more must be provided and must be within 25 feet of lateral travel for employees. This can usually be accomplished by providing ladders or an earthen ramp.
- Employees exposed to public vehicular traffic must wear warning vests or other suitable garments made of reflectorized or high-visibility material.

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with 1926.652(b) and (c).

The Competent Person must print the following Figures (Figure 1 at a minimum) and complete each one that applies by circling each applicable option, noting the date, and their name on a page. Figure 1 (Page 31.5) is preliminary decision. If sloping is used, complete Figure 2 (Page 31.6). If shoring is used, complete Figure 3 (Page 31.7). The completed Figure(s) must be kept on the job for reference when requested on audit or IOSHA inspection.

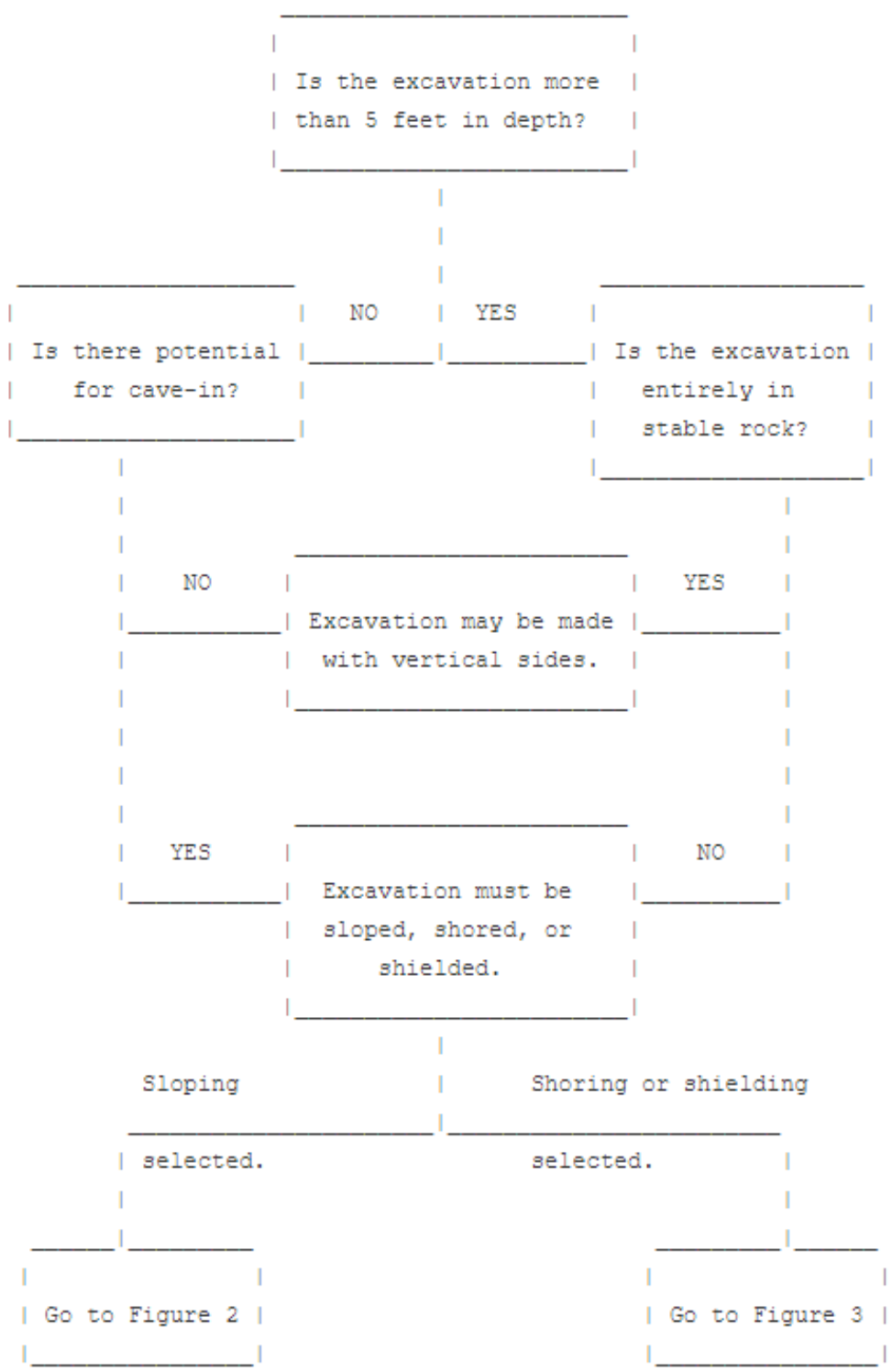

FIGURE 1 - PRELIMINARY DECISIONS

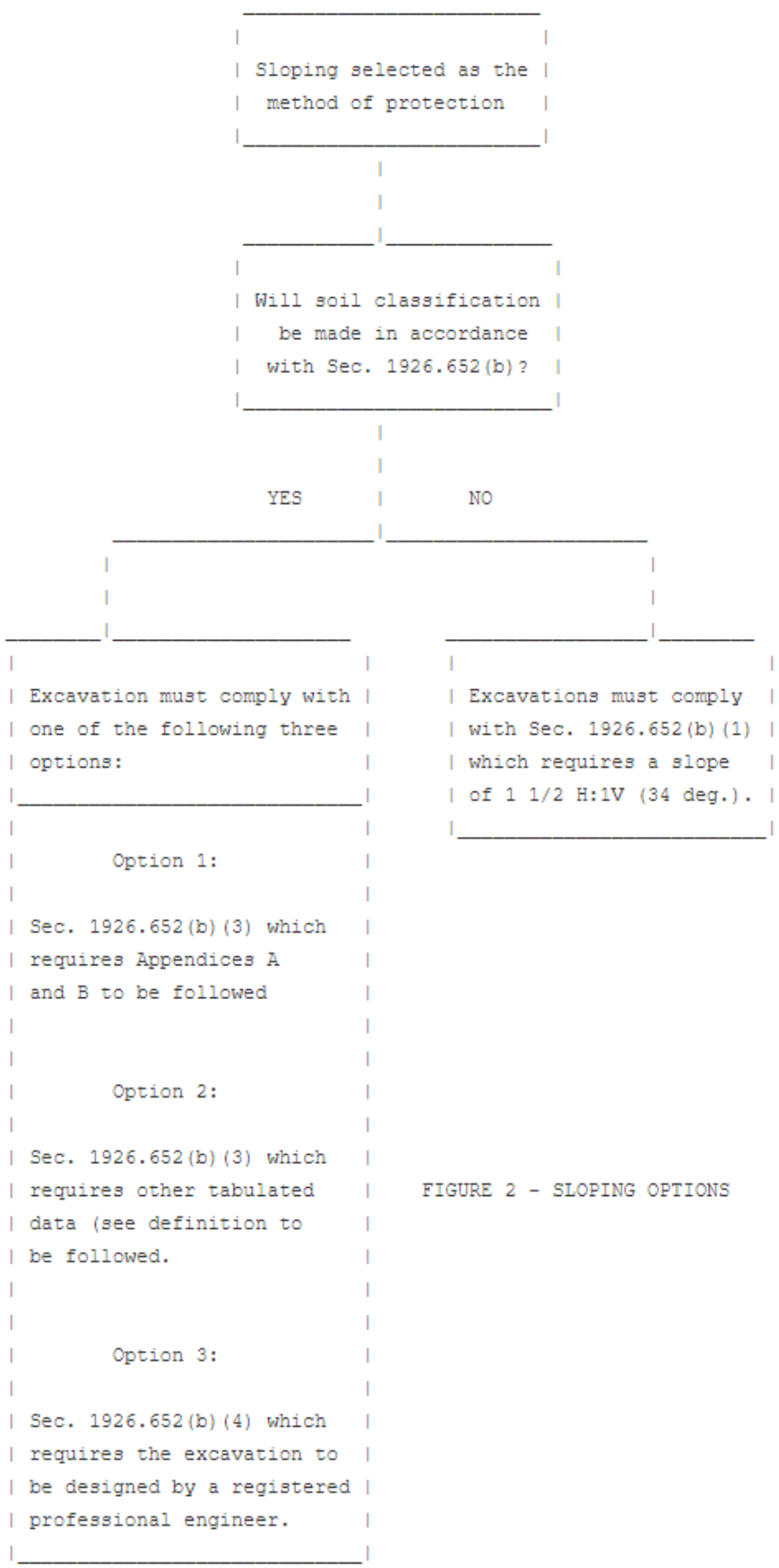

FIGURE 2 - SLOPING OPTIONS

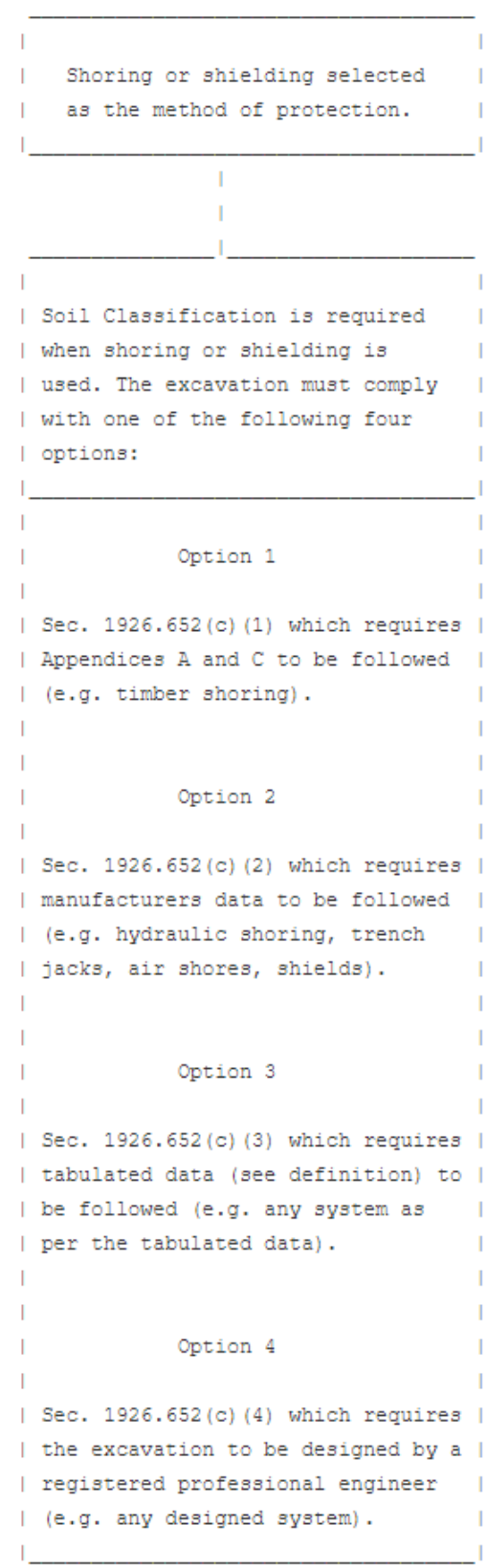

FIGURE 3 - SHORING AND SHIELDING OPTIONS

Compressed Gas Cylinders

Always maintain compressed gas cylinders in a secured and upright (vertical) position, this includes during transport. It is not acceptable to lay a cylinder down during truck transport. Secured means chained or wired so the cylinder cannot topple. A cylinder truck, chain, or special holder must be used to prevent cylinders from being knocked over while in use.

Always keep the protective cap in place when not in use, a full cylinder is pressurized at over 2,200 psi. If the valve is snapped off, the cylinder becomes a rocket. These "cylinder rockets" can fly through the air for up to 1/2–mile, spinning, crashing, and slashing everything in their path.

Close the cylinder valve when work is finished, when cylinders are empty or when cylinders are moved at any time. Unless cylinders are firmly secured in a special carrier (gas welding cart) intended for this purpose, regulators must be removed and valve protective caps must be screwed in-place.

Keep oil and grease away from cylinders. Oil and oxygen can ignite *spontaneously* without an ignition source. Oxygen passing over an oily rag, oily surface, oily gloves or oily hands can burst into flames without a spark or flame. For this reason we never put oil or grease on cylinders, cylinder valves, or cap threads. Never use oxygen to blow off clothes or work surfaces. Never "sweeten the air" with oxygen, particularly in a confined space. Increased oxygen levels can be very dangerous and cause work clothes, hair, paper and wood objects to explode into flames when contact is made with a loose spark or other ignition source.

Do not place cylinders where they can become part of an electrical circuit. Never strike electrodes against a cylinder to strike an arc. Protect cylinders, hoses, and valve assemblies from sparks and slag.

Cylinders that contain oxygen, acetylene or fuel gas are never taken into a confined space.

Oxygen cylinders in storage are separated from fuel gas cylinders by at least 20-feet or by a non-combustible barrier at least 5-feet high with a 1/2-hour fire rating.

Before attaching a regulator to a cylinder valve, crack the valve slightly and close it immediately to clear the valve of dust or debris that could get in the regulator. The person cracking the valve is to stand to one side of the valve outlet NOT in front of it. The valve of a fuel gas cylinder should not be cracked around flames, sparks or welding work....avoid ignition while cracking the valve.

Open valves slowly to avoid damaging the regulator, if a special wrench is required leave it in position on the valve stem so the gas can be shut off quickly. Never use fuel gas from cylinders through torches or other devices that have shut off valves without reducing the pressure through a proper regulator attached to the cylinder valve. Before a regulator is removed from a cylinder valve, close the cylinder valve and release the pressure from the regulator.

Do not place gloves or any other objects on top of the cylinder or valve assembly. Do not use cylinders as rollers or supports. Never use a damaged or defective cylinder or a cylinder with a damaged fuse plug or other safety device. Remove damage cylinders and cylinders with damaged safety devices from the work area immediately.

When cylinders are hoisted secure them on a cradle, slingboard or pallet. Do not hoist or transport cylinders with magnets or choker slings.

Clogged torch tip openings are cleared with suitable cleaning wires, drills or other devices designed for this purpose. Inspect torches before each working shift for leaking shutoff valves, hose couplings and tip connections. Torches are lighted using friction lighters, not by matches or hot work. Do not use defective torches.

Job Site Name _____ Date _____

Conducted by _____

Topic Highlights: 1) Secure all cylinders at all times in an upright position. 2) Always cap the cylinder when not in use 3) Close the cylinder valve when not in use 4) NEVER use oil or grease on any cylinder or cylinder attachments 5) inspect the cylinder, hose, regulator, and any other compressed gas attachments before each shift of use.

NAMES OF THOSE WHO PARTICIPATED IN THIS TOOLBOX SAFETY SESSION

Clearly Printed Name	Signature
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FCI Lock Out Program

FCI Construction (FCI) recognizes that preventing the unexpected start-up or release of stored energy from equipment during maintenance is key to protecting employees from injury. To address this issue and to comply with the Occupational Safety and Health Administration's (OSHA) Lockout/Tagout Standard (29 CFR 1910.147), the Department of Environmental Health and Safety (EH&S) has developed the FCI Construction Lockout/Tagout Program. This Program outlines the procedures for conducting a safe Lockout and/or tagout of equipment when maintenance is necessary. Lockout/tagout (LOTO) is accomplished by placing a lockout and/or a tagout device on a switch, valve, breaker, etc. to prevent reactivation of the equipment and to warn that maintenance activities are in progress. Equipment is considered “locked out” when the potential hazardous energy has been blocked and operation of the equipment is prevented until the lockout device is removed. Equipment is considered “tagged out” when a warning tag is placed on the equipment warning others that the equipment is being serviced and must not be operated. These safety measures should be used together to provide the maximum level of protection for those performing the service.

Before any personnel perform service/maintenance activities, they must understand the proper procedures for energy control as outlined in this Program and in OSHA's Lockout/Tagout Standard. The procedures outlined in this Program should ensure that:

- personnel can identify machinery requiring LOTO
- effective LOTO procedures are used to isolate and control hazardous energies
- proper employee training is provided to both Authorized and Affected Employees (defined in Definitions)
- periodic reviews of LOTO procedures are performed to verify their effectiveness

RESPONSIBILITIES

FCI is responsible for both ensuring the safety of its employees and compliance with all related requirements of state and federal regulations. The administration encourages employees at all levels to promote positive attitudes regarding safety, to incorporate safety into their work practices and to cooperate fully in the implementation of safety related programs.

LOCKOUT/TAGOUT DEPARTMENTS

Managers and Supervisors
Managers and supervisors are responsible for: designation of authorized employees, ensuring that employees are properly trained, maintenance of program records, and completion of annual program inspection and reviews.

Employees

Employees are responsible for observing all practices and procedures contained in the FCI Lockout/Tagout Program, for attending designated training and for reporting hazardous or unsafe conditions to their supervisors and/or the Safety Director

Safety

The Safety Dept and Management has created the FCI Lockout/Tagout Program and will assist individual departments in the implementation of Program requirements.

SCOPE

The scope of this program is to prevent injury from electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other hazardous sources in machines and equipment. Potential hazardous energy sources must be identified, isolated, and locked and/or tagged out before starting a service/maintenance task.
Typical tasks requiring LOTO procedures include:

- a task requiring an employee to enter a machine's point of operation or any associated danger zone
- repairing electrical circuits
- cleaning, repairing, and maintaining machinery with moving parts
- cleaning jammed mechanisms
- removing or bypassing a guard or other safety device

To comply, all affected departments must meet the following minimum general requirements:

- develop written, equipment-specific lockout procedures for the control of potentially hazardous energies prior to service/maintenance activities. Consult operator manuals and/or the Safety Director for assistance.
- ensure that LOTO devices are available to all employees as needed
- ensure that when new equipment is purchased, or when existing equipment is modified, it has the ability to be locked out. Any equipment or machinery that has been modified must have received written approval from the manufacturer
- enforce the proper use of LOTO equipment and establish control of energy sources

- inform outside contractors of FCI procedures and how coordination of lockout/tagout will occur
- provide and/or coordinate employee LOTO training programs
- perform at least annual reviews of LOTO procedures
- maintain adequate records

EXEMPTIONS

Partial Exemption

Equipment is exempt from written, equipment-specific procedures when all of the elements listed below exist. (Note: Equipment covered by this partial exemption must still be locked out following established procedures listed in Section D, Lockout/Tagout Procedures.)

- equipment/machine has no potential for stored or residual energy
- equipment/machine has a single energy source that can be readily identified and isolated
- isolation and locking out of energy source completely deenergizes and deactivates equipment/machine
- equipment/machine is isolated from the energy source and locked out during service/maintenance activities
- a single lockout device will achieve a lockout condition
- lockout device is under the control of a single individual doing the service/maintenance
- service/maintenance does not create hazards for others
- FCI has had no incidents involving the unexpected activation or reenergizing of the equipment/machine before being serviced

Total Exemption

None of the requirements of the FCI Lockout/Tagout Program apply if all conditions of the exemption are met.

Total exemptions include:

- Equipment that is completely de-energized by unplugging a power cord. The unplugged power cord must be under the exclusive control of the employee(s) conducting the service/maintenance activities. Plug lockouts are recommended as an added level of protection.
- Hot tap operations involving gas, steam, water or petroleum products. The employer must show that continuity of service is essential, shutdown is impractical, and proper protection of the employees has been provided for.

Any alternative approach used must be fully documented by the department choosing those methods.

Employee Training

Training on the purpose, content, and function of the *FCI Construction* (*FCI*) Lockout/Tagout Program is required for all employees who participate in or are affected by the lockout/tagout of equipment. Training can be obtained through department-specific training or completing Site Specific Training, must be documented, and kept, showing training dates, times, attendance and items covered.

Authorized Employees

Authorized Employees are those who have received proper training and have been "authorized" by their department to apply LOTO devices when necessary.

Training for Authorized Employees shall include:

- recognition of locations, types and magnitudes of potential hazardous energy sources in the work area
- proper LOTO procedures
- proper use of LOTO devices (and any related equipment) used by the department.
- lockout or tagout device removal
- how to deal with special conditions

Affected Employees

Affected Employees are those employees affected by the shut down or who work in areas where equipment is being serviced/maintained.

Training for Affected Employees shall include:

- purpose and use of the LOTO procedures
- how to recognize LOTO equipment
- prohibition on tampering with LOTO equipment

Retraining

Retraining is required when:

- there is a new or revised energy control procedure
- an Authorized Employee's job duties change (regarding LOTO)
- the Lockout/Tagout Program is changed

- additional LOTO hazards arise, such as new equipment, modified processes or the use of different LOTO devices
- periodic inspections show employee deficiencies in energy control techniques

Lockout/Tagout Devices

Lockout/tagout (LOTO) equipment consists of tags, locks, hasps, chains, and other hardware used to prevent the operation of equipment being serviced or maintained. Lockout devices must be used whenever possible, to ensure a positive means of energy control, by holding equipment in a SAFE or OFF position. Tags should be used in conjunction with lockout devices to warn against operation.

Regardless of the device used, all LOTO devices must meet the following minimum criteria:

- they must be of durable construction and capable of withstanding the conditions in which they are placed
- they must be identified as such and must only be used for the control of hazardous energy sources All other uses are prohibited
- they must identify the individual applying the device
- they must not be bypassed, ignored or otherwise defeated
- they should be standardized within each department in color, size, shape and format
- they should be removed by the Authorized Employee originally attaching them. Removal by anyone else must be performed by following the guidelines in Section F, Removal of Lockout/ Tagout Devices

Use of Tags

Use of tags alone is allowed only when equipment cannot be physically altered to accept a lockout device. In this case, all other procedures consistent with the lockout program must be followed. The tags must be affixed as closely as possible to the isolation devices, immediately obvious to anyone attempting to restart the equipment/ machine. Additional control measures must be taken to reinforce the tagout device (such as opening an extra disconnecting device, removal of a valve handle, or additional training). Tags must be legible and understandable by all employees and must contain warnings against energizing the equipment, such as DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, or DO NOT OPERATE. Tags must be in plain view, at the same location as the energy isolation devices and must be securely attached to prevent accidental removal.

