

ACCIDENT PREVENTION PROGRAM

Setting the standard for leadership and excellence in the construction industry

2024



BUILT TRUE. BUILT TOGETHER.



TABLE OF CONTENTS



CHAPTER 1

Company Safety Policy Statement

- a. Abbott Construction Safety Policy Statement

CHAPTER 2

Safety Responsibilities

- a. Company President
- b. Director of Field Operations / Operations Manager
- c. Direct of Environmental Health and Safety
- d. Safety Consultant
- e. Safety Leadership Board
- f. Project Manager / Project Engineer
- g. Superintendent
- h. Foreman
- i. Field Employees
- j. Equipment Manager
- k. Office Safety Officer
- l. Office Staff

CHAPTER 3

Safety Training and Orientation

- a. Safety Training and Orientation Policy
- b. Safety Orientation (New to Jobsite)
- c. Project Safety Rules (English)
- d. Project Safety Rules (Spanish)

CHAPTER 4

Emergency Preparedness

- a. Emergency Policies
- b. Emergency Phone List - Washington
- c. Emergency Phone List - California
- d. Emergency Action Plan
- e. Chemical Spill
- f. Earthquake Procedures
- g. Extreme Weather
- h. Crisis Management Teams

CHAPTER 5

Site Specific Safety

- a. Site Specific Safety Guidelines
- b. Pre-Task Plan (PTP)
- c. Job Hazard Analysis
- d. Job Hazard Analysis Form
- e. Job Hazard Analysis Form (Sample)
- f. Weekly Walk Around
- g. Site Safety Meetings
- h. Weekly Safety Meeting
- i. Housekeeping Policies
- j. Jobsite Security

CHAPTER 6

Hazardous Communication Program

- a. Hazardous Communication Program
- b. Hazardous Materials List
- c. Chemical Product Hazard Analysis Form
- d. Chemical Product Hazard Analysis Form (Sample)
- e. Hazardous Materials Safety Training Checklist

CHAPTER 7

Safety Communication

- a. Safety Communication Policy
- b. Job Start-Up Checklist and Posting Requirements
- c. Safety Suggestions
- d. Workplace Violence Prevention
- e. Heat Related Illness Training Policy & Procedures
- f. Heat Related Illness Weekly Toolbox Safety Meeting Form
- g. Wildfire Smoke / Air Quality

CHAPTER 8

Subcontractor Safety

- a. Subcontractor Safety Policies
- b. Subcontractor Employee Safety Discipline Policy
- c. Subcontractor Safety Questionnaire
- d. Pre-Construction Subcontractor Safety Checklist

CHAPTER 9

Safety Discipline

- a. Safety Discipline Policy
- b. 1st Written Warning
- c. 2nd Written Warning
- d. 3rd Written Warning – Notice of Termination

CHAPTER 10

Accident Investigation & First Aid

- a. Incident Investigation Policy
- b. Procedures for Handling Injury or Illness on the Job
- c. First Aid Policies
- d. Supervisor Incident Report
- e. Worker Incident Report
- f. Witness Statement Form
- g. Root Cause Analysis
- h. Worker Injury Flow Chart
- i. On-Site Health and Safety Posting

CHAPTER 11

Material Storage & Handling Equipment

- a. Material Storage
- b. Forklift Safety
- c. Forklift Training Facts
- d. Forklift Training Form
- e. Heavy Equipment
- f. Mobile Crane Set-Up
- g. Concrete Safety
- h. Lifting Safety
- i. Aerial Lifts OSHA Fact Sheet
- j. Aerial Lifts Safety OSHA Quick Card
- k. Mobile Elevated Work Platforms (MEWPS)

CHAPTER 12

Personal Protective Equipment

- a. Personal Protective Equipment
- b. Hearing Protection Policies
- c. Respirator Policy
- d. Respirator Program
- e. Employer-Provided Information for Medical Evaluations
- f. Respiratory Questionnaire

TABLE OF CONTENTS



CHAPTER 13

Blood Borne Pathogen Program

- a. Blood Borne Pathogen Policy
- b. Blood-Borne Pathogen Fact Sheet
- c. Blood-Borne Pathogen Personal Protective Equipment
- d. Blood-Borne Pathogen Exposure Incident Report Form
- e. Post-Exposure Evaluation & Follow Up Overview
- f. Blood-Borne Pathogen Non-Exposure Incident Waiver or Consent
- g. Blood-Borne Pathogen Exposure Incident Blood Source Testing
- h. Blood-Borne Pathogen Exposure Incident Waiver or Consent