Lockout/Tagout Procedures

Before service/maintenance activities begin, the following procedures must be implemented in the order listed below, when locking or tagging out equipment.

1. Prepare for shutdown

The Authorized Employee shall evaluate the equipment to be serviced, identify all sources of hazardous energies and the methods necessary to control them. This information shall be used to complete the Energy Control Procedures form or its equivalent.

2. Notify all Affected Employees

The Authorized Employee turning off the power shall notify Affected Employees in the work area that power will be shut off, the reason for the shut-down and that the equipment will be locked/tagged out.

3. Shut down equipment

The equipment/machine shall be shut down by the normal stopping procedure. When appropriate, a "DO NOT OPERATE" tag shall be affixed to the power switch.

4. Isolate equipment

The equipment/machine shall be de-energized, secured and isolated from hazardous energy sources. An orderly shutdown must be utilized to avoid any increased or additional hazard(s) to employees.

5. Lockout/tagout

The Authorized Employee shall place locks and/or tags in the appropriate energy isolating locations.

6. Release stored energy

After lockout devices have been placed on the equipment, all stored electrical, gravitational, mechanical and/or thermal energy must be disconnected and drained to a zero-energy state or otherwise made safe by the blocking or repositioning of equipment. This can be accomplished by:

- releasing pressured lines such as hydraulic, air, steam, gas and water.
- releasing spring-loaded equipment.
- blocking mechanical equipment having moving, rotating or elevated parts.

7. Verify isolation

Before performing maintenance on the machine, the Authorized Employee verifies the system is isolated. This is generally accomplished by first establishing that no personnel are exposed and then turning the machine switch to the ON position using the normal operating controls. Verification of isolation must be continued if there is a chance of the re-accumulation of stored energy during the service/maintenance activity.

8. Perform the service/maintenance activity

LOTO devices should be removed promptly following completion of service/maintenance activities. See Section F, Removal of LOTO Devices.

In order to provide continuity of lockout/tagout (LOTO) protection, the following steps are required for the situations identified below.

Group Lockout/Tagout

A group LOTO is necessary when service/maintenance is performed by more than one individual. A procedure must be developed that outlines how group LOTO will occur. This information should be identified on the Energy Control Procedures form or its equivalent. Group LOTO can be accomplished through the use of a lockout device that accepts multiple locks or a group lock box (stores all keys to locks used and can only be opened by one individual). Each worker involved in maintenance activity must place their own lock and tag on each energy control point. One person from the group should be selected to oversee the LOTO procedure.

The group representative will be responsible for:

- affixing the group lockout device or maintaining control of the lock box
- ensuring that lockout/tagout procedures are followed, including verifying that equipment is de-energized
- continually monitoring the work to ensure that employees on the crew are not exposed to lockout/tagout hazards
- verifying that all procedures for returning the equipment back into service are completed before lockout/tagout devices are removed

Shift Changes

When equipment/machine maintenance extends beyond one work shift, a procedure must be in place to transfer control of the equipment/machine to the arriving shift. This transfer is the responsibility of all departing and arriving shift supervisors involved with the maintenance project.

Responsibilities include:

- overseeing the transfer of control of the existing LOTO device(s) or the attachment of a separate device(s)
- ensuring that the continuity of the energy control procedure is maintained until the oncoming shift supervisor arrives and takes control of the job
- documenting the method used (original device or separate device) on the Energy Control Procedures form or its equivalent

Exchange of Information with Contractors

When some or all maintenance work is to be performed by contractors, information exchange must occur to ensure that all parties know how LOTO of equipment/machines will take place.

The department must:

- ensure that there is an appropriate exchange of information regarding LOTO procedures to be used by both the department and the contractor
- use the Exchange of Information or equivalent method to document the exchange with the contractor
- inform Authorized Employees of any differences (such as restrictions and prohibitions) between the two procedures
- attach the Exchange of Information to the procedures used to complete the work
- file all completed forms with the department's Lockout/Tagout Program

Testing or Positioning of Equipment/Machines

When an employee must move part of a machine to test or position it for service/maintenance, and reenergization is required, the temporary removal of LOTO devices and subsequent reenergization must follow this sequence:

1. Clear equipment/machine of tools and other miscellaneous

materials.

2. Remove all employees from the equipment/machine area.

3. Remove LOTO devices.

4. Energize and proceed with testing or positioning.

5. De-energize and reapply LOTO devices.

Removal of Lockout/Tagout Devices

Once the specific maintenance or service work has been completed, the person who attached the lock or tag is responsible for promptly removing that device. Removal of lockout/tagout (LOTO) devices will be accomplished by following the steps listed below:

1. Inspect the work area. Ensure that the equipment/machine is fully assembled and operational, all tools and nonessential items are removed, and all safety guards are reinstalled.

2. Ensure that all employees are clear of the equipment/ machine.

3. Remove the LOTO device. Each device must be removed by the person who put it on unless the conditions listed below in "Removal of Another Person's Device" are met.

4. Re-energize the equipment/machine.

5. Notify Affected Employees that servicing has been completed and the machine is ready for use.

Removal of Another Person's Device

Before removing a lock or tag that has been affixed by another employee, the supervisor must:

- verify that the employee who attached the device is not available to remove the device.
- make all reasonable efforts to notify the employee that their device will be removed.
- ensure the Authorized Employee knows that the LOTO device has been removed. This must be done before the employee resumes work.

DEFINITIONS

Affected Employee

An employee whose job requires operation or use of equipment/machines on which service/maintenance activities are performed under lockout/tagout, or whose job requires work in an area where such service/ maintenance activities are being performed.

Authorized Employee

An employee who locks out or tags out equipment/machines in order to perform service/maintenance activities. An Affected Employee becomes an Authorized

Employee when that employee's duties include performing service/maintenance activities covered under the FCI Construction Lockout/Tagout Program.

Energized

Connected to an energy source or containing residual or stored energy.

Energy Isolating Device (Mechanism)

A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: An electrical circuit breaker, a disconnect switch, an operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently, a line valve, a block, and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout

The placement of a lockout device on an energy isolating mechanism in accordance with established procedures. The lockout device will ensure that the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device

A device that utilizes a positive means such as a lock (either key or combination type) to hold an energy isolating mechanism in a safe position and prevent the energizing of equipment/machines. Included are blank flanges and bolted slip blinds.

Service/Maintenance

Includes workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, or servicing/maintaining equipment/machines. These activities include lubrication, cleaning and unjamming of equipment/machines, and making adjustments or tool changes in areas where employees may be exposed to the unexpected energization or startup of the equipment or to the release of hazardous energy.

Tagout

The placement of a tagout device on an energy isolating mechanism in accordance with established procedures. The tag should state that the energy isolating mechanism and the equipment being controlled may not be operated until the tagout device is removed.

Steel Erection

Steel Erector:	FCI Contact Name:
Steel Erection Address:	Date:

FCI Construction, Inc. is hereby authorizing commencement of steel erection activities with the following notifications:

Compressive Strength Concrete in footings, piers, and walls and mortar in masonry piers and walls has attained, based on the appropriate ASTM standard test for field cured samples, at least 75% of the intended minimum compressive strength to support the loads imposed during steel erection. Concrete was tested by _____. Attached are the concrete strength test results stating that all concrete has achieved the minimum 75% of the intended compressive strength.

Anchor bolt and rod repair All bolts and pins used for anchoring and attachment of structural steel support are in-place as designed by the project Structural/Design Engineer. No damage or modification to anchor bolts/pins has occurred.

The Steel Erection Contractor verifies by initials that they have been notified of their responsibility to:	Initials
Erector has indicated to FCI Construction what material laydown areas are needed, and the intended routes of transferring materials. Only those designated laydown areas will be utilized, and FCI Construction responsibility to maintain the laydown areas will be limited to those that are designated.	
Preplan all overhead hoisting operations to prevent traveling loads over the other contractor personnel, and to coordinate hoisting activities with FCI Construction and other contractors to minimize impacts on other operations.	
Provide a written site specific erection plan if operations will deviate from the published OSHA Standard 29 CFR 1926.752e.	
Conduct documented daily safety inspections of cranes, forklifts, and other hoisting equipment utilized in steel erection activities.	
Designate a qualified trained rigger(s) to inspect all rigging equipment (submit record of training). Name of Qualified Rigger:	
Maintain on the project written proof of training for all employees engaged in connecting, bolt-up, multiple lift rigging procedures, exposure of falls, equipment operation, and as required by any other specific standard.	
Assure that all columns are properly anchored by a minimum of four (4) anchor bolts.	
Maintain and require the use of fall protection equipment for all employees exposed to fall risks as per CFR 1910.126.	
Properly install perimeter guardrail systems on all exterior and interior leading edges consisting of a top rail and mid rail meeting the requirements of 29 CFR 1926.502 (b) (1-15).	
Maintain required fire protection and prevention equipment appropriate to the type of work operation and hazards involved.	
Meet all other requirements of FCI Construction, Published OSHA Standards, and the requirements of local regulations.	

FCI Construction, Inc.	Steel Erector:
Project Manager:	Qualified Person to implement Site Erection Plan:
Field Superintendent:	Qualified Rigger:
Safety Director:	Crane Operator:

The above form is used to transfer notice to the Steel Erection Contractor to commence with steel erection at a project. The notice is completed with data gathered from engineering test data that confirms that all concrete in footings, piers, and walls and mortar in masonry piers and walls has attained, based on the appropriate ASTM standard test for field cured samples, at least 75% of the intended minimum compressive strength to support the loads imposed during steel erection. The Project Manager, Site Superintendent or Safety Director is responsible for reviewing each engineering data report that provides results for the compressive strength of each concrete pour in foundations, footer walls, or column supports. Copies of the engineering test data are incorporated with the Notice to Commence Steel Erection and provided to the contractor who does the erection of the steel. The contractor that installed the bolts and pins used for anchoring and attachment of structural steel support will confirm that anchoring bolts are in-place as designed by the project Structural/Design Engineer. If damage or modification to anchor bolts/pins has occurred, the Steel Erector will be provided with architectural or engineering data that certifies that the damaged or modified anchor bolts continue to meet the design criteria. The site Prime Contractor will also confirm with the Steel Erector the adequacy of the following before steel erection commences:

1) Erector has indicated to FCI Construction what material laydown areas are needed, and the intended routes of transferring materials. Only those designated laydown areas will be utilized, and FCI Construction responsibility to maintain the laydown areas will be limited to those that are designated.
2) The Steel Erector has preplanned all overhead hoisting operations to prevent traveling loads over the other contractor personnel, and to coordinate hoisting activities with FCI Construction and other contractors to minimize impacts on other operations. Erector will provide a written site specific erection plan if operations will deviate from the published OSHA Standard 29 CFR 1926.752e.
3) The Steel Erector has conducted documented daily safety inspections of cranes, forklifts, and other hoisting equipment utilized in steel erection activities, and has designated a qualified trained rigger(s) to inspect all rigging equipment (submit record of training and name Qualified Rigger).
4) The Steel Erector is to maintain on the project written proof of training for all employees engaged in connecting, bolt-up, multiple lift rigging procedures, exposure of falls, equipment operation, and as required by any other specific standard. Assure that all columns are properly anchored by a minimum of four (4) anchor bolts. Maintain and require the use of fall protection equipment for all employees exposed to fall risks as per CFR 1910.126.
5) The Steel Erector is to properly install perimeter guardrail systems on all exterior and interior leading edges consisting of a top rail and mid rail meeting the requirements of 29 CFR 1926.502 (b) (1-15).
6) The Steel Erector shall also Maintain required fire protection and prevention equipment appropriate to the type of work operation and hazards involved, and meet all other requirements of FCI Construction, Published OSHA Standards, and the requirements of local regulations.

If FCI is the Steel Erector at the jobsite the information including the engineering test data will be collected, verified and incorporated into the FCI job records file.

Confined Space Entry

PURPOSE

To define company requirements and responsibilities for conducting safe confined space entry operations in compliance with 1910.146, 1926.353 and 1926.21. To establish written guidelines for the control of safety and health hazards encountered while working in confined spaces. To prevent the unauthorized or unsafe entry into confined spaces and to train employees to recognize confined spaces at the job-sites.

SCOPE

This confined space entry procedure applies to all FCI Employees and Sub-Contractors associated with FCI who are engaged in confined space entry.

DEFINITIONS

- Definition of a Permit Required Confined Space is a type of confined space that has ONE or more of the following 4 characteristics:
  - It contains or has the potential to contain a hazardous atmosphere; or
  - It contains a material that has the potential for engulfing an entrant; or
  - It has an internal configuration such that an entrant could be trapped or asphyxiated by inward converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
  - It contains any other recognized serious safety or health problem.

- Definition of a Non-Permit Required Confined Space (Low Hazard)
  A confined space that presents no actual or potential atmospheric hazards and if all other hazards within the confined space are eliminated without having to enter the confined space, the space can be classified as a Non-Permit confined space for as long as the non-atmospheric hazards remain limited.
- An Attendant is an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.
- Authorized entrant means an employee who is authorized by the employer to entrer a permit space.
- Blanking or blinding means the absolute closure of a pipe, line or duct by the fastening of a solid plate (such as a spectacle blind or skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.
- A Confined Space has ALL of these 3 characteristics:

(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
(2) Has limited or restricted means for entry or exit (e.g. tanks, vessels, silos, storage bins, hoppers, pits, open top spaces more than 4-feet in depth, ductwork, sewers, underground utility vaults, tunnels, pipelines, etc); and
(3) The space is not designed for continuous employee occupancy.

- Double block and bleed means the closure of a line, duct or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.
- Emergency means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.
- Engulfment means the surrounding and effective capture of a person by liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough fouce on the body to cause death by strangulation, constriction, or crushing.
- Entry means the action by which a person passes through an opening into a permit required confined space. Entry occurs as soon as any part of the entrant's body breaks the plane of an opening into the space.
- Entry permit means the written document that is provided by the employer to allow and control entry into a permit space. Use FCI form 14 Confined Space Entry Permit. The entry permit must detail the following information:
  1 Name of the permit space to be entered,
  4 Purpose of the entry,
  5 Date and duration of the permit,
  6 List of names of the authorized Entrants,
  7 The names of those employees who serve as Attendants,
  8 The name of the Entry Supervisor,
  9 The hazards of the permit space to be entered,
  10 The measures used to isolate the permit space and to eliminate or control the hazards before entry. These measures can include the lockout or tag out of equipment and procedures for purging, inserting, ventilating and flushing of permit spaces,
  11 The acceptable entry conditions,
  12 The results of initial and periodic tests performed accompanied by the names of the testers and time/date the tests were performed,
  13 The name of the emergency rescue services and methods used to contact emergency services
  14 The communication method used by the authorized Entrants and Attendants to maintain continuous contact with each other,

15 Any equipment such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue systems provided for entry into the permit confined space.
16 Any other information necessary for entry into the permit space, given the circumstances of the particular confined space, in order to ensure employee safety,
17 Any additional permits needed such as hot work permits that have been issued to authorize work in the permit space.

- Oxygen deficient atmosphere means an atmosphere containing less than 19.5% oxygen by volume.
- Oxygen enriched atmosphere means an atmosphere containing more than 23.5% oxygen by volume.
- Authorized Entrant means an employee who is trained and authorized by the employer to enter a permit space.
- Entry Supervisor means the person such as the employer, Superintendent or Crew Chief who is responsible for determining if acceptable entry conditions are present at a permit space where entry is planned. The Entry Supervisor authorizes entry, oversees entry operations and terminates entry as required.
- Immediately Dangerous to Life and Health (IDLH) means any condition that poses an immediate of delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape from the permit space without assistance.
- Hazardous Atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury or acute illness from one or more of the following causes:

18 Flammable gas, vapor or mist in excess of 10% of its lower flammable limit (LFL)
19 Airborne combustible dust at a concentration that meets or exceeds its LFL. Dangerous dust concentration can be approximated as a condition in which the dust obscures vision at a distance of 5-feet or less.
20 Atmospheric oxygen concentration below 19.5% or greater than 23.5%
21 Atmospheric concentration of any substance for which a dose or OSHA permissible exposure limit is published in the Code of Federal Regulations.
22 Any other atmospheric condition that is immediately dangerous to life and health.

REQUIREMENTS FOR CONFINED SPACE ENTRY

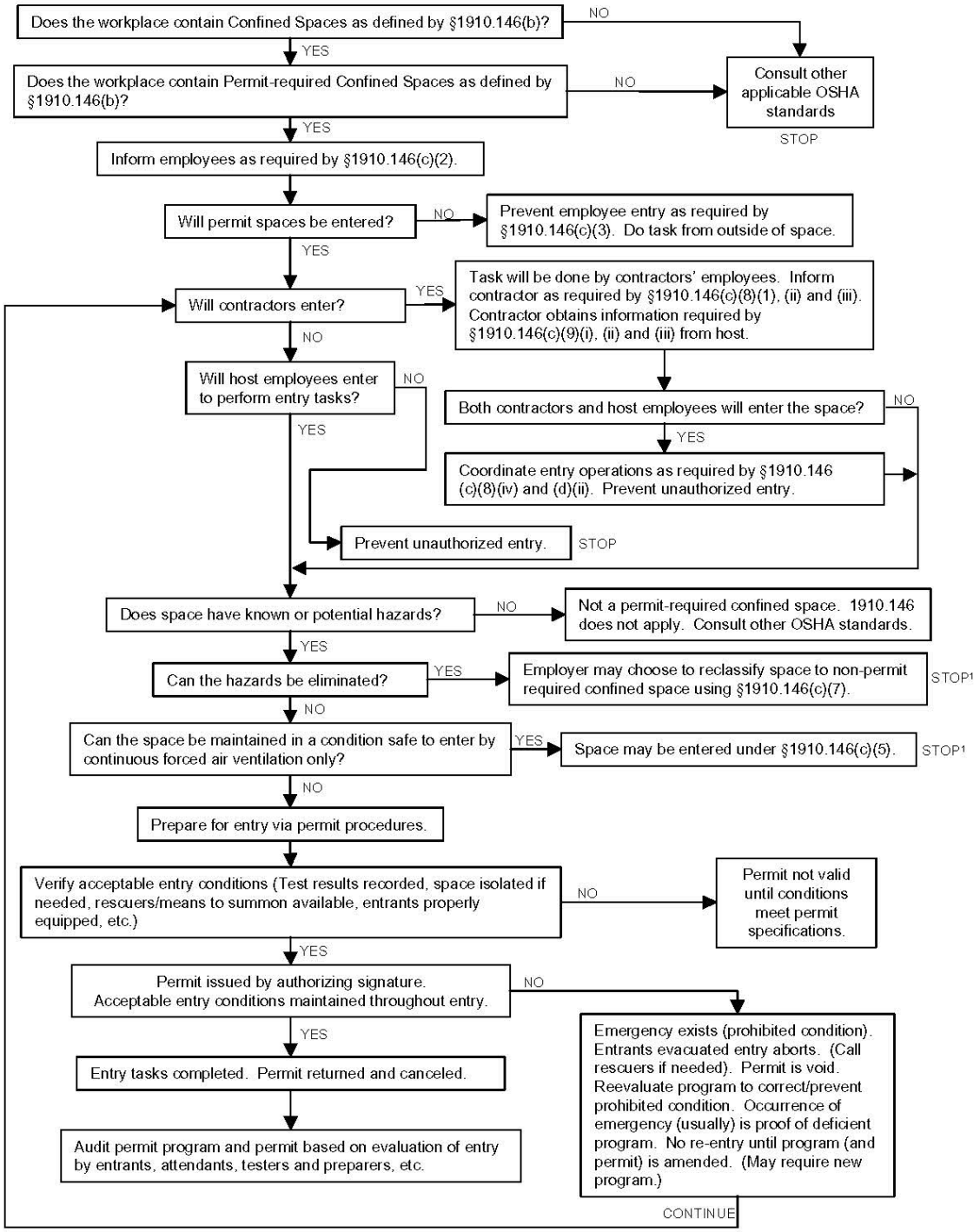
- A permit required confined space found in the workplace could have one or more of the four hazard characteristics of a permit required confined space, (those four hazards are atmospheric, engulfing, trapping, any other serious safety or health hazard). If any one of the hazard characteristics of a permit required space are

identified workers must not enter until each hazard is controlled and the control methods are documented on a written confined space entry permit completed by the Entry Supervisor. Use FCI Form 14, Confined Space Entry Permit.

- All Permitted Confined Spaces must be identified with a sign that reads "DANGER-CONFINED SPACE, ENTER BY PERMIT ONLY". These signs are available from the Safety Office. Use the decision flow chart found in appendix A to 1910.146 as a guide to identify whether the space is a confined space or more hazardous permit required confined space.
- If the employer decides that its employees will not enter permit spaces, the employer must take effective measures to prevent its employees from entering the permit spaces.
- The employer must develop and implement a written permit space program and make the program available to employees and their representatives.
- In some cases, the employer may use the alternate procedures specified in the standard if these conditions are first met:
  23 The employer can demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere.
  24 The employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.
  25 The employer develops monitoring and inspection data that documents that any hazardous atmospheres are properly controlled. Prior to any employee entering a permit space.

Appendix A: 29 CFR 1910.146, Permit-required confined spaces standard

Appendix A, Permit-required Confined Space Decision Flow Chart



[1]Spaces may have to be evacuated and re-evaluated if hazards arise during entry

Permit space evaluation form

Permit space name and location: _____

Immediately dangerous to life or health (IDLH)?

Tasks to be performed in this space: _____ YES ☐ NO ☐

Oxygen, combustible atmospheres, toxic gasses

☐ Oxygen (19.5-23.5%) _____ %

☐ Combustible atmospheres (lower flammability limit <10%) _____ %

☐ Toxic gases (list below)

_____ _____ PPM

_____ _____ PPM

Other hazards in the space	Action necessary to eliminate or control the hazard
☐ Extreme temperature	
☐ Mechanical	
☐ Electrical	
☐ Radiation	
☐ Engulfment	
☐ Entrapment	
☐ Noise	
☐ _____	
☐ _____	

Equipment necessary for entry – including PPE

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Confined space/permit space evaluation survey

Name/description of this space _____

Location of this space _____

Person performing this survey _____

Date of this survey _____

Section 1 — Use this section to determine if the space is a confined space

Yes ☐	No ☐	Is the space large enough and so configured that an employee can enter and perform assigned work?
Yes ☐	No ☐	Does the space have restricted means for entry or exit? Doorways and other portals through which a person can walk are normally not considered restricted means for entry or exit.
Yes ☐	No ☐	Is the space *not* designed for continuous employee occupancy?

If *all three* answers are *Yes*, this is a confined space. Proceed to Section 2.

Section 2 — Use this section to determine if the space is a permit space

Yes ☐	No ☐	Does the space contain or have a potential to contain a hazardous atmosphere? Examples: combustible dusts, flammable mixtures, or oxygen deficiency that may expose employees to the risk of death, incapacitation, or acute illness.
Yes ☐	No ☐	Does the space contain a material that has the potential for engulfing an entrant? Examples: liquids or granular solids.
Yes ☐	No ☐	Does the space have an internal configuration such as inwardly converging walls or a sloping floor that could trap or asphyxiate an entrant?
Yes ☐	No ☐	Does the space contain another serious safety or health hazard? Examples: radiation, noise, electricity, and moving parts of machinery.

If *any* answer is Yes, this is permit space. An entry permit is required for entry.

Entry permit

Permit date: / / **Work shift:** 1st ☐ 2nd ☐ 3rd ☐ **Expires:** / /

Time started: _____

Permit space to be entered (name and location of space): _____

Purpose of entry: _____

Names of trained, authorized individuals

- Entry supervisor: _____
- Entry attendant: _____
- Authorized entrants: _____
- Authorized entrants: _____

Emergency contact information

Emergency responder: _____ Phone number: _____

Contact person: _____ Time: _____

Pre-entry requirements

Requirements	Yes	No	N/A	Requirements	Yes	No	N/A
Lockout - tagout/de-energize	☐	☐	☐	Hot work permit	☐	☐	☐
Pipes(s) broken or capped or blanked	☐	☐	☐	Fall arrest harness/lifeline/tripod	☐	☐	☐
Purge or flush or drain	☐	☐	☐	Personal protective equipment	☐	☐	☐
Ventilation (natural or mechanical)	☐	☐	☐	*Hardhat*	☐	☐	☐
Secure area	☐	☐	☐	*Gloves*	☐	☐	☐
Safe lighting	☐	☐	☐	*Safety glasses*	☐	☐	☐
Non-sparking tools	☐	☐	☐	*Respirator, type*	☐	☐	☐
Communication method	☐	☐	☐	*Other PPE:*	☐	☐	☐
Contractor employees involved	☐	☐	☐	*Other PPE:*	☐	☐	☐

Space-monitoring results		Test 1	Test 2	Test 3	Test 4
Monitor at least every four hours	**Permissible entry levels**	Time: Initial:	Time: Initial:	Time: Initial:	Time: Initial:
Percent oxygen	19.5% to 23.5%				
Combustible gas	Less than 10% LEL				
Other toxic gas					
Other toxic gas					
Other toxic gas					

Entry permit (continued)

Possible atmospheric hazards	Yes	No	N/A
Lack of oxygen	☐	☐	☐
Combustible gases	☐	☐	☐
Combustible vapors	☐	☐	☐
Combustible dusts	☐	☐	☐
Toxic gases/vapors	☐	☐	☐
Possible non-atmospheric hazards			
Noise	☐	☐	☐
Chemical contact	☐	☐	☐
Electrical hazard	☐	☐	☐
Mechanical exposure	☐	☐	☐
Temperature extreme	☐	☐	☐
Engulfment	☐	☐	☐
Entrapment	☐	☐	☐
Other non-atmospheric hazard	☐	☐	☐

Pre-entry checklist

Do not enter this permit space until the following "needs action" conditions are corrected.

OK	Needs action	
☐	☐	Before entering the permit space, the supervisor or designee must notify the rescue team. IDLH conditions require at least one rescue team member located outside the space.
☐	☐	A minimum of two employees must be assigned to work involving permit space entry. One employee must remain outside the permit space at all times.
☐	☐	The surrounding area must be surveyed to show that it is free of hazards such as drifting vapors from tanks, piping, sewers, or vehicle exhaust.
☐	☐	Those responsible for operation of the gas monitor have been trained.
☐	☐	Gas monitor calibration tests and functional test (fresh air calibration) have been performed this shift on the gas monitor. If so, by whom? _____
☐	☐	The atmosphere will be continuously monitored while the space is occupied, if required by entry procedure.

This permit has been terminated for the following reason:

☐ Work completed ☐ Canceled Time: Note:

Supervisor's signature Time: Date: / /

Return this completed permit to _____. Review, then file for one year.

Alternate entry procedure/reclassification

Section A: Alternate entry procedure

Section A may be used instead of the entry permit if all of the following conditions are Yes:	Yes	No
The **only** hazard is atmospheric.	☐	☐
Continuous forced-air ventilation **alone** is sufficient to keep the space safe for entry.	☐	☐
Monitoring and inspection show that other hazardous conditions do not exist.	☐	☐
Conditions that make it unsafe to remove entrance cover have been eliminated.	☐	☐
Openings are guarded to protect employees from falls and falling objects.	☐	☐

Note: When permit-space entry is required to verify conditions, the PRCS program and entry permit must be used.

Use the table below to document test results for safe entry.

Space monitoring results		Test 1	Test 2	Test 3	Test 4
Supporting documentation for safe entry	**Permissible entry levels**	Time: Initial:	Time: Initial:	Time: Initial:	Time: Initial:
Percent of oxygen	19.5% to 23.5%				
Combustible gas	Less than 10% LEL				
Other toxic gas					
Other toxic gas					
Other toxic gas					

If a hazardous atmosphere is detected during entry, remove employees immediately and re-evaluate the space to determine how the hazardous atmosphere developed. Take measures to protect employees before subsequent entry.

Section B: Reclassification of a permit space to a non-permit space

Section B may be used instead of the entry permit if all of the following conditions are Yes	Yes	No
The permit space poses no actual or potential atmospheric hazards.	☐	☐
All hazards within the space can be eliminated without entry into the space.	☐	☐
Employees have been informed or shown the actions taken to eliminate hazards.	☐	☐

Note: When permit-space entry is required to verify conditions, the permit-space program and entry permit must be used.

If hazards arise within or near the reclassified space, remove employees immediately and re-evaluate to determine whether it must be reclassified as a permit space.

☐ Alternate entry ☐ Reclassification Date: / /

Space location: _____ Space description: _____

Name of person making the determination: _____

Return this completed form to _____.

DAILY TRENCHING LOG

Date: _____ Signature: _____

Weather: _____ Project: _____

Location: _____
(Street and nearest cross-street)

1. Was One Call System Contacted: Yes _____ No _____ (Utility locations)
2. Protective system: Trench shield (Box) _____ Wood shoring _____ Sloping _____ Other _____
3. Purpose of trenching: Drainage _____ Water _____ Sewer _____ Gas _____ Other _____
4. Was visual soil tests made: Yes _____ No _____ If yes, what type? _____
5. Was Program soil test made: Yes _____ No _____ If yes, what type? _____
6. Type of soil: _____
7. Soil strength: _____
8. Surface encumbrances? Yes _____ No _____ If yes, what type? _____
(fences, utility poles, etc.)
9. Water conditions? Wet _____ Dry _____ Submerged _____
10. Hazardous atmosphere exist: Yes _____ No _____ If yes, follow confined space entry procedures policy, complete Confined Space Enter Permit, monitor for toxic gas(s).
11. Is trenching or excavation exposed to public vehicular traffic (exhaust emission): Yes _____ No_____ If yes, refer to confined space entry procedures, complete Confined Space Entry Permit, monitor for toxic gas(s).
12. Measurements of trench: Depth _____ Length _____ Width _____
13. Is ladder within 25 feet of all workers: Yes _____ No _____
14. Is excavated material stored 2 feet or more from edge of excavation: Yes _____ No _____
15. Are employees exposed to public vehicular traffic: Yes _____ No _____ (If yes, warning vests required)
16. Are other utilities protected: Yes _____ No _____ Not required _____ (Water, sewer, gas, or other structures)
17. Are sewer, or natural gas-lines exposed: Yes _____ No _____ If yes, refer to confined space entry procedures policy, complete confined space entry permit, monitor for toxic gas(s).
18. Periodic inspection: Yes _____ No _____ Last (date) _____
19. Did employees receive training in excavating: Yes _____ No _____

SELECTION OF PROTECTIVE SYSTEMS
(Appendix F to Subpart P)

Figure 1. Preliminary Decisions

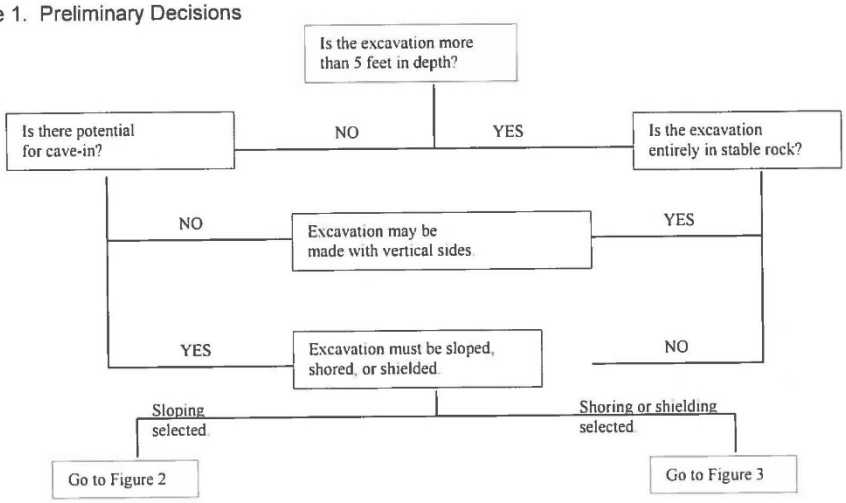


Figure 2. Sloping Options
Shielding Options

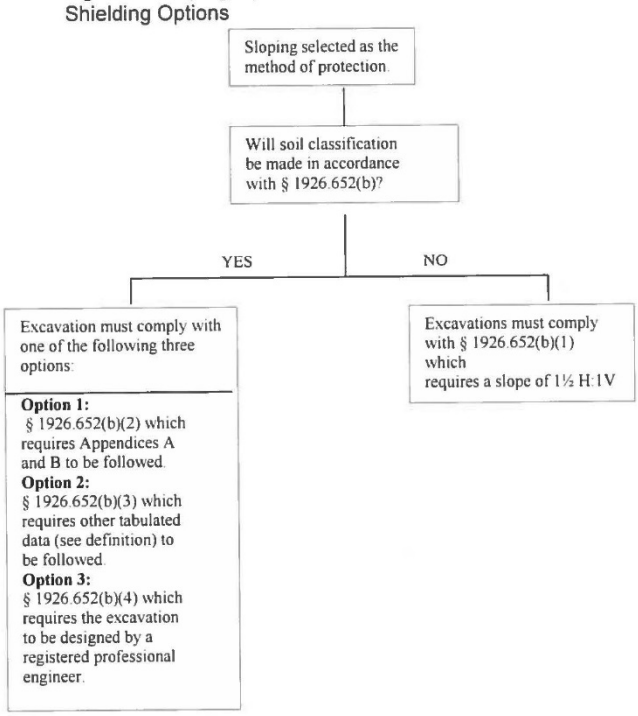
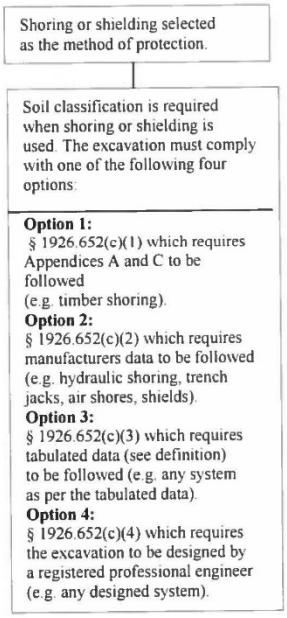


Figure 3. Shoring and



Masonry Safety Program

The purpose of this policy is to prevent and control the hazards associated with masonry construction operations. The respiratory protection policy applies to all FCI Construction operations and each FCI Masonry Division employee.

MASONRY SAFETY PROCEDURES

- Like all trades, Masonry employees wear standard personal protective equipment at the worksite. Appropriate work pants, work boots, and a sleeved shirt are to be worn. A hard hat and safety glasses are worn at all times at each jobsite.
- All protruding rebar, reinforcing steel, conduits and form stakes onto which employees could fall, must be guarded to eliminate the risk of impalement hazard. FCI provides a steel reinforced manufactured rebar caps to cover such impalement hazards.
- Blades of masonry saws must be protected with a semi-circular blade guard that provides at least 180-degrees of blade protection. Portable masonry saws (sometimes referred to as partner saws) must be controlled with two hands to control the blade as most partner saws free spin for some time when the throttle is released. While the blade continues to spin it can snag clothing, or bounce off of objects throwing the blade back towards the Operators body.
- Every effort is made to use wet cut methods when making cuts on the masonry saw. Wet sawing is important to minimize silica dust.
- A limited access zone (LAZ) must be established whenever a masonry wall is being built. The LAZ is established prior to the start of the construction of the wall. The LAZ is equal to the height of the wall to be construction plus four feet. The LAZ must run the entire length of the wall. The LAZ is established on the side of the wall which will be unscaffolded. Only those employees actively engaged in constructing the wall are permitted to enter the LAZ. The LAZ is to remain in place until the wall is adequately supported.
- Masonry walls over 8-feet in high must be adequately braced to prevent overturning and to prevent collapse. The bracing and limited access zone must remain in place until the wall attains adequate support strength, or until permanent supports are in place.
- A controlled access zone (CAZ) is established when Masons are laying overhand bricklaying (or block laying). Any workers reaching more than 10-inches below the walking or working surface must be protected by a guardrail system, safety net system or personal fall arrest system.

Concrete Construction Safety Program

PURPOSE

The purpose of this policy is to prevent and control the hazards associated with concrete construction operations.

SCOPE

This policy applies to all FCI Construction operations and each FCI Concrete Finishing Employee.

DEFINITIONS

Concrete Safety Procedures

- No loads shall be placed on any portion of a concrete structure unless a Structural Design Engineer has assured the weight bearing capacity of the structure.
- All rebar, upward directed conduit, piping and form stakes that could present a hazard of impalement to workers must be guarded with approved, metal reinforced rebar caps.
- If the concrete work involves post-tensioning systems imbedded into the concrete, only necessary personnel are allowed near the post tensioning jack. Signs and barriers will be placed in proximity of the jack to limit access to the tensioning area.
- No FCI Employees will ride a crane ball, concrete bucket, or any crane load.
- Fall protection systems such as guardrails will be provided, or personal fall protection will be worn by employees who are exposed to the risk of falling 6 or more feet.
- Power concrete troweling machines will be equipped with a deadman switch which will shut down the troweling machine when hand contact between the Concrete Finishing Employee and the troweling machine is broken.
- When concrete pumping is used for the placement of concrete, the pump shall have a 100% overload capacity designed into the discharge pipe supports. All compressed air hoses on concrete pumping systems will have positive fail-safe joint connectors on pressurized lines.
- Concrete buckets will be designed to prevent concrete from adhering onto the sides and top of the bucket. Concrete buckets will have a positive safety latch to prevent accidental dumping.
- Bull float handles, when used near electric sources, will be insulated.

- All form work installed will be built to support the load in all directions. Engineer/Architect drawings and specifications will be available to verify compliance with designed loads.
- Wire mesh will be carefully placed and monitored to prevent recoiling. Workers in involved with the placement of concrete will use high-step walking and special caution to prevent getting tangled and tripped by reinforcing mesh.
- Concrete forms will be provided with properly guarded and supported work platforms and maintained in vertically plumb positions. Jacks and vertical supports will be properly designed for the load and all components of the form maintained within the Engineer specified design tolerances. Jacks will have mechanical dogs or automatic holding devices incorporated as safety features. The safe rate of lift will be monitored and not exceeded.
- Forms will not be removed until the concrete has gained sufficient strength to support its weight and any imposed loads.
- Precast units will be properly supported to prevent overturning or collapse. Lifting inserts and embedded hardware will be designed to support at least 5 times the intended load. No one shall work under precast being lifted into place or tilted into place unless absolutely necessary for placement.
- Reinforcing steel will be supported to prevent overturning or collapse on walls, columns and vertical structures.
- Finish Concrete Employees will coordinate the procurement of engineering test data regarding the results of concrete strength testing. These test results will be verified as adequate as per the Design Engineers' specifications. Engineering Test Data incorporated into the Notice to Commence Steel Erection documents presented to the Steel Erector.

Heat Related Illnesses in Construction

When a person works in a hot environment, the body must get rid of excess heat to maintain a stable internal temperature. It does this mainly through circulating blood to the skin and through sweating.

When the air temperature is close to or warmer than normal body temperature, cooling of the body becomes more difficult. Blood circulated to the skin cannot lose its heat. Sweating then becomes the main way the body cools off. But sweating is effective only if the humidity level is low enough to allow evaporation, and if the fluids and salts that are lost are adequately replaced.

If the body cannot get rid of excess heat, it will store it. When this happens, the body's core temperature rises and the heart rate increases. As the body continues to store heat, the person begins to lose concentration and has difficulty focusing on a task, may become irritable or sick, and often loses the desire to drink. The next stage is most often fainting and even death if the person is not cooled down.

Excessive exposure to heat can cause a range of heat-related illnesses, from heat rash and heat cramps to heat exhaustion and heat stroke. Heat stroke can result in death and requires immediate medical attention.

Exposure to heat can also increase the risk of injuries because of sweaty palms, fogged-up safety glasses, dizziness, and burns from hot surfaces or steam.

The three progressively dangerous levels of heat illness they are Heat Cramps, Heat Exhaustion, and the often fatal Heat Stroke.

Heat Cramps are the most common heat related illness, causing cramps or muscle spasms in the arms, legs and stomach. Cramps are caused by not replacing water when a worker is sweating. First aid for heat cramps is to drink more water.

Heat Exhaustion is more serious than heat cramps, it happens when the temperature regulating system is overworked. Heat exhaustion occurs when the blood vessels and capillaries which enlarge to help cool the blood collapse from the loss of body fluids and minerals. Symptoms include headache, heavy sweating, thirst, impaired judgement, cool moist skin, weak pulse and rapid heartbeat. First aid for heat exhaustion is to find shade or a cooler location.

Heat stroke is the most serious kind of heat related illness. A heat stroke victim has lost the ability to cool their body. It is vital to quickly lower the body temperature of a heat stroke victim. A heat stroke is extremely serious and often fatal. The symptoms of heat stroke are high body temperature (more than 103 degrees F) hot red or flushed dry skin, rapid pulse, difficulty breathing and constricted pupils. Later symptoms include bizarre behavior, convulsions, and loss of consciousness. Your quick action can save the life of a coworker who is experiencing a heat stroke. Immediately call 911 if you suspect that a coworker is suffering from heat stroke. Cool them immediately. Pour water on them. Fan them. COOL THEM AND COOL THEM

QUICK! Never force water or liquids into the mouth of an unconscious or non-responsive person.

Supervisors will be trained in preventing heat-related illnesses prior to supervising employees and know the emergency response procedures outlined above in Heat Stroke. All employees must know how to identify the symptoms of each kind of heat related illness: Heat Cramps and Heat Exhaustion. Provide cooling immediately if you suspect a coworker is suffering from heat exhaustion or if they are progressing into the sometimes fatal heat stroke. Personal factors such as not being acclimated to the heat whether indoors or outdoors, metabolic heat related to the type of work to be done, and environmental factors.

Environmental factors are include the following: high temperature and humidity, radiant heat sources, contact with hot objects, direct sun exposure (with no shade), limited air movement (no breeze, wind or ventilation). The heat index, which takes both temperature and humidity into account, is a useful tool for outdoor workers.

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

Achieve heat acclimation on the job. As your body builds up heat when you work, sweat is released onto your skin to cool your body through evaporative cooling. Workers who are ill, out of shape, or not used-to high temperatures and humidity may not cool-off fast enough. When you get used-to something you get *acclimated* to it. Employees who are not acclimated to physical work in a high temperature environment have a greater risk of suffering from heat related illness. Heat acclimation is achieved by gradually increasing physical activity in hot weather over

a period of days and weeks.

Heat acclimation occurs when repeated heat exposures are stressful enough to raise the body temperature and promote heavy sweating. Physical work in a hot environment is needed to achieve full heat acclimation. Workers who perform only light or brief physical work will achieve the level of heat acclimation needed to perform that task. During more strenuous or prolonged tasks, additional acclimation and improved physical fitness occurs.

Complete heat acclimatization requires up to 14 days with a minimum daily heat exposure of about two hours. The benefits of heat acclimatization will be retained for about 1 week and then wear-off with about 75 percent loss after 3 weeks of no hot work. A day or two of cool weather will not interfere with acclimation to hot weather. During acclimation, the systems of the body adapt to heat exposure at varying rates. During the first 5 days an improved control of the heart and circulatory system occurs. During the next 8 days, the body goes through a body core temperature adjustment, the body chemistry changes as it adapts to conserve minerals normally lost through sweat and urine. Sweating response becomes earlier and greater. Better cooling is also achieved as blood flows closer to the skin. Benefits of heat acclimatization include improved comfort, improved exercise performance, reduced core temperature, earlier and greater sweating, earlier skin blood flow, lower body heat production, lower heart rate, improved thirst, reduced salt loses, and improved organ protection. Watch out for new workers who may not have had much exposure to heat and physical work.