CHAPTER 14

Substance Abuse

- a. Substance Abuse Policies & Procedures
- b. Reasonable Suspicion or Post-Accident Testing Documentation Form (Exhibit A)
- c. Last Chance Agreement (Exhibit B)

CHAPTER 15

Fall Protection Program

- a. Fall Protection Policies
- b. Fall Protection Policies – California
- c. Fall Protection Plan Form
- d. Ladder Safety
- e. Scaffolding
- f. Floor, Wall, & Stairway Openings Standard Guardrail

CHAPTER 16

Confined Space Program

- a. Confined Space Policy
- b. Confined Space Program
- c. Confined Space Jobsite Training Documentation Log
- d. Confined Space Locations Map
- e. Confined Space Job Hazard Analysis Form
- f. Confined Space Air Monitoring Form
- g. Confined Space Entry Safety Plan
- h. Permit Required Confined Space Entry Safety Plan
- i. Permit Required Confined Space Entry / Exit Log
- j. Confined Space Warning Sign
- k. Permit Required Confined Space Warning Sign

CHAPTER 17

Environmental Hazard Protection

- a. Asbestos Policy & Procedure
- b. Asbestos Awareness Training Log
- c. Environmental Tobacco Smoke Policy
- d. Lead Policy
- e. Mold Policy
- f. Concrete Dust & Silica

CHAPTER 18

Company Vehicle Program

- a. Company Vehicle Safety Program
- b. Weekly Vehicle Inspection Log

CHAPTER 19

Crane Safety

- a. Crane Safety Policy
- b. Mobile Crane Job Hazard Analysis Form
- c. Mobile Crane Set-Up Checklist

CHAPTER 20

Electrical Policies & Procedures

- a. Jobsite Electrical Policies
- b. Assured Grounding Program
- c. Assured Grounding Log

CHAPTER 21

Infection Control Procedures

- a. Infection Control Policy
- b. Daily Area Work Notice
- c. Notice of Requested Shutdown
- d. Site Specific Infection Control Plan
- e. Daily Infection Control Checklist
- f. APIC Guidelines for Construction in Medical Facilities

CHAPTER 22

Fire Prevention & Safety

- a. Fire Emergency & Prevention Procedures & Policies
- b. RACE PASS Safety Poster
- c. Gasoline Safety
- d. Temporary Heating
- e. Hot Work Policies & Procedures
- f. Hot Work Permit
- g. Fire Watch Log

CHAPTER 23

Lockout | Tagout

- a. Lockout | Tagout Policy & Procedures

CHAPTER 24

Inspections

- a. OSHA Inspection Guidelines
- b. Focused OSHA Inspections

CHAPTER 25

Stretch & Flex

- a. Stretch & Flex

CHAPTER 26

Trenching & Excavating

- a. Trenching & Excavating Safety
- b. Dump Trucks in the Construction Zone

CHAPTER 1 – COMPANY SAFETY POLICY STATEMENT

section a

Abbott Construction Safety Policy Statement

At Abbott Construction, our most valued asset is our people. The responsibility to keep our employees safe, as well as our construction partners and the public, is something Abbott's leadership takes very seriously and is our top priority. We are firm in our commitment that everyone returns safely home to their family and friends at the end of the day.

Construction by its very nature can be a risky business and Abbott takes every measure to minimize those risks by providing our staff with whatever tools and training they need to ensure their workplace environment is safe and free of any hazards. We also expect ALL employees and subcontractors to be proactive participants in creating a safe workplace environment by following Abbott's guidelines and maintaining a high-level of awareness towards safety at all times — all while promoting and practicing safe work habits.

Since safety revolves around personal responsibility, **Abbott's leadership empowers every employee, regardless of their role, to take ownership of it.** Not just of their personal safety, but the safety of those around them as well. We expect our employees to take immediate action if they see anyone or anything that causes concern, either by reporting the issue to their supervisor or personally correcting and/or eliminating the concern.

Our detailed and robust *Accident Prevention Program (APP)*, along with regular implementation of *Site Specific Safety Plans (SSSP)*, are designed to work together to identify, eliminate, and control undesired and unexpected events that can result in physical harm or property damage. Every employee is required to thoroughly read the APP and project SSSP, resulting in a clear understanding of Abbott's overall expectations for safety management and the roles and responsibilities we each carry. Each employee is then expected to conscientiously work in accordance with the requirements. **Employees unwilling to work in accordance with Abbott's Safety Policies and Procedures should seek work elsewhere.**

Safety awareness is a never-ending endeavor. By keeping it at the forefront of everyone's mind and continuously looking for areas of improvement, we are able to promote a safety culture that allows everyone to return home in the same healthy condition as they arrived.