To avoid heat related illnesses at work: Become acclimated. Wear light-colored clothing to reflect some of the solar heat. Drink small amounts of water frequently throughout the day. Wear loose-fitting, breathable clothing. Cotton is good. Eat smaller meals before work activity. Avoid caffeine and alcohol or large amounts of sugar. Respirators, coveralls, tool belts, and harnesses can increase heat stress. Access to shade will be provided (e.g. job trailer, in building, at water station) and cycles of work/rest.

Find out from your doctor if your medicines or a health condition you have could interfere with your normal ability to cool yourself while working in the heat.

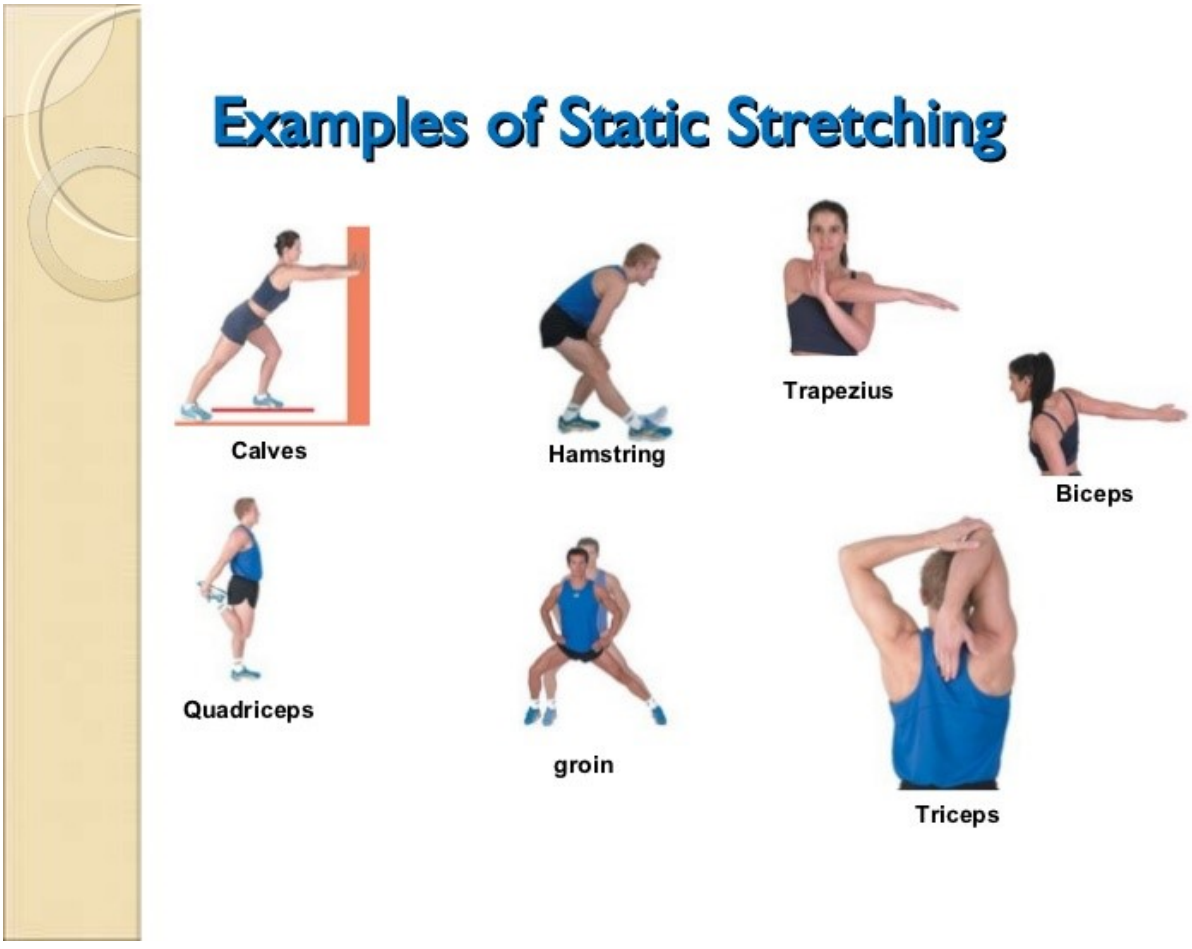
Share your knowledge about heat related illness with your family. Children and teens, especially those involved in sports activities (think Summer football practice) are especially vulnerable to heat related illnesses. Always protect infants from excessive heat exposure. Children and older folks are much more vulnerable to heat stress. Never leave a child or pet in an unattended vehicle during warm weather.

Thank you for looking after the safety of yourself and your co-workers!

Lifting, Twisting, Reaching

This training is for all employees to avoid overexertion and cumulative trauma when lifting or handling heavy objects or light objects repeatedly. The training will be provided annually although supervision will ensure all employees are directed to lift properly and the workplace is congruent to safe lifting practices.

Warm-up with some light exercise and stretching for a few minutes before you begin moving materials will decrease the chance that you sustain a lifting strain or sprain. Walking to the jobsite and getting ready for work provides a warm up for most employees. Warm-up exercises and stretching reduce the chance of injury for both athletes and construction workers.



PROPER LIFTING TECHNIQUES

Move items close to your body and use your legs when lifting an item from a low location.

Store and place materials that need to be manually lifted and transported at "power zone" height, about mid-thigh to mid-chest.

Minimize bending and reaching by placing heavy objects on shelves, tables, or racks. For example, stack spools on pallets to raise them into the power zone.

Avoid twisting, especially when bending forward while lifting. Turn by moving the feet rather than twisting the torso.

Keep your elbows close to your body and keep the load as close to your body as possible.

Keep the vertical distance of lifts between mid-thigh and shoulder height. Do not start a lift below mid-thigh height nor end the lift above shoulder height. Lifting from below waist height puts stress on legs, knees, and back. Lifting above shoulder height puts stress on the upper back, shoulders, and arms.

Employees shall use a lull or forklift to lift heavy or awkward loads; use pallet jack or buggy when these tools provide access to restricted areas or as additional resource to keep from lifting/handling more than necessary. Keep your body clear of pinch point when using a lift or lull. Secure the load to prevent the load from shifting and falling when lifted.

LIFTING HEAVY ITEMS CAN CAUSE INJURY IN THE WORKPLACE

Heavy materials that must be manually lifted should be placed at about mid-thigh to mid-chest height before lifting. This height is called the power zone because it allows you to use maximum muscle strength without extending your reach and increasing the strain and leverage on your joints and tendons. When workers lift in their “power zone” they are less likely to suffer from back sprains, muscle pulls, and hernia injuries caused by lifting heavy objects. Items weighing over 50lbs. and awkward size items should be lifted by two or more people, do not be embarrassed to ask for help during a lift of heavy or awkward objects.

Lift as a team taking time to talk about how you intend to lift, carry and secure the work. A wrong move with a heavy or awkward load can transfer the full load to one of the movers, force an awkward position and cause a strain or sprain. Get a good footing-plant your feet well apart and squat slightly to lift. Get a good grip before lifting. Bend from your knees, not your waist; keep your back as straight as possible. Keep the load close to your body. Keeping your elbows close to your body will keep the load closer to your body. Know what the weight of the object is before attempting the lift. For example a bucket of bolts on a flatbed truck is a large weight in a small package, the small size may look like an easy lift, until the weight is pulled off the truck putting a 100+ pound unexpected load onto an unprepared worker. Share the load.

Employees are provided lull, forklifts, pallet jacks, buggys to lift heavy or awkward loads. Ladders, boom lifts, scissor lifts are provided to help an employee gain access to the work to be completed. These tools provide employees relief in handling loads

and in getting the load in the “power zone” or reducing the exposure for employee’s manual lifting/handling. Additional engineering controls such as hoists and materials platforms are provided and used daily by supervision in an effort to reduce exposure.

TWISTING AND REACHING, EVEN WITH A LIGHT WEIGHT CAUSES STRAIN ON MUSCLES AND JOINTS

Plan ahead or ask for advice when lifting or placing in a way that causes extended reaching or twisting, for example when installing sheet goods on ceilings and walls. Avoid using an extended reach when moving a load; extended reaches put more strain on your muscles and joints. Pushing or pulling when your arms are fully extended causes much greater stress on your body because the longer the lever the greater the force placed upon your muscles and joints.

Just as a Lull has a much lower lift capacity when the boom is extended, people have a much lower lift capacity when their arms are extended. Never twist with a load, this is one of the worst things you can do to your back. When you combine reaching and twisting you dramatically increase your chance of a muscle or joint injury. Move your feet rather than twisting your torso. Ask a coworker to help lift heavy and awkward objects.

INCIDENT INVESTIGATION

All injuries and illnesses associated with handling material/improper lifting will be investigated. The purpose of the investigation is to incorporate findings into work procedures to avoid future injuries.

ERGONOMIC ASSESSMENTS AND JOB AUDITS

The Safety Director will conduct ergonomic assessments in an effort to identify high risk job tasks which need to be addressed. The assessments will be conducted periodically.

Supervision may request an assessment be conducted per their observation of high risk activity. The findings will be reviewed by supervision, project management, and executive officer in an effort to determine a safer work practice.

Supervisors onsite will review manual lifting practices per the job audits. As the supervisor directs work on a daily basis, it is their responsibility to consider use of mechanical equipment or other means of minimizing exposure. The General Superintendent and/or Safety Director will be a resource in an effort to provide remedy for exposure.

SUMMARY

1) Sprains and strains can be avoided.

2) Move around a little, get some blood flowing, *before* you lift, it reduces your chance of injury.

3) Test the weight of an object before attempting the lift. Ask for help when lifting heavy objects.

5) Lifting from an awkward position can lead to more injury. Objects that are too high, too low, or placed where an “extended reach” is needed cause more physical strain.

6) Never twist with a load, this is one of the worst things you can do to your back. When you combine reaching and twisting, you dramatically increase your chance of a muscle or joint injury. Move your feet rather than twisting your torso.

7) An uneven walking surface can cause additional twisting and torsion strain to your muscles and joints as you are jarred by the uneven surface. Make sure the area around you is clear so you won’t trip over anything or slip on an ice covered or slippery surface.

8) Wear shoes or boots with non-slip soles. Smooth soled boots can be very slippery on ice covered and slick surfaces.

9) Plan ahead or ask for advice when lifting or placing in a way that causes extended reaching or twisting, for example when installing sheet goods on ceilings and walls. **Lightweight sheet goods and panels can cause serious strain, especially when placing panels overhead using extended reach. Avoid using an extended reach when moving a load; extended reaches put more strain on your muscles and joints.**

10) Slipping or losing your footing on an ice or snow covered surfaces can lead to strain, sprain and lower back injuries. Slipping AND falling can result in bone fractures, head injuries, and other serious injuries in addition to strains and sprains. Older folks are more likely to break bones when they fall. **Continually remind your parents and elderly loved ones to be extra cautious when travelling over snow and ice.**

Vacuums

PROPER MAINTENANCE AND CARE TO INSURE THAT HILTI VC 125-6 WORKS

1. Page 2: Always activate FILTER-cleaning system when vacuuming hazardous dust.

2. Page 2: Clean water leveling limit device regularly with brush.

3. Page 6: 125 CFM

4. Page 8: Never use vacuum without a FILTER. A regular FILTER should be used when vacuum is used with Tool. If vacuuming without tool (for example vacuuming out holes containing silica) a HEPA FILTER is to be used.

5. Page 8: If possible use separate FILTER for wet applications

6. Page 9: Press FILTER cleaning button 5 times. When switching vacuum on press FILTER cleaning button 5 times. Increase life of FILTER by pressing cleaning button every 5-10 mins. *VC 125-6 doesn't have auto FILTER cleaning system

7. Page 10: Check and clean level cut out sensors inside waste material container with brush.

8. As stated in #3, there should be good vacuum suction. If there is no vacuum/suction then please check troubleshooting section of operator's manual or call the Shop to speak with Tony or David about troubleshooting or replacement. We do not want to blow dust, so please maintain this tool which is taking care of you.

PROPER MAINTENANCE AND CARE TO INSURE THAT HILTI VC 150-10XE WORK

1. Page 3: Never deactivate filter-cleaning system when picking up hazardous dust.

2. Page 6: Filter cleaning system is active LED lights on. Filter cleaning system functions only when suction hose is connected. Filter cleaning system has it's own On/Off switch. Filter is cleaned by a blast of air (pulsating noise)

3. Page 7: Rated at 152 CFM

4. Page 9: Check to ensure powertool is off before plugging into outlet. Vacuum cleaner continues to run for a short time after switching off power tool, to clean hose of debris.

5. Page 10: Always use with a filter. If possible, use a separate filter element for wet applications. Make sure filter is dry when vacuuming dry material.

6. Page 11: Do not use compressed air to clean filter. Replace filter at least every 6 months. Filter will have to be replaced more often if heavily used.

7. Page 13: Vacuum has water level shut off. May have to clean sensors if vacuum will not run or switch off quickly after starting. Vacuum motor has overheating protection cut-out. Let motor cool and clean the vents.

HILTI

VC 125-6
VC 125-9

English

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1 Information about the documentation

1.1 About this documentation

- Read this documentation before initial operation or use. This is a prerequisite for safe, trouble-free handling and use of the product.
- Observe the safety instructions and warnings in this documentation and on the product.
- Always keep the operating instructions with the product and make sure that the operating instructions are with the product when it is given to other persons.

1.2 Explanation of symbols used

1.2.1 Warnings

Warnings alert persons to hazards that may occur when handling or using the product. The following signal words are used in combination with a symbol:

⚠	**DANGER!** Draws attention to an imminent hazard that will lead to serious personal injury or fatality.
⚠	**WARNING!** Draws attention to a potential hazard that could lead to serious personal injury or fatality.
⚠	**CAUTION!** Draws attention to a potentially dangerous situation that could lead to minor personal injury or material damage.

1.2.2 Symbols in the documentation

The following symbols are used in this document:

	Read the operating instructions before use
	Instructions for use and other useful information

1.2.3 Symbols in the illustrations

The following symbols are used in illustrations:

2	These numbers refer to the corresponding illustrations found at the beginning of these operating instructions.
3	The numbering reflects the sequence of operations shown in the illustrations and may deviate from the steps described in the text.
(11)	Item reference numbers are used in the **overview illustration** and refer to the numbers used in the key in the **product overview** section.
	This symbol is intended to draw special attention to certain points when handling the product.

1.3 Product information

Hilti products are designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. This personnel must be informed of any particular hazards that may be encountered. The product and its ancillary equipment can present hazards if used incorrectly by untrained personnel or if used not in accordance with the intended use.

The type designation and serial number are stated on the rating plate.

- Write down the serial number in the table below. You will be required to state the product details when contacting Hilti Service or your local Hilti organization to inquire about the product.

Product information

Wet / dry vacuum cleaner	VC 125-6 | VC 125-9
Generation	01
Serial no.	

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1.4 Declaration of conformity

We declare, on our sole responsibility, that the product described here complies with the applicable directives and standards. A copy of the declaration issued by the certification department can be found at the end of this documentation.

The technical documentation is filed and stored here:

Hilti Entwicklungsgesellschaft mbH | Tool Certification | Hiltistrasse 6 | 86916 Kaufering, Germany

2 Safety

2.1 Important safety instructions

WARNING! READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE. Failure to follow all the instructions listed below may result in electric shock, fire and/or serious injury. KEEP THESE INSTRUCTIONS IN A SAFE PLACE.

2.2 General safety instructions

In addition to the safety instructions given in the various sections of these operating instructions, the following points must be strictly observed at all times.

- **Read all the instructions.** Failure to follow all the instructions listed below may result in electric shock, fire and/or serious injury.
- If the appliance is used in conjunction with an electric tool, read and follow the operating instructions for the electric tool and all the warnings.
- Modification of the appliance is not permitted.
- Use the right appliance for the job. Do not use the appliance for purposes for which it was not intended. Use it only as directed and when in faultless condition.
- Before beginning work with the appliance, find out how to operate it correctly and about any hazards associated with the materials it will be picking up and how these materials can be disposed of.
- Take the influences of the surrounding area into account. Do not use the appliance where there is a risk of fire or explosion.
- The appliance may only be used by persons who are familiar with it, have been trained on how to use it safely and who understand the resulting hazards. The appliance is not intended for use by children. Children must be supervised in order to ensure that they don't play with the appliance.
- Store appliances in a secure place when not in use. When not in use, appliances must be stored in a dry, high place or locked away out of reach of children.

2.3 Personal safety

- Stay alert, watch what you are doing and use common sense when operating the product. Do not use the vacuum cleaner while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating the appliance may result in serious personal injury.
- The user and any other persons in the vicinity must wear suitable eye protection, a hard hat, ear protection, protective gloves, safety footwear and breathing protection while the appliance is in use or while maintenance work on it is being carried out.
- Make sure that the vacuum cleaner cannot run away or fall down.
- If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.

2.4 Use and care of the appliance

- Never leave the appliance unattended.
- Activate the filter cleaning system when picking up hazardous dusts, especially when the appliance is used in conjunction with electric tools that generate dust.
- Protect the appliance from frost.
- Clean the water level limiting device regularly with a brush, in accordance with the instructions, and check it for signs of damage.
- When fitting the top section of the vacuum cleaner, take care to avoid pinching your fingers or damaging the supply cord.
- Check the appliance and its accessories for any damage. Guards, safety devices and any slightly damaged parts must be checked carefully to ensure that they function faultlessly and as intended. Check that moving parts function faultlessly, without sticking, and that no parts are damaged. In order to ensure

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faultless operation of the appliance, all parts must be fitted correctly and must meet the necessary requirements.

- Have the appliance serviced by a qualified repair person using only identical replacement parts.
- Always lead the supply cord, the extension cord and the suction hose away to the rear when working.
- Always unplug the supply cord from the power outlet when the appliance is not in use (during breaks), before cleaning and maintenance and before changing the filter or accessories. This prevents unintentional starting of the appliance.
- Never pull the vacuum cleaner by the supply cord to a new working position. Do not run the wheels of the vacuum cleaner over the supply cord.
- Do not transport the appliance by crane.

2.5 Electrical safety

- The plug on the supply cord of the appliance must match the outlet. Do not change the plug in any way. Do not use adapter plugs with earthed (grounded) appliances. Unmodified plugs and matching outlets reduce risk of electric shock.
- Insert the plug in a suitable earthed/grounded power outlet which has been correctly and safely installed and is in compliance with local regulations. If you are in doubt about the effectiveness of the power outlet's earth/ground connection, have it checked by a qualified specialist.
- Avoid body contact with earthed or grounded surfaces such as pipes, radiators, cookers, stoves and refrigerators. There is an increased risk of electric shock if your body is grounded.
- Do not expose the appliance to rain or wet conditions.
- Check to ensure that the supply cord does not lie in a puddle of water.
- Check the appliance's supply cord at regular intervals and have it replaced by **Hilti** Service if damage is found. Check extension cords at regular intervals and replace them if found to be damaged.
- Do not touch the supply cord or extension cord if they are damaged while working. Pull the plug out of the power outlet.
- The electric supply cord may be replaced only with a cord of the type specified in the operating instructions.
- Do not abuse the cord. Never use the cord to carry the appliance or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts.
- When operating an electric appliance outdoors, use only extension cords of a type suitable for outdoor use. Use of an extension cord suitable for outdoor use reduces the risk of electric shock.
- In the event of an interruption in the electric supply, switch the appliance off and unplug it from the power outlet.
- Use the power outlet on the appliance only for the purposes described in the operating instructions.
- Never operate the appliance when it is dirty or wet. Dust (especially dust from conductive materials) or dampness on the surface of the appliance can, under unfavorable conditions, lead to electric shock. Have dirtied or dusty appliances checked at regular intervals by **Hilti** Service, especially if they are used frequently for working on conductive materials.
- If use of the appliance in a damp environment cannot be avoided, use a ground fault circuit interrupter.

2.6 Workplace

- Ensure that the workplace is well lit.
- Ensure that the workplace is well ventilated. Exposure to dust at a poorly ventilated workplace may result in damage to the health.
- Keep the workplace tidy. Objects which could cause injury should be removed from the working area.
- Do not operate the appliance in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Electric appliances cause sparks which may ignite the dust or fumes.
- Use extra care when working on stairs.

2.7 The material picked up

- Do not use the appliance to pick up flammable or explosive dusts (magnesium or aluminum dust etc.) or dusts that present a health hazard. Do not use the appliance to pick up materials hotter than 60°C (140°F), (e.g. glowing cigarette ends, hot ash).
- Do not use the appliance to pick up flammable, explosive or aggressive liquids (coolants and lubricants, gasoline, solvents, acids (pH < 5), alkalies (pH > 12.5), etc.).
- Do not pick up objects or materials that could cause injury by piercing through the dust bag (e.g. pointed or sharp objects).
- Switch the appliance off immediately if foam or liquids escape from it.

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- Wear protective gloves when using the appliance to pick up hot materials at temperatures of up to 60°C (140°F).
- When working with mineral drilling slurry, wear protective clothing and avoid skin contact with the slurry (pH > 9: caustic).
- Avoid contact with alkaline or acidic liquids. If contact accidentally occurs, rinse with water. In the event of the liquid coming into contact with the eyes, rinse the eyes with plenty of water and consult a doctor.

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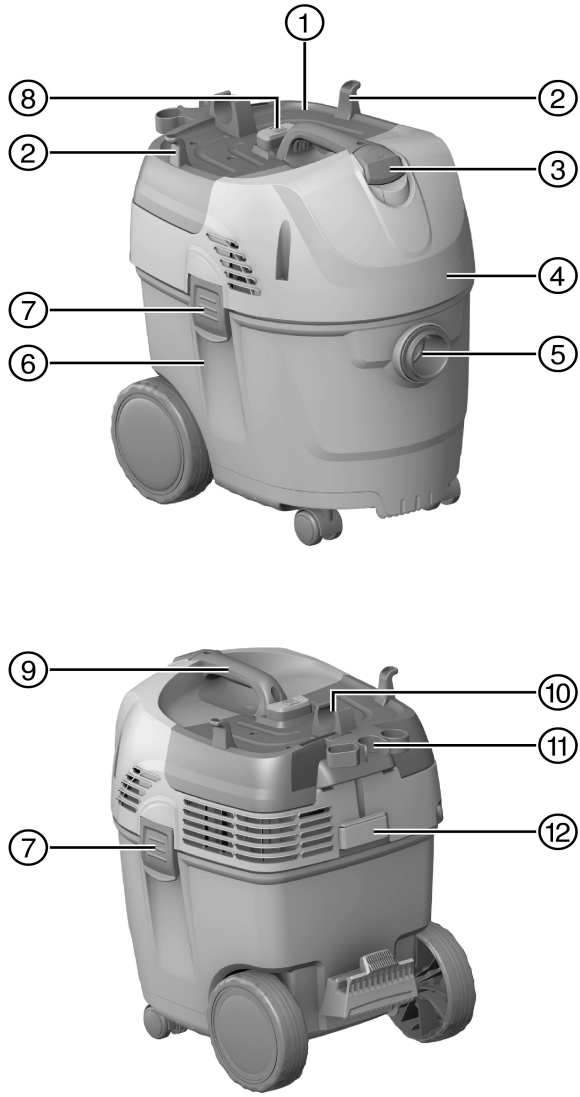
3 Description

3.1 Product overview



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① Filter cover
② Supply cord hook
③ On/off button
④ Top section
⑤ Hose socket
⑥ Waste material container
⑦ Catch
⑧ Filter cleaning button
⑨ Grip
⑩ Hose holder
⑪ Accessory holder
⑫ Catch for filter cover

3.2 Use of the product as directed

The products described here are industrial vacuum cleaners designed for universal, commercial use. They can be used for wet or dry applications.

Hilti products are designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. The product and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

Use of the product to clean down persons or animals is not permissible. Underwater use is not permissible.

- Before beginning work with the product, find out how to operate it correctly and about any hazards associated with the materials you will be working with and how these materials can be disposed of safely.
- Do not use the product for continuous, stationary operation in automatic or semi-automatic systems.
- To reduce the risk of injury, use only genuine **Hilti** tools and accessories.
- Use an antistatic suction hose in order to avoid electrostatic effects.
- Do not pick up objects or materials that could cause injury by piercing through the dust bag (e.g. pointed or sharp objects).
- Do not stand on the product (do not use it as a substitute for a ladder).

This product is suitable for the following applications in commercial use:

- Collecting large quantities of dust from **Hilti** diamond grinders, diamond cutters, rotary hammers and core drilling machines using dry-cutting core bits.
- Picking up drilling slurry (mineral materials) with **Hilti** diamond core bits or **Hilti** diamond saws and liquids up to a temperature of < 60 °C (140 °F).
- Picking up oil or liquid substances with a temperature of up to < 60 °C (140 °F).
- Wet and/or dry cleaning of wall and floor surfaces.

3.3 Items supplied

Wet/dry vacuum cleaner incl. filter element, suction hose complete with hose connector (electrically conductive), hose coupling and tapered adapter, operating instructions.

Other system products approved for use with this product can be found at your local **Hilti** Center or online at: **www.hilti.com**

4 Technical data

Note
For details of the rated voltage, current, frequency and/or input power, please refer to the appliance's country-specific type identification plate.

When powered by a generator or transformer, the generator or transformer's power output must be at least twice the rated input power shown on the type identification plate on the appliance. The operating voltage of the transformer or generator must always be within +5% and -15% of the rated voltage of the appliance.

	VC 125-6	**VC 125-9**
Weight	24 lb (11 kg)	25.4 lb (11.5 kg)
Mains connection (type)	SJTW 3/16 AWG	SJTW 3/16 AWG
Maximum volumetric flow rate (air)	125 CFM (58.99 ℓ/s)	125 CFM (58.99 ℓ/s)
Container capacity	7 liq. gal_{US} (25 ℓ)	9 liq. gal_{US} (35 ℓ)
Water capacity	3 liq. gal_{US} (13 ℓ)	7 liq. gal_{US} (26 ℓ)

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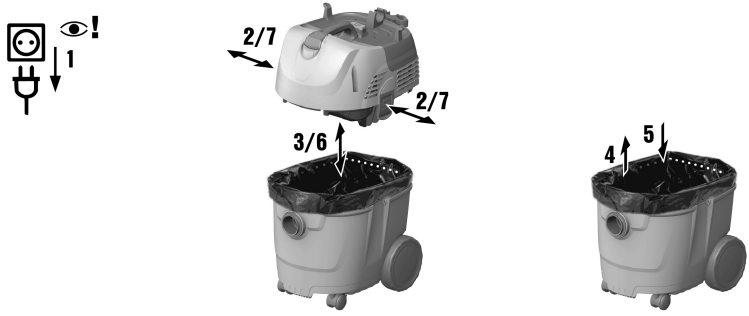
	VC 125-6	VC 125-9
Suction hose connector (C-DN/C-ID)	1.4 in (35 mm)	1.4 in (35 mm)
Vacuum (max.)	3.2 psi (220 mbar)	3.2 psi (220 mbar)
Ambient temperature (max.)	104 °F (40 °C)	104 °F (40 °C)
Protection class	I	I
Protection class	IPX4	IPX4

5 Before use

5.1 Operating the appliance for the first time

1. Open the two catches.
2. Lift the vacuum cleaner top section away from the waste material container.
3. Remove the accessories and packaging from the waste material container.
4. Fit the vacuum cleaner top section onto the waste material container and close the two catches.
5. Check to ensure that the vacuum cleaner top section is fitted correctly and secured.
6. Connect the suction hose to the appliance.

5.2 Fitting/changing a plastic dust bag



1. Open the two catches.
2. Lift the vacuum cleaner top section away from the waste material container.
3. Fit a new plastic dust bag (see instructions printed on it) in the waste material container.
4. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

6 Operation

DANGER

Electrical hazards. Fatal or serious injury may result if the vacuum cleaner is not correctly connected to the electric supply.

- Connect the vacuum cleaner only to a properly earthed/grounded power source.

WARNING

Risk of injury. Damage to the filter system may allow harmful dust (health hazard) to escape.

- In an emergency (e.g. filter ruptured), switch the vacuum cleaner off, unplug the supply cord from the power outlet and have the vacuum cleaner checked by a trained and qualified person before further use.

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Note
Make sure that the vacuum cleaner cannot run away or fall down.

6.1 Picking up dry dust

Note
Before picking up dry dust, especially dust from mineral materials, always check to ensure that the correct dust bag is fitted in the container. The material picked up by the vacuum cleaner can then be disposed of cleanly and easily.

CAUTION
Risk of injury. Hazardous material that has been picked up may escape if a filter element is not used.
- ▸ Never use the appliance without a filter element.

- ▸ Check that the filter element is dry and that the correct type of dust bag is fitted.

6.2 Picking up liquids

CAUTION
Risk of injury. Hazardous material that has been picked up may escape if a filter element is not used.
- ▸ Never use the appliance without a filter element.

1. Check the container level monitoring system. → page 10
2. If possible, use a separate filter element for wet applications.
3. After picking up liquids, open the two catches.
4. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface so that the filter element can dry.
5. Empty the waste material container and use a water hose to rinse it out. Use a brush to clean the electrodes and clean the filter element, after allowing it to dry, by wiping it off with your hand.
6. Allow the waste material container to dry.

6.3 After use of the vacuum cleaner

1. Switch the electric tool off.
2. Switch the appliance off.
3. Unplug the vacuum cleaner's supply cord from the power outlet.
4. Coil up the supply cord and hang it on the hook.
5. Empty the container and clean the appliance by wiping it with a damp cloth.
6. Coil up the suction hose.
7. Store the vacuum cleaner in a secure, dry place where it is inaccessible to unauthorized users.

6.4 Emptying dry dust from the waste material container

1. Pull the plug out of the power outlet.
2. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
3. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

6.5 Emptying the waste material container when no dust bag is fitted (picking up liquids)

1. Disconnect the supply cord plug from the power outlet.
2. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
3. Grip the waste material container by the recess provided and empty it by tipping out the contents.
4. Clean the edge of the waste material container with a cloth.
5. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

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7 Care, maintenance, transport and storage

7.1 Care and maintenance

WARNING
Danger of electric shock! Carrying out care and maintenance while the supply cord is connected to the power outlet presents a risk of serious injuries including burns.

- ▸ Always unplug the supply cord before carrying out all care and maintenance tasks.

Care

- Carefully remove stubborn dirt from the tool.
- Clean the air vents carefully with a dry brush.
- Use only a slightly damp cloth to clean the casing. Do not use cleaning agents containing silicone as they can attack the plastic parts.

Maintenance

WARNING
Danger of electric shock! Improper repairs to electrical components may lead to serious injuries including burns.

- ▸ Repairs to the electrical section of the tool or appliance may be carried out only by trained electrical specialists.

- At regular intervals, check all visible parts and the controls for signs of damage and make sure that they all function correctly.
- Do not operate the power tool if signs of damage are found or if parts malfunction. Have damage repaired immediately by **Hilti** Service.
- After cleaning and maintenance, refit all guards or protective devices and check that they function correctly.

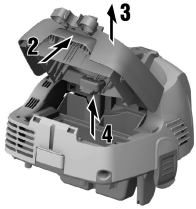
Note
To help ensure safe and reliable operation, use only genuine Hilti spare parts and consumables. Spare parts, consumables and accessories approved by Hilti for use with the product can be found at your local **Hilti** Center or online at: **www.hilti.com**

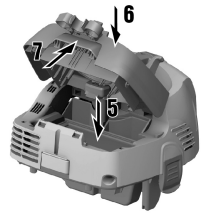
7.2 Activating the filter cleaning system

1. Switch the appliance on.
2. Press the filter cleaning button 5 times.

Note
To increase the life of the filter, press the filter cleaning button every 5 to 10 minutes.

7.3 Fitting/changing the filter element





1. Disconnect the supply cord plug from the power outlet.

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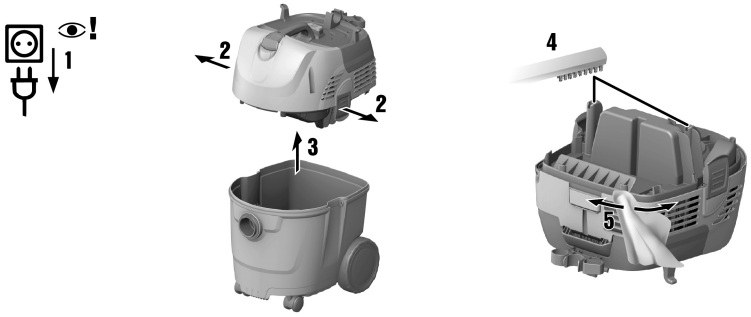
2. Open the filter cover catches.
3. Open the filter cover.
4. Carefully remove the filter element, gripping it at the areas provided in the holder.
5. Clean the sealing surface with a cloth.
6. Fit the new filter element.
7. Close the filter cover by flipping the cover catch forward.
8. Close the filter cover catch.

7.4 Checking the container level monitoring system



1. Make sure that the vacuum cleaner cannot run away or fall down.
2. Pull the plug out of the power outlet.
3. Open the two catches.
4. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
5. Check the cut-out contacts and clean them with a brush if necessary (if dirty).
6. Check the seal at the vacuum cleaner top section and clean it with a cloth if necessary.
7. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

7.5 Checks after cleaning and maintenance

1. After cleaning or carrying out maintenance, check that the vacuum cleaner is assembled correctly and that it functions faultlessly.
2. Test each of the functions.

7.6 Transport

Do not carry the appliance when it is full of waste material.

The appliance may not be lifted directly by crane.

- Remove the power conditioner (if applicable) or loose accessory tools from the holder.
- Empty the appliance before carrying it to another location.
- Do not tip the appliance or transport it lying on its side after using it to pick up liquids.
- Use the tapered adapter to connect both ends of the hose together conveniently for transport.

7.7 Storage

- Store the vacuum cleaner in a secure, dry place where it is inaccessible to unauthorized users.

8 Troubleshooting

If the trouble you are experiencing is not listed in this table or you are unable to remedy the problem by yourself, please contact **Hilti** Service.

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8.1 Troubleshooting

Trouble or fault	Possible cause	Action to be taken
The vacuum turbine doesn't start.	No electric power.	▸ Check the power outlet and fuse.
	The electrodes are dirty.	▸ Clean the electrodes.
The vacuum turbine switches itself off.	The container is full.	▸ Empty the container.
The vacuum turbine doesn't start after cleaning the waste material container.	The automatic cut-out is active.	▸ Switch the appliance off. ▸ Wait 5 seconds. ▸ Switch the appliance on.
	The electrodes are dirty.	▸ Clean the electrodes.
Suction power drops.	Remove the filter cover.	▸ Close the filter cover.
	The filter element is clogged.	▸ Press the filter cleaning button 5 times. → page 9
	The suction nozzle, tube, hose or the filter are blocked.	▸ Remove the blockage.
	The filter is clogged.	▸ Change the filter.
Dust is blown out of the appliance.	The filter is fitted incorrectly.	▸ Change the filter.

9 Disposal

Most of the materials from which **Hilti** tools and appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, your old tools, machines or appliances can be returned to **Hilti** for recycling. Ask **Hilti** Service or your Hilti representative for further information.

10 Manufacturer's warranty

▸ Please contact your local **Hilti** representative if you have questions about the warranty conditions.

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This Product is Certified
Ce produit est homologué
Producto homologado por
Este produto está registrado

Hilti Corporation
LI-9494 Schaan
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Fax: +423 / 234 29 65
www.hilti.com

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20170302

HILTI

VC 150-6 X
VC 150-6 XE
VC 150-10 X
VC 150-10 XE

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Printed: 22.02.2017 | Doc-Nr: PUB / 5334128 / 000 / 00

1 Information about the documentation

1.1 About this documentation

- Read this documentation before initial operation or use. This is a prerequisite for safe, trouble-free handling and use of the product.
- Observe the safety instructions and warnings in this documentation and on the product.
- Always keep the operating instructions with the product and make sure that the operating instructions are with the product when it is given to other persons.

1.2 Explanation of symbols used

1.2.1 Warnings

Warnings alert persons to hazards that may occur when handling or using the product. The following signal words are used in combination with a symbol:

⚠	**DANGER!** Draws attention to an imminent hazard that will lead to serious personal injury or fatality.
⚠	**WARNING!** Draws attention to a potential hazard that could lead to serious personal injury or fatality.
⚠	**CAUTION!** Draws attention to a potentially dangerous situation that could lead to minor personal injury or material damage.

1.2.2 Symbols in the documentation

The following symbols are used in this document:

	Read the operating instructions before use
	Instructions for use and other useful information

1.2.3 Symbols in the illustrations

The following symbols are used in illustrations:

2	These numbers refer to the corresponding illustrations found at the beginning of these operating instructions.
3	The numbering reflects the sequence of operations shown in the illustrations and may deviate from the steps described in the text.
(11)	Item reference numbers are used in the **overview illustration** and refer to the numbers used in the key in the **product overview** section.
	This symbol is intended to draw special attention to certain points when handling the product.

1.3 Product-dependent symbols

1.3.1 Symbols on the product

The following symbols are used on the product:

	Warning: hot surface
	Transport by crane is not permissible.

1.4 Product information

Hilti products are designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. This personnel must be informed of any particular hazards that may be encountered. The product and its ancillary equipment can present hazards if used incorrectly by untrained personnel or if used not in accordance with the intended use.

The type designation and serial number are stated on the rating plate.

- Write down the serial number in the table below. You will be required to state the product details when contacting Hilti Service or your local Hilti organization to inquire about the product.

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Product information

Wet / dry vacuum cleaner	VC 150-6 XE
Generation	01
Serial no.	

Product information

Wet / dry vacuum cleaner	VC 150-6 | VC 150-10
Generation	02
Serial no.	

Product information

Wet / dry vacuum cleaner	VC 150-10 XE
Generation	03
Serial no.	

1.5 Declaration of conformity

We declare, on our sole responsibility, that the product described here complies with the applicable directives and standards. A copy of the declaration issued by the certification department can be found at the end of this documentation.

The technical documentation is filed and stored here:

Hilti Entwicklungsgesellschaft mbH | Tool Certification | Hiltistrasse 6 | 86916 Kaufering, Germany

2 Safety

2.1 Important safety instructions

WARNING! READ ALL INSTRUCTIONS BEFORE USING THIS APPLIANCE. Failure to follow all the instructions listed below may result in electric shock, fire and/or serious injury. KEEP THESE INSTRUCTIONS IN A SAFE PLACE.

2.2 General safety instructions

In addition to the safety instructions given in the various sections of these operating instructions, the following points must be strictly observed at all times.

- **Read all the instructions.** Failure to follow all the instructions listed below may result in electric shock, fire and/or serious injury.
- **If the appliance is used in conjunction with an electric tool, read and follow the operating instructions for the electric tool and all the warnings.**
- **Modification of the appliance is not permitted.**
- **Use the right appliance for the job. Do not use the appliance for purposes for which it was not intended. Use it only as directed and when in faultless condition.**
- **Before beginning work with the appliance, find out how to operate it correctly and about any hazards associated with the materials it will be picking up and how these materials can be disposed of.**
- **Take the influences of the surrounding area into account. Do not use the appliance where there is a risk of fire or explosion.**
- **The appliance may only be used by persons who are familiar with it, have been trained on how to use it safely and who understand the resulting hazards. The appliance is not intended for use by children.**
- **Store appliances in a secure place when not in use. When not in use, appliances must be stored in a dry, high place or locked away out of reach of children.**

2.3 Personal safety

- **Stay alert, watch what you are doing and use common sense when working with the product. Do not use the vacuum cleaner while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating the appliance may result in serious personal injury.
- **The user and any other persons in the vicinity must wear suitable eye protection, a hard hat, ear protection, protective gloves, safety footwear and breathing protection while the appliance is in use or while maintenance work on it is being carried out.**

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- **Engage the wheel brakes so that the vacuum cleaner stands securely.** If the wheel brakes are disengaged the vacuum cleaner may run away out of control.
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of a vacuum cleaner can reduce dust-related hazards.

2.4 Use and care of the appliance

- **Never leave the appliance unattended.**
- **Do not deactivate the filter cleaning system when picking up hazardous dusts, especially when the appliance is used in conjunction with electric tools that generate dust.**
- **Protect the appliance from frost.**
- **Clean the water level limiting device regularly with a brush, in accordance with the instructions, and check it for signs of damage.**
- **When fitting the top section of the vacuum cleaner, take care to avoid pinching your fingers or damaging the supply cord.** This presents a risk of injury or damage.
- **Check the appliance and its accessories for any damage. Guards, safety devices and any slightly damaged parts must be checked carefully to ensure that they function faultlessly and as intended. Check that moving parts function faultlessly, without sticking, and that no parts are damaged. In order to ensure faultless operation of the appliance, all parts must be fitted correctly and must meet the necessary requirements.**
- **Have the appliance serviced by a qualified repair person using only genuine Hilti spare parts.** The safety of the appliance can thus be maintained.
- **Always unplug the supply cord from the power outlet when the appliance is not in use (during breaks), before cleaning and maintenance and before changing the filter or accessories.** This preventive safety measure reduces the risk of starting the appliance accidentally.
- **Never pull the vacuum cleaner by the supply cord to a new working position. Do not run the wheels of the vacuum cleaner over the supply cord.**
- **Do not transport the appliance by crane.**

2.5 Electrical safety

- **The plug on the supply cord of the appliance must match the outlet. Do not change the plug in any way. Do not use adapter plugs with earthed (grounded) appliances.** Unmodified plugs and matching outlets reduce risk of electric shock.
- **Insert the plug in a suitable earthed/grounded power outlet which has been correctly and safely installed and is in compliance with local regulations. If you are in doubt about the effectiveness of the power outlet's earth/ground connection, have it checked by a qualified specialist.**
- **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, cookers, stoves and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Do not expose the appliance to rain or wet conditions.** Water entering an electric appliance will increase the risk of electric shock.
- **Check to ensure that the supply cord does not lie in a puddle of water.**
- **Check the appliance's supply cord at regular intervals and have it replaced by Hilti Service if damage is found. Check extension cords at regular intervals and replace them if found to be damaged.**
- **Do not touch the supply cord or extension cord if they are damaged while working. Disconnect the supply cord plug from the power outlet.** Damaged supply cords or extension cords present a risk of electric shock.
- The electric supply cord may be replaced only with a cord of the type specified in the operating instructions.
- **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the appliance. Keep the cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- **When operating an electric appliance outdoors, use only extension cords of a type suitable for outdoor use.** Use of an extension cord suitable for outdoor use reduces the risk of electric shock.
- **In the event of an interruption in the electric supply, switch the appliance off and unplug it from the power outlet.**
- **Use the power outlet on the appliance only for the purposes described in the operating instructions.**
- **Never operate the appliance when it is dirty or wet.** Dust (especially dust from conductive materials) or dampness adhering to the surface of the appliance may, under unfavorable conditions, lead to electric shock. **Dirty or dusty appliances should thus be checked by Hilti Service at regular intervals, especially if used frequently for working on conductive materials.**

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2.6 Workplace

- **Ensure that the workplace is well lit.**
- **Ensure that the workplace is well ventilated.** Exposure to dust at a poorly ventilated workplace may result in damage to the health.
- **Keep the workplace tidy. Objects which could cause injury should be removed from the working area.** Untidiness at the workplace can lead to accidents.
- **Do not operate the appliance in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Electric appliances cause sparks which may ignite the dust or fumes.
- **Use extra care when working on stairs.**

2.7 The material picked up

- **Do not use the appliance to pick up flammable or explosive dusts (magnesium or aluminum dust etc.) or dusts that present a health hazard. Do not use the appliance to pick up materials hotter than 60°C (140°F), (e.g. glowing cigarette ends, hot ash).**
- **Do not use the appliance to pick up flammable, explosive or aggressive liquids (coolants and lubricants, gasoline, solvents, acids (pH < 5), alkalies (pH > 12.5), etc.).**
- **Switch the appliance off immediately if foam or liquids escape from it.**
- **Wear protective gloves when using the appliance to pick up hot materials at temperatures of up to 60°C (140°F).**
- **When working with mineral drilling slurry, wear protective clothing and avoid skin contact with the slurry (pH > 9: caustic).**
- **Avoid contact with alkaline or acidic liquids. If contact accidentally occurs, rinse with water. In the event of the liquid coming into contact with the eyes, rinse the eyes with plenty of water and consult a doctor.**

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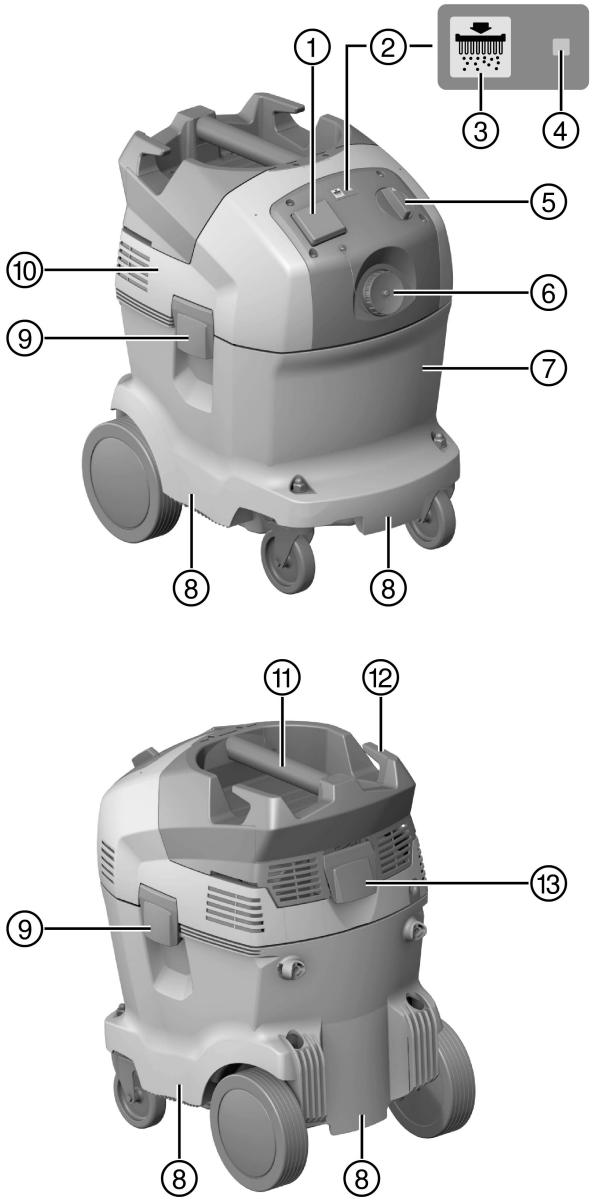
3 Description

3.1 Product overview



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① Power outlet on the appliance (only XE)
② Automatic filter cleaning (only XE)
③ “Filter cleaning ON/OFF” button (only XE)
④ “Automatic filter cleaning” status indicator (only XE)
⑤ Control switch
⑥ Hose socket
⑦ Waste material container
⑧ Grip recess
⑨ Catch
⑩ Vacuum cleaner top section
⑪ Grip
⑫ Supply cord hook
⑬ Catch for filter cover

3.2 Use as directed

The products described here are industrial vacuum cleaners designed for universal, commercial use. They can be used for wet or dry applications.

Hilti products are designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. The product and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

Use of the product to clean down persons or animals is not permissible. Underwater use is not permissible.

- Before beginning work with the product, find out how to operate it correctly and about any hazards associated with the materials you will be working with and how these materials can be disposed of safely.
- Do not use the product for continuous, stationary operation in automatic or semi-automatic systems.
- To reduce the risk of injury, use only genuine **Hilti** tools and accessories.
- Use an antistatic suction hose in order to avoid electrostatic effects.
- Do not pick up objects or materials that could cause injury by piercing through the dust bag (e.g. pointed or sharp objects).
- Do not stand on the product (do not use it as a substitute for a ladder).

This product is suitable for the following applications in commercial use:

- Collecting large quantities of dust from **Hilti** diamond grinders, diamond cutters, rotary hammers and core drilling machines using dry-cutting core bits.
- Picking up drilling slurry (mineral materials) with **Hilti** diamond core bits or **Hilti** diamond saws and liquids up to a temperature of < 60 °C (140 °F).
- Picking up oil or liquid substances with a temperature of up to < 60 °C (140 °F).
- Wet and/or dry cleaning of wall and floor surfaces.

3.3 Items supplied

Wet/dry vacuum cleaner including filter element, suction hose complete with rotatable connector (at the vacuum cleaner end) and connector for accessories, PE VC 20/40 plastic dust bag, operating instructions.

To help ensure safe and reliable operation, use only genuine Hilti spare parts and consumables. Spare parts, consumables and accessories approved by Hilti for use with the product can be found at your local **Hilti** Center or online at: **www.hilti.com**

3.4 Automatic filter cleaning

The vacuum cleaner is equipped with an automatic filter cleaning system that removes most of the dust adhering to the filter element.

The filter cleaning system can be switched off by pressing the “Automatic filter cleaning ON/OFF” button and switched back on by pressing the button again.

Status	Meaning
LED lights.	• The filter cleaning system is active.
LED doesn’t light.	• The filter cleaning system is not active.

The filter cleaning system is activated automatically each time the vacuum cleaner is switched on.

The filter element is cleaned automatically by a blast of air (a pulsating noise is heard).

Note

In order to achieve continuously high suction performance in system applications (especially grinding and sanding, cutting and slitting) or when picking up large quantities of dust, the filter cleaning system must be active.

The filter cleaning system functions only when a suction hose is connected.

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3.5 Instructions for use

Accessories and how they are used

Accessories	Type of use
PE VC 20 synthetic dust bag (203854)	Working with mineral materials, wet and dry
PE VC 40 synthetic dust bag (203852)	Working with mineral materials, wet and dry
VC 20 paper dust bag (203858)	Working with wood
VC 40 paper dust bag (203856)	Working with wood
VC 20/40 dry filter (2121386)	Dry
VC 20/40 universal filter (2121387)	Universal use, wet and dry
VC 20/40 performance filter (2121388)	Heavy use, wet and dry
Suction hose, 27 x 3.5 m AS	Wet and dry
Suction hose, 36 mm	Mainly wet, not for dust
Suction hose, 36 x 5 m AS	Wet and dry

4 Technical data

Note
For details of the rated voltage, current, frequency and/or input power, please refer to the appliance's country-specific type identification plate.

When powered by a generator or transformer, the generator or transformer's power output must be at least twice the rated input power shown on the rating plate of the appliance. The operating voltage of the transformer or generator must always be within +5% and -15% of the rated voltage of the appliance.

	VC 150-6 X	VC 150-6 XE	VC 150-10 X	VC 150-10 XE
Weight	27.6 lb (12.5 kg)	27.6 lb (12.5 kg)	31.3 lb (14.2 kg)	31.3 lb (14.2 kg)
Mains connection (type)	SJTW 3/16 AWG	SJTOW 3/12 AWG	SJTW 3/16 AWG	SJTOW 3/12 AWG
Maximum volumetric flow rate (air)	152 CFM (72 ℓ/s)	152 CFM (72 ℓ/s)	152 CFM (72 ℓ/s)	152 CFM (72 ℓ/s)
Container capacity	6 liq. gal_{US} (21 ℓ)	6 liq. gal_{US} (21 ℓ)	10 liq. gal_{US} (36 ℓ)	10 liq. gal_{US} (36 ℓ)
Effective dust capacity	51 lb (23 kg)	51 lb (23 kg)	88 lb (40 kg)	88 lb (40 kg)
Water capacity	3.6 liq. gal_{US} (13.5 ℓ)	3.6 liq. gal_{US} (13.5 ℓ)	7 liq. gal_{US} (25 ℓ)	7 liq. gal_{US} (25 ℓ)
Maximum vacuum	3.5 psi (242 mbar)	3.5 psi (242 mbar)	3.5 psi (242 mbar)	3.5 psi (242 mbar)
Operating temperature	14 °F ...104 °F (−10 °C ...40 °C)	14 °F ...104 °F (−10 °C ...40 °C)	14 °F ...104 °F (−10 °C ...40 °C)	14 °F ...104 °F (−10 °C ...40 °C)
Automatic filter cleaning, all	15 s	15 s	15 s	15 s
Protection class	I	I	I	I
Protection class	IP X4	IP X4	IP X4	IP X4

5 Before use

CAUTION
Risk of injury presented by the appliance running away out of control. The vacuum cleaner may run away out of control if the wheel brakes are not engaged.

- Engage the wheel brakes so that the vacuum cleaner stands securely.

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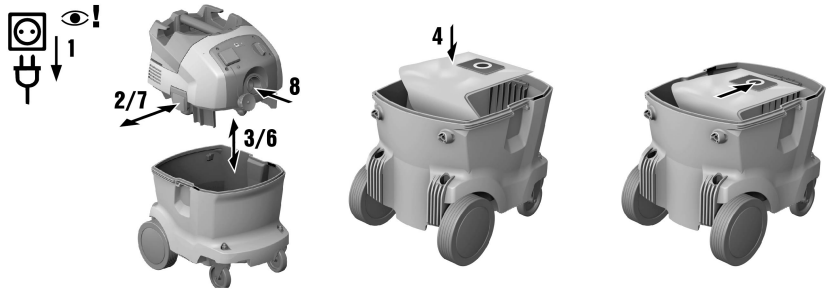
5.1 Operating the appliance for the first time

1. Open the two catches.
2. Lift the vacuum cleaner top section away from the waste material container.
3. Remove the accessories and packaging from the waste material container.
4. Fit a suitable dust bag in accordance with the instructions.
5. Fit the vacuum cleaner top section onto the waste material container and close the two catches.
6. Check to ensure that the vacuum cleaner top section is fitted correctly and secured.
7. Connect the suction hose to the appliance.

5.2 Fitting/changing the paper dust bag



⚠ **DANGER**
Risk of injury. Sharp pointed objects may pierce through the dust bag.
- ▸ Check that no objects have pierced through the dust bag.

1. Disconnect the supply cord plug from the power outlet.
2. Open the two catches.
3. Lift the vacuum cleaner top section away from the waste material container.
4. Carefully release the mouth of the dust bag from the adapter.
5. Close the mouth of the dust bag with the slider.
6. Clean the waste material container with a cloth.
7. Fit a new paper dust bag in the waste material container.
8. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

5.3 Fitting/changing the plastic dust bag

1. Disconnect the supply cord plug from the power outlet.
2. Open the two catches.

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3. Lift the vacuum cleaner top section away from the waste material container.
4. Use a cable tie to close the plastic dust bag below the punched holes.
5. Remove the plastic dust bag.
6. Clean the waste material container with a cloth.
7. Fit a new plastic dust bag (see instructions printed on it) in the waste material container.
8. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

6 Operation

DANGER
Electrical hazards. Fatal or serious injury may result if the vacuum cleaner is not correctly connected to the electric supply.

- Connect the vacuum cleaner only to a properly earthed/grounded power source.

WARNING
Risk of injury. Damage to the filter system may allow harmful dust (health hazard) to escape.

- In an emergency (e.g. filter ruptured), switch the vacuum cleaner off, unplug the supply cord from the power outlet and have the vacuum cleaner checked by a trained and qualified person before further use.

CAUTION
Risk of injury presented by the appliance running away out of control. The vacuum cleaner may run away out of control if the wheel brakes are not engaged.

- Engage the wheel brakes so that the vacuum cleaner stands securely.

6.1 Operation without use of the power outlet on the appliance

1. Check that the switch on the appliance is in the “OFF” position off before plugging the supply cord into a power outlet.
2. Plug the vacuum cleaner’s supply cord into the power outlet.
3. Turn the control switch to the “ON” position.

6.2 Operation with use of the power outlet on the appliance

Note
The power outlet on the appliance is to be used only for powering electric tools directly from the vacuum cleaner.
The operating instructions and safety instructions for the electric tool plugged into the power outlet on the vacuum cleaner must be observed.

1. Unplug the vacuum cleaner’s supply cord from the power outlet.
2. Check that the maximum power drawn by the electric tool is below the maximum permissible output of the power outlet on the vacuum cleaner (please refer to the “Technical data” section of the operating instructions and information printed at the power outlet on the appliance).
3. Check to ensure that the electric tool is switched off before plugging its supply cord into the power outlet.
4. Plug the electric tool’s supply cord into the power outlet on the vacuum cleaner.
5. Plug the vacuum cleaner’s supply cord into the power outlet.
6. Turn the control switch to the “Auto” position.
7. Switch on the power tool.

Note
The vacuum cleaner will continue to run for a short time after switching off the electric tool in order to ensure that all dust is removed from the suction hose.

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6.3 Picking up dry dust

Note
Before picking up dry dust, especially dust from mineral materials, always check to ensure that the correct dust bag is fitted in the container. The material picked up by the vacuum cleaner can then be disposed of cleanly and easily.

CAUTION
Risk of injury. Hazardous material that has been picked up may escape if a filter element is not used.
- ▸ Never use the appliance without a filter element.

▸ Check that the filter element is dry and that the correct type of dust bag is fitted.

6.4 Picking up liquids

CAUTION
Risk of injury. Hazardous material that has been picked up may escape if a filter element is not used.
- ▸ Never use the appliance without a filter element.

1. Check the container level monitoring system.
2. If possible, use a separate filter element for wet applications.

   Note
   The **Hilti** VC 20/40 universal (2121387) filter is recommended.
3. After picking up liquids, open the two catches.
4. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface so that the filter element can dry.
5. Empty the waste material container and use a water hose to rinse it out. Use a brush to clean the electrodes and clean the filter element, after allowing it to dry, by wiping it off with your hand.
6. Allow the waste material container to dry.

6.5 After use of the vacuum cleaner

1. Switch off the electric tool.
2. Turn the vacuum cleaner control switch to the “OFF” position.
3. Unplug the vacuum cleaner’s supply cord from the power outlet.
4. Coil up the supply cord and hang it on the hook.
5. Empty the container and clean the appliance by wiping it with a damp cloth.
6. Coil up the suction hose.
7. Store the vacuum cleaner in a secure, dry place where it is inaccessible to unauthorized users.

6.6 Emptying dry dust from the waste material container

1. Disconnect the supply cord plug from the power outlet.
2. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
3. Remove the dust bag from the waste material container or grip the container by the recess provided and empty it by tipping out the contents.
4. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

6.7 Emptying the waste material container when no dust bag is fitted (picking up liquids)

1. Disconnect the supply cord plug from the power outlet.
2. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
3. Grip the waste material container by the recess provided and empty it by tipping out the contents.
4. Clean the edge of the waste material container with a cloth.
5. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

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7 Care, maintenance, transport and storage

7.1 Care and maintenance

WARNING
Danger of electric shock! Carrying out care and maintenance while the supply cord is connected to the power outlet presents a risk of serious injuries including burns.

- ▸ Always unplug the supply cord before carrying out all care and maintenance tasks.

Care

- Carefully remove stubborn dirt from the tool.
- Clean the air vents carefully with a dry brush.
- Use only a slightly damp cloth to clean the casing. Do not use cleaning agents containing silicone as they can attack the plastic parts.

Maintenance

WARNING
Danger of electric shock! Improper repairs to electrical components may lead to serious injuries including burns.

- ▸ Repairs to the electrical section of the tool or appliance may be carried out only by trained electrical specialists.

- At regular intervals, check all visible parts and the controls for signs of damage and make sure that they all function correctly.
- Do not operate the power tool if signs of damage are found or if parts malfunction. Have damage repaired immediately by **Hilti** Service.
- After cleaning and maintenance, refit all guards or protective devices and check that they function correctly.

Note
To help ensure safe and reliable operation, use only genuine Hilti spare parts and consumables. Spare parts, consumables and accessories approved by Hilti for use with the product can be found at your local **Hilti** Center or online at: **www.hilti.com**

7.2 Automatic filter cleaning

Note
Do not attempt to clean the filter element by knocking it against a hard object and do not use pointed instruments. This will reduce the life of the filter element.
Do not use compressed air to clean the filter element. This may cause tears in the filter material.

The condition of the filter element deteriorates with use.

- ▸ Replace the filter element at least every six months.
- ▸ However, if used intensively, the filter element should be replaced more often.

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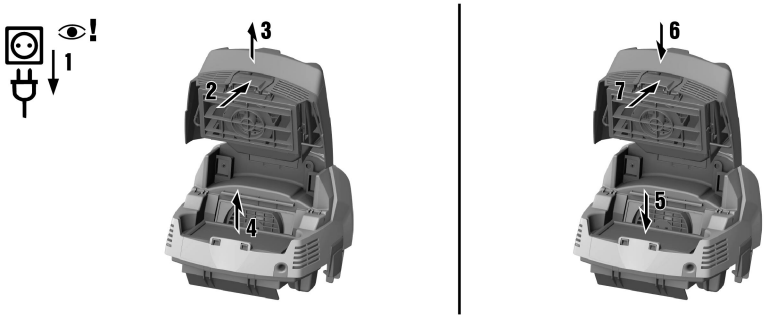
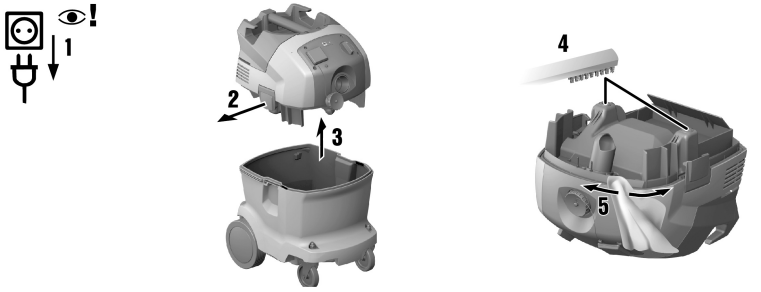
7.3 Fitting/changing the filter element



1. Disconnect the supply cord plug from the power outlet.
2. Open the filter cover catches.
3. Open the filter cover.
4. Carefully remove the filter element, gripping it at the areas provided in the holder.
5. Clean the sealing surface with a cloth.
6. Fit the new filter element.
7. Close the filter cover by flipping the cover catch forward.
8. Close the filter cover catch.

7.4 Checking the container level monitoring system



1. Engage the wheel brakes so that the vacuum cleaner stands securely.
2. Disconnect the supply cord plug from the power outlet.
3. Open the two catches.
4. Lift the vacuum cleaner top section away from the waste material container and place it on a level surface.
5. Check the cut-out contacts and clean them with a brush if necessary (if dirty).
6. Check the seal at the vacuum cleaner top section and clean it with a cloth if necessary.
7. Fit the vacuum cleaner top section onto the waste material container and close the two catches.

7.5 Checks after cleaning and maintenance

1. After cleaning or carrying out maintenance, check that the vacuum cleaner is assembled correctly and that it functions faultlessly.
2. Test each of the functions.

7.6 Transport

Do not carry the appliance when it is full of waste material.

The appliance may not be lifted directly by crane.

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- Remove the power conditioner (if applicable) or loose accessory tools from the holder.
- Empty the appliance before carrying it to another location.
- Do not tip the appliance or transport it lying on its side after using it to pick up liquids.
- Use the tapered adapter to connect both ends of the hose together conveniently for transport.

7.7 Storage

- Store the vacuum cleaner in a secure, dry place where it is inaccessible to unauthorized users.

8 Troubleshooting

If the trouble you are experiencing is not listed in this table or you are unable to remedy the problem by yourself, please contact **Hilti** Service.

8.1 Troubleshooting

Trouble or fault	Possible cause	Action to be taken
No suction power or reduced suction power.	The dust bag is full.	▸ Change the dust bag.
	The filter element is clogged with dirt or dust.	▸ If the automatic filter cleaning system is deactivated, activate it and allow the vacuum cleaner to run for 30 seconds.
	The suction hose or dust hood on the electric tool is blocked.	▸ Clean the suction hose and the dust hood.
Dust is blown out of the appliance.	The filter element is not fitted correctly.	▸ Fit the filter element again correctly.
	The filter element is damaged.	▸ Fit a new filter element.
The appliance switches itself off or on inadvertently or static electricity discharges through the user.	Electrostatic charge is not conducted away – the appliance is connected to an unearthed/ungrounded power outlet.	▸ Connect the appliance to an earthed/grounded power outlet and use an antistatic suction hose.
The appliance doesn't start or switches itself off after a short time.	The water level cut-out is activated.	▸ Clean the sensors and the area around the sensors with a brush.
The motor doesn't restart.	The mains circuit breaker has been tripped.	▸ Reset the circuit breaker. ▸ Find the reason for the overload current if the circuit breaker trips again.
	The waste material container is full.	▸ Switch the appliance off and empty the waste material container.
	The motor overheating protection cut-out has been activated.	▸ Switch the appliance off and allow it to cool down for about 5 minutes. ▸ If the motor doesn't start, return the appliance to **Hilti** Service.
	The motor is repeatedly switched off by its thermal cut-out.	▸ Clean the air vents carefully using a dry brush.
The motor doesn't run when set to "AUTO".	The appliance is faulty or is not correctly plugged in.	▸ Make sure that the supply cord plug is fully plugged in and check that the appliance functions correctly.
The automatic filter element cleaning system doesn't work.	No suction hose is connected.	▸ Connect the suction hose.

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9 Disposal

Most of the materials from which **Hilti** products are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, your old tools, machines or appliances can be returned to **Hilti** for recycling. Ask **Hilti** Service or your Hilti representative for further information.

Drilling slurry

Disposal of drilling slurry directly into rivers, lakes or the sewerage system without suitable pretreatment presents environmental problems.

- Ask the local public authorities for information about current regulations.

We recommend the following pretreatment:

- Collect the drilling slurry (for example, using a wet-type vacuum cleaner).
- Allow the drilling slurry to settle and dispose of the solid material at a construction waste disposal site (addition of a flocculent may accelerate the settling process).
- The remaining water (alkaline, pH value greater than 7) must be neutralized by the addition of an acidic neutralizing agent or diluted with a large volume of water before it is allowed to flow into the sewerage system.

Drilling dust

- Dispose of the drilling dust collected by the vacuum cleaner in accordance with the applicable national regulations.

10 Manufacturer's warranty

- Please contact your local **Hilti** representative if you have questions about the warranty conditions.

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This Product is Certified
Ce produit est homologué
Producto homologado por
Este produto está registrado

Hilti Corporation
LI-9494 Schaan
Tel.: +423 / 234 21 11
Fax: +423 / 234 29 65
www.hilti.com

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20170220

Cellphone / Earbud Use

All Superintendents and Project Managers

EAR BUD AND CELL PHONE POLICY

I received a few complaints regarding the use of ear buds on the jobsites. This is a SAFETY issue and hazard and are not to be used on the jobsites! A worker cannot be alerted of a hazard if they are distracted by music coming through ear buds and cannot hear other instructions, especially one of safety. The same goes for cell phones. Leave the cell phones in the vehicles and if someone needs to get a hold of the worker, and it is of an urgent nature, they can contact the superintendent and give them a message. This policy is backed by the union Business Agents. First offense is one day off without pay. Second offense is termination. Safety of the workers is too valuable to have this distraction.

Call me if you have any questions.

Thank you for your cooperation.

Sincerely,
FCI Construction

Eric E. Pedersen
President

Office, Shop and Yard Personal Protective Equipment

PURPOSE

Compliance with IOSHA General Industry Standards (29 CFR 1910) and establish Best Practices in an effort to prevent injury or illness.

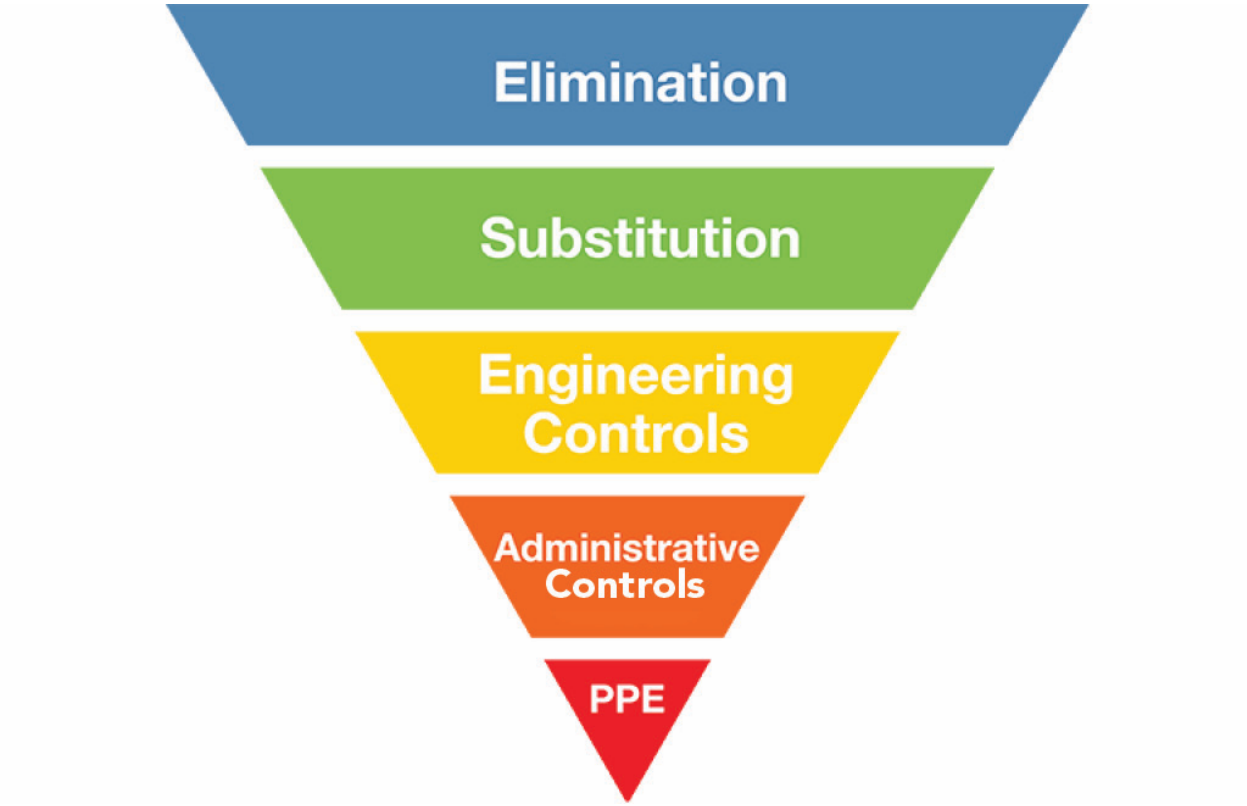
SCOPE

The program applies to all employees working with exposure to hazard(s) in the office, shop, or yard. The hazards are identified through training, work experience, and common knowledge. If there is any doubt about exposure (e.g. chemical) please call/ask Supervisor or Safety Director.

REQUIREMENT

As the last step in the hierarchy of controls (inserted below), personal protective equipment provides the cognizant employee safety tools needed to go home without injury or illness. All employees shall wear appropriate personal protective equipment when exposed to such hazards which may result in medical treatment and/or lost time injury or illness. General Superintendent shall enforce this safety program for employees working in the shop and yard. Safety Director shall enforce program for office employees, visitors, deliveries, and field staff. Training will be provided.

Safe Environment



Safe Worker

Limiting Exposure:

When needing/wanting to go to shop or yard, we must consider limiting our exposure. Shop, yard, office, field employees may suffer injury or illness from hazards present in these areas. In limiting exposure, the following practices provide a means to injury and illness prevention.

The Yard Exit Door located adjacent to Basement Access Door provides access to the yard, trash bins, recycling bins, and fresh air without having to expose oneself to the potential hazards of the shop (e.g. welding, cutting, grinding, working under load, struck by and caught between). When in the yard, employees should highly alert to moving vehicles/equipment. When an employee has to travel near equipment under power, make eye contact with operators or choose route not exposing one to motorized traffic. When in an outbuilding, one should not expose themselves to overhead loads, slip trip falls, arc flash, or pneumatic projected nails.

When wanting to contact employees in the shop or yard area, all employees should consider using the office phone or calling mobile phone number. This practice will limit exposure for the employee engaged in hazardous activity and employee who

unknowingly puts themselves at risk (a perceived acceptable risk). While shop or yard work is in progress (WIP) all employees shall avoid interruption or exposure.

Controlled access zone has been established by a yellow line and yellow chain. The chains can be lowered when determined necessary by the shop. With such, all employees entering from the field, office, or yard shall proceed with caution adhering to this program or find alternate route.

When limiting exposure options are not possible or an employee does engage in hazardous work, the following personal protective equipment must be used in an effort to preserve your eye sight, your hearing, and your health overall.

Eye and Face Hazards:

To avoid eye injury you must protect your eyes from trauma, flying particles, chemicals, dusts, liquids, and radiant energy. Appropriate eye protection must be worn by employee(s) when exposed to such hazard.

Examples of chemicals that cause damage to your eyes are: Acids - protect your eyes and face when servicing a battery, acid washing masonry by using safety glasses and face shield. Caustics - protect your eyes and face when using anhydrous ammonia or other highly hazardous caustics – read the safety data sheet which will provide PPE specifics.

Safety Glasses, Prescription Glasses, and Face shields: All FCI employees will wear a face shield when high velocity metal particles, masonry saw grit, and other debris *can* find their way into the eyes of workers who are wearing *only* ANSI approved safety glasses or ANSI approved prescription glasses with side shields.

Eyewear (clear, gray, indoor/outdoor) will be made available by Supervisor or Safety. Plain (clear) lens eyewear will be issued to each employee. Select the proper filter shade when welding, cutting or thermal brazing. The chart below is a reference; each employee shall adjust their "shade number to their comfort but never shall the "shade number" be less than referenced. Laser light requires special laser goggles - never look directly into laser light even the low intensity lasers used in levels, transits, sights, and pointers.

Choosing the Proper Shade for Welding/Cutting/Brazing Operations	Shade Number
Shielded metal arc welding 1/16, 3/32, 1/8-5/32 inch diameter electrodes	10
Nonferrous gas-shielded welding arc 1/16, 3/32, 1/8-5/32 inch diameter electrodes	11
Ferrous gas-shielded welding arc 1/16, 3/32, 1/8-5/32 inch diameter electrodes	12
Shielded metal arc welding 3/16, 7/32-1/4 inch diameter electrodes	12
5/16, 3/8-inch diameter electrodes	14
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing, Light cutting up to 1-inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting over 6 inches	5 or 6
Gas Welding (light) up to 1/8 inch	4 or 5
Gas Welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas Welding (heavy) over 1/2 inch	6 or 8

ANSI stands for the American National Standards Institute. ANSI physically tests and certifies safety equipment for manufacturers. ANSI assures that eye and face protective equipment meet consistent standards for design, durability, impact resistance, etc. The eye/face protective specific standard is ANSI Z87.1-2010-Industrial Eyewear Impact Standard.

Head Hazards:

Hard Hats - employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets/hard hats.

Regularly inspect your hard hat, cracked, chipped, deeply gouged, aged, weathered, or chemically damaged hard hats need to be replaced. Suspension, which is what absorbs the impact, should be replaced annually.

Hand Hazards:

Employees who have exposure to chemical hazards, laceration hazards, and burn hazards will be provided hand protection.

Chemical hazards which expose employees to irreversible damage: Acids, protect your eyes, face, arms, hands when servicing a battery, acid washing masonry, etc. Caustics,

protect your eyes, face, hands, arms when using anhydrous ammonia or other highly hazardous caustics – read the safety data sheet.

Chemical hazards which are listed as skin irritants: greases, solvents, gasoline.

Nitrile gloves for hydrochloric acid and xylene
Rubber gloves for formaldehyde, glycerine

Burn hazards include hot work – welding, cutting, torching, hi temperature surface.

Cotton gloves for hi temperature surface
Welding gloves for welding, cutting, torch
Leather gloves for cutting or torch

Laceration hazards – handling sheet metal or glass; cut resistant gloves class 1 to 4

Respiratory Hazards:

A respirator shall be provided to each employee when such equipment is necessary to protect their health. Voluntary use of N 95 requires employees to read Appendix D of 1910.134 standard and sign-off on receipt. FCI Construction shall be responsible for the establishment and maintenance of a respiratory protection program.

First Aid

PURPOSE

First Aid/CPR trained supervision will be provided where reasonably accessible medical treatment is not accessible in regard to time and distance.

SCOPE

The safety process applies to all jobsites and the FCI Office.

RESPONSIBILITIES

The Safety Director is responsible for ensuring all field supervision have completed First Aid/CPR training every two years or at initial assignment, the Director is responsible for inspecting First Aid kits to ensure they are properly stocked (See Appendix A).

The Director of Masonry, General Superintendent, or Chief Financial Officer will notify the Safety Director of newly assigned supervision ensuring they have current First Aid/CPR certification.

The Site Superintendent will ensure a stocked first aid cabinet is provided for their jobsite. In addition, the Site Superintendent will notify the Safety Director when any additional first aid products are needed. For example, an exposure to mortar may require burn cream be kept onsite. (See Appendix A).

In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

First aid supplies shall be easily accessible when required. The kits will be kept in supervision's work vehicle or in a job box located onsite or kept in the job trailer. The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item, and shall be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits" (Appendix A). The contents of the kit listed in the ANSI standard should be adequate for small work sites. When larger operations or multiple operations are being conducted at the same location, employers should determine the need for additional first aid kits at the worksite, additional types of first aid equipment and supplies and additional quantities and types of supplies and equipment in the first aid kits. By assessing the specific needs of their workplace,

employers can ensure that reasonably anticipated supplies are available. Site Superintendent should assess the specific needs of their worksite periodically and augment the first aid kit appropriately.

If it is reasonably anticipated employees will be exposed to blood or other potentially infectious materials while using first-aid supplies, employers should provide personal protective equipment (PPE). Appropriate PPE includes gloves, gowns, face shields, masks and eye protection (see FCI Safety Process #14 Biohazards)

Proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, shall be provided. Posting of Emergency Response Sheet in the job trailer, job box, or fleet vehicle.

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

APPENDIX A

ANSI/ISEA Z308.1-2009:

Required Minimum Fill in ANSI/ISEA Z308.1-2009:

- 1 - First Aid Guide
- 1 - Absorbent Compress 4" x 8"
- 16 - Adhesive Bandages, 1" x 3"
- 1 - Adhesive Tape 2.5 yd
- 10 - Antiseptic Applications
- 6 - Burn Treatment Applications
- 4 - Sterile Pads, 3" x 3"
- 2 - Pair Exam Gloves
- 1 - Triangular Bandage, 40" x 40" x 56"
- 6 - Antibiotic Treatment Applications

Optional or Recommended items may be added to the basic contents listed above to augment a first-aid kit, based on the specific hazards existing in a particular work environment.

Recommended Supplies in ANSI/ISEA Z308.1-2009:

- Analgesic (Oral) - should not cause drowsiness
- Bandage Compress 2" x 36" min.
- Breathing Barrier, single use
- Burn Dressing, 12 sq. inch min.
- Cold Pack 4" x 5" min.
- Eye Covering, ¼" thick min.
- Eye Wash, sterile 4 fl. oz. min.
- Roller Bandage 2" x 4 yd. min.
- Hand Sanitizer

Asbestos Awareness Program

Asbestos awareness training should be taken on an annual basis by custodial and building maintenance staff; training is required per the OSHA code 29 CFR 1926.1001. This training module is designed to provide an overview of asbestos and its associated hazards. It is important for employees who work in building related maintenance to know where asbestos is likely to be found and how to avoid exposure.

Topics covered include:

- What is Asbestos?
- Where is Asbestos Found?
- When is Asbestos Dangerous?
- How to Avoid Asbestos Exposure

WHAT IS ASBESTOS?

The term Asbestos refers to a family of six naturally occurring minerals that are mined throughout the world:

- Chrysotile (White)
- Amosite (Brown / Off-White)
- Crocidolite (Blue)
- Tremolite
- Actinolite
- Anthophyllite

Of these six, Chrysotile is the most common, but it is not unusual to encounter Amosite or Crocidolite as well.

All types of asbestos tend to break into very tiny fibers. These individual fibers are so small that many must be identified using a microscope. In fact, some individual fibers may be up to 700 times smaller than a human hair. Because asbestos fibers are so small, once released into the air, they may stay suspended for hours or even days.

Asbestos fibers are also virtually indestructible. They are resistant to chemicals and heat, and they are very stable in the environment. They do not evaporate into air or dissolve in water, and they are not broken down over time. These characteristics make Asbestos ideal for many building materials and it has been used in over 3,000 different products.

Usually asbestos is mixed with other materials during the manufacturing process. Floor tiles, for example, may contain only a small percentage of asbestos. Depending on what the product is, the amount of asbestos fibers in asbestos containing materials (ACM) may vary from 1%-100%. An ACM is any material that contains 1% or more asbestos fibers.

WHERE IS ASBESTOS FOUND?

Asbestos may be found in many different products and locations. Examples of ACMs include:

- Chrysotile (White)
- Wall and ceiling insulation
- Siding shingles on old residential buildings
- Putties, caulks, and cements (such as in chemical carrying cement pipes)
- Sprayed-on fire proofing and insulation in buildings
- Joint compound in older pipes and boilers insulation
- Wall and ceiling texture in older buildings and homes
- Floor tiles
- Ceiling tiles
- Roofing shingles
- Buildings and homes
- Brake linings and clutch pads
- Old fume hoods and lab benches

Asbestos is most likely to be found during renovation projects on older structures during the demolition phase. Potential locations, materials and adhesives include

- Insulation around pipes and boilers
- Sprayed-on insulation in locations such as various mechanical rooms, steel reinforcing beams, and some ceilings in older buildings
- Ceiling tiles in buildings built prior to 1981
- Many 12″ floor tiles in buildings built prior to 1981
- Most 9″ floor tiles in buildings
- Interiors of fire doors
- Older mastic (glue) for floor tiles, baseboards.

WHEN IS ASBESTOS DANGEROUS?

The most common way for asbestos fibers to enter the body is through breathing. Asbestos containing material is not generally considered to be harmful unless it is releasing dust or fibers into the air where they can be inhaled or ingested. Many of the fibers will become trapped in the mucous membranes of the nose and throat where they can then be removed, but some may pass deep into the lungs, or, if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems.

Asbestos is most hazardous when it is friable. The term "friable" means that the asbestos is easily crumbled by hand, releasing fibers into the air. For example, sprayed on asbestos insulation would be considered friable, while an Asbestos floor tile would not.

Asbestos-containing ceiling tiles, floor tiles, undamaged laboratory cabinet tops, shingles, fire doors, siding shingles, etc. will not release asbestos fibers unless they are disturbed or damaged in some way. If an asbestos ceiling tile is drilled or broken, for example, it may release fibers into the air. If the tile is left alone and not disturbed, it will not.

Damage and deterioration will increase the friability of asbestos-containing materials. Water damage, continual vibration, aging, and physical impact such as drilling, grinding, buffing, cutting, sawing, or striking can break the materials down making fiber release more likely.

HEALTH EFFECTS

Because it is difficult to destroy asbestos fibers, the body cannot break them down or remove them once they are lodged in lung or body tissues and remain in place where they may cause disease.

There are three primary diseases associated with asbestos exposure:

- Asbestosis
- Lung Cancer
- Mesothelioma

ASBESTOSIS

Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which cause them to scar. Symptoms of asbestosis include shortness of breath and a dry crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure.

There is no effective treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure. Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.

LUNG CANCER

Lung cancer causes the largest number of deaths related to asbestos exposure. The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing and use of asbestos and its products is much higher than in the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

People who have been exposed to asbestos and are also exposed to some other carcinogen -- such as cigarette smoke -- have a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos. One study found that asbestos workers who smoke are about 90 times more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos.

MESOTHELIOMA

Mesothelioma is a rare form of cancer that most often occurs in the thin membrane lining of the lungs, chest, abdomen, and (rarely) heart. About 200 cases are diagnosed each year in the United States. Virtually all cases of mesothelioma are linked with asbestos exposure. Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract mesothelioma.

People who work in asbestos mines, mills and factories, manufacture and install

asbestos insulation, or work in other high-exposure industries such as shipyards, have an increased risk of mesothelioma. So do people who live with asbestos workers, near asbestos mining areas, near asbestos product factories or near shipyards where use of asbestos has produced large quantities of airborne asbestos fibers.

OTHER CANCERS

Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon and kidney may be caused by ingesting asbestos. For more information on asbestos-related cancers, contact your local chapter of the American Cancer Society.

DETERMINING FACTORS

Three things seem to determine your likelihood of developing one of these asbestos related diseases:

1. The amount and duration of exposure – the more you are exposed to asbestos and the more fibers that enter your body, the more likely you are to develop asbestos related problems. While there is no "safe level" of asbestos exposure, people who are exposed more frequently over a long period of time are more at risk.
2. Whether or not you smoke – If you smoke and you have been exposed to asbestos, you are far more likely to develop lung cancer than someone who does not smoke and who has not been exposed to asbestos. If you work with asbestos or have been exposed to it, the first thing you should do to reduce your chances of developing cancer is to stop smoking.
3. Age – cases of mesothelioma have occurred in the children of asbestos workers whose only exposures were from the dust brought home on the clothing of family members who worked with asbestos.

HOW TO AVOID ASBESTOS EXPOSURE

In order to avoid being exposed to asbestos, you must be aware of the locations it is likely to be found. If you do not know whether something is asbestos or not, assume that it is until it is verified otherwise. Remember that you cannot tell if floor or ceiling tiles contain asbestos just by looking at them.

FCI is NOT a licensed asbestos abatement contractor and cannot take samples from materials to determine whether or not they contain asbestos. If you have reason to suspect that something is asbestos, either because it is labeled as such, or because it something that is likely to contain asbestos (9" floor tile, for example) STOP WORK AT THAT LOCATION AND **DO NOT DISTURB IT.**

Never...

- Drill
- Hammer
- Cut
- Saw
- Break
- Damage
- Move
- Disturb

...any asbestos-containing materials or suspected materials.

Notify your immediate supervisor for escalation to the Project Manager. FCI is NOT a licensed asbestos abatement contractor and must notify the owner of any asbestos material identified.

It is important to report any damaged asbestos-containing materials immediately. If, for example, you discover some sprayed-on asbestos insulation has been knocked off of a ceiling or wall or some is inadvertently damaged during demolition, this would need to be cleaned by asbestos abatement contractor. **Do not attempt to clean up potential asbestos material yourself!** Disturb the material as little as possible.

By knowing where asbestos is likely to be located and then taking measures not to disturb it, you will protect yourself and others from exposure to this hazardous substance.

Note that completion of asbestos awareness training is not adequate to repair or remove ACM or ACM debris, or conduct activity related to asbestos abatement activities involving direct, intentional contact with ACM. Extensive asbestos abatement training would be required prior to conducting those activities; Consult with EHS or Facilities Services for a list of external vendors who can provide this training or abatement service.

Lead Awareness Program

Lead awareness training is provided at new hire safety orientation; training is required per the OSHA code 29 CFR 1926.62. This training program is designed to provide an overview of lead and its associated hazards. It is important for employees who work in building related maintenance to know where lead is likely to be found and how to recognize it and to avoid exposure.

Topics covered include:

- What is Lead?
- Where is Lead Found?
- When is Lead Dangerous?
- How to Avoid Lead Exposure

WHAT IS LEAD?

Lead is a metal that occurs naturally in the earth's crust, but human activity – mining, burning fossil fuels and manufacturing – has caused it to become more widespread. Lead was also once used in paint and gasoline and is still used in batteries, solder, pipes, pottery, roofing materials and some cosmetics.

WHERE IS LEAD FOUND?

Lead may be found in many different products and locations. Examples of lead include:

- Soldering and any work involving lead metal.
- Production or use of plumbing fixtures, rechargeable batteries, lead bullets, leaded glass, brass, bronze and radiators.
- Lead particles from leaded gasoline and paint settle on soil and can last years. Lead-contaminated soil is still a major problem around highways and in some urban settings. Some soil close to walls of older houses and buildings contains lead.
- Paint, hoses, water pipes and fittings that were used before 1978.

If the pipe is covered or wrapped, expose a small area of metal. Use the flat edge of a screwdriver or other tool to scratch through any corrosion that may have built up on the outside of the pipe. If the scraped area is shiny and silver, your service line is lead. A magnet will not stick to a lead pipe.

WHEN IS LEAD DANGEROUS?

Lead is dangerous when exposed to people working in the construction industry. Without proper safety measures, these employees end up breathing in lead-containing dust and fumes. When lead passes through the lungs and into the bloodstream, it can cause damage to a person's organs. According to OSHA and CDC, prolonged lead exposure can cause neurological and gastrointestinal effects, anemia, and even kidney disease.

Removal, renovation, or demolition of structures painted with lead pigments.

Installation, maintenance, or demolition of lead pipes and fittings.

Lead is most likely to be found during renovation projects on older structures during the demolition phase.

HEALTH EFFECTS

Exposure to high levels of lead may cause anemia, weakness, and kidney and brain damage. Very high lead exposure can cause death. Lead can cross the placental barrier, which means pregnant women who are exposed to lead also expose their unborn child. Lead can damage a developing baby's nervous system.

LEAD POISONING SYMPTOMS IN ADULTS

- High blood pressure
- Joint and muscle pain
- Difficulties with memory or concentration
- Headache
- Abdominal pain
- Mood disorders
- Reduced sperm count and abnormal sperm
- Miscarriage, stillbirth or premature birth in pregnant women

HOW TO AVOID LEAD EXPOSURE

In order to avoid being exposed to lead, you must be aware of the locations it is likely to be found. If you do not know whether something is lead or not, assume that it is until it is verified otherwise.

FCI Construction is NOT a licensed lead abatement contractor and cannot take samples from materials to determine whether or not they contain lead. If you have reason to suspect lead containing materials, either because it is labeled as such, or

because it something that is likely to contain lead STOP WORK AT THAT LOCATION AND DO NOT DISTURB IT.

Note that completion of lead awareness training is not adequate to repair or remove lead or lead debris, or conduct activity related to lead abatement activities involving direct, intentional contact with lead.

Material Handling and Rigging

FCI promotes the training and safety of all employees in the proper material handling and storage of materials. Material handling is an everyday procedure and requires specific training of employees to minimize the potential hazards associated with unloading, moving, storing and placing materials.

It is the responsibility of every employee to follow FCI's Material Handling & Storage Policy. **The following are the mandatory guidelines set forth by FCI. This policy does not cover all of the requirements covered in OSHA Standard 1926.250 and 1926.953.** Additional information and training for these standards are provided.

- All rigging is to be performed by a qualified rigger. Only employees who have received a certification in rigging may perform that work. Rigger training includes various aspects of rigging including knowledge of load weight, center of gravity and many different types of slings. Riggers must understand how these factors affect transporting loads.
- All hoisting equipment including cranes, excavators, forklifts, and other material handling equipment shall be inspected prior to the start of each shift. The daily inspection shall be completed, and a copy is to remain with the equipment.
- All rigging equipment including chains, wire rope, hooks, hook latches, clevises, clevis pins, and synthetic slings shall be inspected every day. Hooks shall be of a type that can be closed and locked, eliminating the hooks throat opening. Alternatively, an alloy anchor type shackle with a bolt nut and tightening pin may be used.
- Rigging equipment shall be properly stored when not in use to avoid exposure to weather & job site hazards.
- All rigging equipment shall have a legible tag showing the capacity. Determine the load to be lifted and use the properly rated rigging.
- Damaged rigging shall not be used and taken out of service.
- Designate one person to instruct the operators to the intended operation. Proper hand signals shall be used.
- All suspended loads will have a tag line of sufficient length to control the load.
- Prior to unloading materials, inspect the load to determine whether the load has shifted.
- All material shall be stacked, racked, blocked, interlocked or otherwise secured to prevent the collapse, sliding, or falling of the material
- Materials shall be stored in a manor to prevent the accidental falling onto employees at any given elevation. No material shall be stored within six feet of a leading edge.
- Storage areas are to be kept free from the accumulation of materials that could create a trip or fire hazard.

- No employee shall be under a suspended load for any reason. It is the operator's responsibility to ensure that the load is not hoisted over any employees.
- All loads shall be bundled, wrapped, or secured to prevent any accidental movement while it is being moved. The operator is responsible for the proper rigging of all loads.
- Personal Protective Equipment shall be worn at all times.
- Only trained and certified employees are allowed to rig/operate forklifts.

FCI Benzene Exposure

This safety guideline is intended to provide suitable information to all employees regarding the potential toxic effects of Benzene so that adequate measures can be taken to limit exposures through controls in the workplace.

GENERAL

Of all the hydrocarbons, Benzene poses the most serious long-term threat. Exposure over time, to even low levels of Benzene can cause leukemia, blood changes and aplastic anemia.

CHARACTERISTICS

Benzene is a colorless to light-yellow liquid with a pleasant, sweet odor.

Formula (C6H6) CAS No: 71-43-2

Benzene is a flammable liquid that can accumulate static electricity. Benzene vapors are heavier that air and may travel to a source of ignition and flash back. The vapors are readily dispersed by wind movement and/or air currents. Liquid benzene tends to float on water and may travel to a source of ignition and spread fire. Benzene is highly reactive with no oxidizing materials. Any and all sources of ignition shall be kept away from benzene.

USES

Benzene is a component of gasoline, both in the manufacturing process and found naturally in crude oil; Benzene is also used as a feed stock for chemical manufacturing.

HEALTH EFFECTS WARNING

Benzene is a cancer-causing agent in humans. All contact should be reduced to the lowest possible level. The above exposure limits are for air levels only. Skin contact may also cause overexposure.

Benzene is one of the most hazardous of all petroleum products because of its adverse health hazards and high flammability.

The following adverse health effects are important to remember where there may be a potential exposure to Benzene:

1. Acute: At high concentrations (1000 PPM) Benzene has an acute effect on the central nervous systems causing headaches, dizziness, drowsiness, unconsciousness, and possible death.
2. Acute exposure can also cause breathlessness, irritability, and giddiness.

3. Chronic: Benzene has the chronic exposure effect on bone marrow (aplastic anemia leukemia).
4. Chronic exposure can also cause convulsions, liver damage, heart damage, blood diseases (aplastic anemia), and cancer (leukemia). These symptoms can take months or years to surface and can develop without physical or visible indications.
5. Repeated skin contact leads to irritant contact dermatitis (rash); as with any petroleum solvent (which Benzene is also classified as), it will leach the natural oils out of the skin. Direct contact with the skin can cause erythema and/or blistering.
6. Benzene is irritating to eyes and mucous membranes.
7. Flammable/dangerous fire risk: benzene has a very low flash point making it dangerous to have any open flame, spark or source of ignition when vapors are present.
8. Explosive limits in air 1.5 to 8% by volume: benzene is highly flammable at low levels of vapor quantity in air.

PERSONAL PROTECTIVE MEASURES

All FCI employees are not permitted to work in areas where there may be a potential for Benzene exposure therefore eliminating the need for respiratory protection or other means of Personal Protective Equipment.

TRAINING

All FCI employees will be provided awareness training in this program in order to be familiar with the potential hazards and proper safe work procedures to follow if exposed to this health hazard.

Hearing Conservation Policy

PURPOSE

FCI is committed to the hearing conservation of all employees. It is the responsibility of all employees to understand how important it is to be aware of the noise level in which they work. We provide training on understanding the working environment, engineering controls and the proper use of hearing protection.

POLICY

FCI shall administer a continuing, effective hearing conservation program, whenever an employee's noise exposures are equal to/or exceeds an 8-hour time-weighted average sound level (TWA) of 85 decibels. This program will include exposure monitoring, audiometric testing, use of hearing protection and employee training.

RESPONSIBILITY

We are responsible for ensuring that noise levels, as specified by OSHA, are addressed, and inform all employees of any exposure over 85 decibels (TWA).

We are responsible to supply all employees hearing protection, providing audiometric testing as required and providing training to employees regarding their exposure.

The project supervision is responsible for ensuring that areas of nigh noise potential are identified and that all employees wear hearing protection as directed.

LIMITING EXPOSURE

FCI has determined that certain work activities are required to have hearing protection.

Hearing Protection shall be worn when working with or near the following tools: chain saws and jack hammers. Hearing protection may be required when working with the following tools: cut off saws, air impact tools, grinders, table saws, miter saws, circular saws, nail guns, hammer drills and all electric hand drills.

Hearing Protection shall be worn when working on or near heavy equipment such as cranes, pumps, bulldozers, scrapers, pile hammers and excavators.

Hearing protection will be provided by us to all employees at no cost. Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors. The company shall supervise the correct fitting and use of all hearing protectors.

EXPOSURE

We will occasionally perform on the site monitoring of noise levels. These noise levels will be taken at various times and will monitor various trades during normal working conditions.

AUDIOGRAM TESTING

Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram shall be established against which future audiograms can be compared. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection way be used to meet the requirement. Employees shall also be notified to avoid high levels of noise.

At least annually after obtaining the baseline audiogram. the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared.

to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing within 2 days of the determination.

TRAINING

We will provide a training program for all employees exposed to a noise of 85 dBA or greater. The training program shall be repeated annually. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes. The training program shall include the effects of noise on hearing; the purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and the purpose of audiometric testing, and an explanation of the test procedures.

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer sha 11 ensure that employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary. The employee shall be referred for a clinical audiological evaluation or an audiological examination, as appropriate, if additional testing is necessary or it the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

DOCUMENTATION

Accurate records of all employee exposure and audiometric measurements shall be maintained as required by the regulation.

Hydrogen Sulfide Awareness

PURPOSE

This safety awareness program is intended to provide information to FCI Construction, herein referred to as FCI, employees regarding the potential health effects of Hydrogen Sulfide (H2S). Our goal is to ensure our employees have the knowledge they need to work safely and adequate measures can be taken to limit exposures through safe work procedures in the workplace.

WHAT IS HYDROGEN SULFIDE (H2S)?

Hydrogen sulfide is the chemical compound with the formula H2S. It is slightly (20%) heavier than air, tends to settle in low-laying areas, and is readily dispersed by wind movements or currents. H2S dissolves in water forming a weak acid (hydro sulfurous acid). H2S will be released when in water when agitated making it a dangerous hidden hazard. A mixture of H2S and air is explosive. When ignition occurs, the combustion produces irritants and toxic gases, including sulfur dioxide (SO2) which can have an irritating effect on the eyes and lungs and can be fatal.

H2S attacks most metals, especially in the presence of water, forming sulfides that are usually insoluble precipitates. It is also very corrosive to plastics and tissue. Hydrogen sulfide is a colorless, very poisonous, flammable, extremely hazardous gas with the characteristic odor of “rotten egg”. It occurs naturally in crude petroleum, natural gas, biogas, LPG, volcanic gases, some well waters, and hot springs. Natural gas can contain up to 90%.

Hydrogen sulfide often results from the bacterial breakdown of organic matter in the absence of oxygen, such as in swamps and sewers (e.g., sewage); this process is commonly known as anaerobic digestion.

Industrial activities that can produce the gas include petroleum/natural gas drilling and refining, wastewater treatment, coke ovens, food processing, tanneries, and kraft paper mills. Hydrogen sulfide can also exist as a liquid compressed gas.

HOW CAN I BE EXPOSED TO HYDROGEN SULFIDE (H2S) GAS?

The main way you can be exposed to hydrogen sulfide gas is by breathing it. You also can be exposed to hydrogen sulfide gas through skin and eye contact. You are also exposed to hydrogen sulfide by the small amount that is produced by bacterial in your mouth and gastrointestinal tract.

Exposure to hydrogen sulfide gas can occur in the home and in the workplace. In the home, exposure may occur because of faulty plumbing. Sewer drains that have dry traps can allow hydrogen sulfide gas to enter the home.

FCI employees can be exposed to hydrogen sulfide while working in areas such as:

- water or wastewater treatment plants,
- manholes and sewers
- sludge lagoons
- pits, underground shafts and tunnels
- electrical utility vaults
- underground utilities and pipelines
- industrial facilities
- food producing facilities
- piping and corroded pipe repairs (H2S is a primary contributor to corrosion in refinery processing units and piping)
- preheat exchangers
- tanks and vessels
- confined spaces
- poorly ventilated spaces
- excavations deeper than 4 feet
- petroleum and natural gas drilling and refining
- farms with manure storage pits or landfills can be exposed to higher levels of hydrogen sulfide.

HEALTH EFFECTS OF H2S EXPOSURE

Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H2S is comparable with that of hydrogen cyanide. It is both an irritant and a chemical asphyxiant with effects on both oxygen utilization and the central nervous system. Its health effects can vary depending on the level and duration of exposure. The effects can be delayed for several hours, or sometimes several days, when working in low-level concentrations.

Repeated or prolonged exposures may cause eye inflammation, headache, fatigue, irritability, insomnia, digestive disturbances, and weight loss. Repeated exposure can also result in health effects occurring at levels that were previously tolerated without any effect. In many individuals, permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function may occur.

You can smell hydrogen sulfide gas at lower levels than may cause health effects, so smelling the gas does not always mean that it will make you sick. However, at higher

levels (100 ppm – 150 ppm), your nose can become overwhelmed by the gas, and you cannot smell it. A person's ability to detect the gas is affected by rapid temporary paralysis of the olfactory nerves in the nose, leading to a loss of the sense of smell. This means that the gas can be present at dangerously high concentrations, with no perceivable odor.

These properties make it extremely dangerous to rely totally on the sense of smell to warn of the presence of hydrogen sulfide gas.

Low concentrations irritate the eyes, nose, throat and respiratory system (e.g., burning/ tearing of eyes, coughing, shortness of breath, and fluid in the lungs). Asthmatics may experience breathing difficulties. These symptoms usually go away in a few weeks after exposure ends. Long-term, low-level exposure may result in bronchitis, pneumonia, pulmonary edema, fatigue, loss of appetite, headaches, irritability, poor memory, dizziness, and loss of motor coordination.

Moderate concentrations can cause more severe eye and respiratory irritation, including coughing, difficulty breathing, and pulmonary edema (accumulation of fluid in the lungs), headache, dizziness, nausea, vomiting, staggering and excitability.

High concentrations (greater than 500 ppm) can cause shock, convulsions, inability to breathe, extremely rapid unconsciousness, coma, and death. Effects can occur within a few breaths, and possibly a single breath.

Health effect at different exposures:

- 0.00047 ppm or 0.47 ppb is the odor threshold, the point at which 50% of a human panel can detect the presence of the compound.
- 0.0047 ppm is the recognition threshold, the concentration at which 50% of humans can detect the characteristic odor of hydrogen sulfide, normally described as resembling "a rotten egg".
- OSHA has established a permissible exposure limit (PEL) (8 hour time-weighted average) (TWA)) of 10 ppm.
- 10–20 ppm is the borderline concentration for eye irritation.
- 20 ppm is the acceptable ceiling concentration established by OSHA.
- 50 ppm is the acceptable maximum peak above the ceiling concentration for an 8 hour shift, with a maximum duration of 10 minutes.
- 50–100 ppm leads to eye damage.
- At 100–150 ppm the olfactory nerve is paralyzed after a few inhalations, and the sense of smell disappears, often together with awareness of danger.
- 320–530 ppm leads to pulmonary edema with the possibility of death.
- 530–1000 ppm causes strong stimulation of the central nervous system and rapid breathing, leading to loss of breathing.

- 800 ppm is the lethal concentration for 50% of humans for 5 minutes exposure (LC50).
- Concentrations over 1000 ppm cause immediate collapse with loss of breathing, even after inhalation of a single breath.
- Although respiratory paralysis may be immediate, it can also be delayed up to 72 hours.

HOW CAN I REDUCE MY EXPOSURE TO HYDROGEN SULFIDE (H2S) GAS?

Workers who may be exposed to hydrogen sulfide gas should follow the guidelines established by the U.S. Occupational Safety and Health Administration (OSHA). OSHA has established confined space entry standards to prevent death from exposure to chemicals like hydrogen sulfide gas.

OSHA has set an acceptable ceiling limit for hydrogen sulfide of 20 parts hydrogen sulfide per 1 million parts of air (20ppm) in the General Industry workplace and 10ppm for the Construction Industry.

The National Institute for Occupational Safety and Health (NIOSH) recommends a 10-minute ceiling of 10 ppm in the workplace.

SAFE WORK PRACTICES

Wherever possible, exposure should be minimized by implementing adequate engineering controls and safe work practices. Our projects are typically multi-employer worksites. Communication must be made with other contractors to ensure our employees are not exposed to the above recommended levels. This will be performed during pre-job meetings, pre-job hazard identification, and at the direction of customer facilities.

The job superintendent and project manager must access the work site to determine the risks associated with the work tasks. All FCI employees must be aware of site-specific contingency and emergency plans.

Before entering areas where hydrogen sulfide may be present:

1. Air must be tested for the presence and concentration of hydrogen sulfide by a qualified person using air monitoring equipment, such as a multi-gas meter that detects the gas. Testing should also determine if fire/explosion precautions are necessary.
2. The space/area must be ventilated continually to remove the gas.
3. If the gas cannot be removed, the person shall not enter the space/area.

OSHA's Confined Spaces standard contains specific requirements for identifying, monitoring and entering confined spaces. Follow the FCI Confined Space Program. Extra precautions must be made in any area that would qualify for low lying areas such as below ground levels of wastewater treatment buildings. Even though these areas are not confined spaces, we must make every attempt to ensure our employees do not succumb to over exposure of hydrogen sulfide.

Should an alarm sound on an H2S detector, immediately evacuate the area and notify your supervisor. Also, immediately notify your foreman and safety director if you feel you have been exposed to or are developing potential signs or symptoms of hydrogen sulfide exposure.

Procedures in the event of a hydrogen sulfide release that requires evacuation:

1. Hold your breath and quickly leave the area containing H2S. Do NOT inhale.
2. Move quickly upwind. Always be conscious of the wind and constantly monitor wind direction. Windsocks and streamers show which direction the wind is blowing so that you can determine the proper safe breathing area.
3. Report to the designated muster point for head count.
4. Do NOT return to work area until it has been determined safe for re-entry.
5. ENTERING DANGEROUS H2S ATMOSPHERES A LEVEL OF H2S GAS AT OR ABOVE 100 PPM IS IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH)

No entry into and IDLH atmosphere will be made by a FCI employee. FCI employees are not trained in the use of self-contained breathing apparatus (SCBA) or rescue training.

NEVER attempt a rescue in an area that may contain hydrogen sulfide without using appropriate respiratory protection and without being trained to perform such a rescue. Many would be rescuers have died as a result to the same high levels as their downed co-workers. Do not become a casualty.

Entry into IDLH atmospheres is prohibited.

WARNING: If the Toxic Gas alarm condition is reached while using the instrument as a personal or area monitor, leave the area immediately as the ambient condition has reached a preset alarm level. If using the instrument as an inspection device, do not enter the area without proper protection. Failure to follow this warning will cause over-exposure to toxic gases, which can result in serious personal injury or death.

PERSONAL PROTECTIVE EQUIPMENT & RESPIRATORY PROTECTION

Protective Engineering controls and work practices are generally sufficient to reduce exposures to at or below the PEL/STEL without the use of respirators. Where an area has been determined to be contaminated with hydrogen sulfide, work will be stopped until further evaluation and engineering practices can be implemented to prevent further exposure to FCI employees.

FIRST AID

Eye: PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN SULFIDE SHOULD NOT WEAR CONTACT LENSES. Flush eyes with large amounts of water for at least 15 minutes, holding eyelids open to ensure adequate rinsing. If irritation persists, seek immediate medical attention.

Skin: Remove contaminated clothing and flush affected area with large quantities of water. If irritation persists or symptoms occur, seek medical attention.
Ingestion: Not anticipated; product is a gas.

Inhalation: PROMPT REMOVAL FROM THE CONTAMINATED AREA TO FRESH AIR AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. If breathing has stopped, perform CPR. Keep the affected person warm and at rest until medical personnel arrive.

TRAINING DOCUMENTATION

All FCI employees, that perform work activities where the potential of exposure to hydrogen sulfide may be present, will be provided awareness training in this program to be familiar with the potential hazards and proper safe work procedures. These standards are designed to protect anyone who could be exposed and suffer serious health consequences. Training records will be kept in the employee's safety training files at the FCI main office in Auburn, IN.