Sincerely,

ABBOTT CONSTRUCTION LLC

Troy Stedman,
President | CEO

CHAPTER 2 – SAFETY RESPONSIBILITIES

section a



COMPANY PRESIDENT

1. Publish a signed "Safety Policy" reflecting Senior Management's commitment to safety and loss control.
2. Check that a written company Accident Prevention Program is developed, implemented, and updated as needed.
3. Delegate responsibilities for carrying out company safety policies.
4. Budget funds and time needed by personnel to carry out Abbott Construction's Accident Prevention Program.
5. Review safety practices and safety statistics.
6. Consider safety in evaluating all supervisors' and Employees' job performance.

DIRECTOR OF FIELD OPERATIONS / OPERATIONS MANAGER

1. Have high level of knowledge of company safety policies, follow them yourself and insist on compliance at job all jobsites.
2. Assist Project Managers in building safety into the project at time of bid or negotiations and recommend only Subcontractors with demonstrated safety performance.
3. Be an active participant in the Senior Management's commitment to safety and loss control.
4. Monitor that those working under your direction account for their safety performance and records. Assist new Superintendents with necessary tools and knowledge to enforce Safety policies and procedures.
5. Monitor that field Supervisors support and enforce safety discipline policy to not only Abbott Construction employees but Subcontractors as well. Make safety a condition of employment.
6. Monitor that new employee orientations and training are complete and consistent at the jobsites.
7. Provide opportunity for training for supervisory and field personnel and monitor that they have adequate training to serve as competent persons in all required areas.
8. Frequently check that the claims management and return to work program for injured workers are managed and properly tracked.
9. Frequently check that site Superintendents are enforcing safety standards for all workers on site.
10. Consider safety in evaluating all Supervisors and Employees job performance.
11. Be an active participant in the Safety Leadership Board meetings.

DIRECTOR OF ENVIRONMENTAL HEALTH AND SAFETY

1. Have high level of knowledge of company safety policies, follow them yourself and insist on compliance at job all jobsites.
2. Assist Project Managers in building safety into the project at time of bid or negotiations and recommend only Subcontractors with demonstrated safety performance.
3. Be an active participant in the Senior Management's commitment to safety and loss control.
4. Monitor that those working under your direction account for their safety performance and records. Assist new Superintendents with necessary tools and knowledge to enforce Safety policies and procedures.
5. Establish annual safety budgets needed to fulfill the policies and procedures outlined in the Accident Prevention Program.
6. Review accident reports, safety suggestions, safety practices and safety statistics quarterly with company President and Safety Consultant / Training Officer. Set goals and problem solve as needed.
7. Monitor that field Supervisors support and enforce safety discipline policy to not only Abbott Construction employees but Subcontractors as well. Make safety a condition of employment.
8. Monitor that new employee orientations and training are complete and consistent at the jobsites.
9. Provide opportunity for training for supervisory and field personnel and monitor that they have adequate training to serve as competent persons in all required areas.
10. Frequently check that the claims management and return to work program for injured workers are managed and properly tracked.
11. Frequently check that site Superintendents are enforcing safety standards for all workers on site.
12. Consider safety in evaluating all Supervisors and Employees job performance.
13. Be an active participant in the Safety Leadership Board meetings. Communicate new projects to the Safety Consultant / Training Officer for consistent inspections throughout the company.
14. Frequently check that all provisions of the Hazardous Communication Program are implemented and carried out.

SAFETY CONSULTANT

1. Work alongside Director of Environmental Health and Safety to provide safety training as needed for Abbott employees.
2. Perform periodic and random jobsite inspections at each site coordinated with the Director of Environmental, Safety, & Health.
3. Monitor inspections for trends and report any trends Director of Environmental, Safety, & Health.
4. Inspect project documentation for consistency, accuracy, and relevance regarding site specific requirements.
5. Attend preconstruction job safety meetings with trade partners and site Superintendent if requested.
6. During project visits review Site Specific Safety Plan, Pre-Task Plans, Job Hazard Analysis, Fall Protection Work Plans, Personal Protective Equipment, Training, trade partner CAP compliance, etc.
7. During project visits check that all required signage is current and posted.
8. Be familiar with company policies as well as OSHA and State Plan regulations as they apply. Follow them yourself and insist on complete compliance at jobsites. Stay up on the latest safety technology and new OSHA and State Plan regulations as they apply. Assist with updating the Accident Prevention Program as needed.
9. Periodic unscheduled jobsite safety visits shall be performed at jobsites regardless of size or location. The following is a guideline for the visit:
 - a. Check in with the site superintendent prior to conducting the job walk.
 - b. Check the jobsite / trailer documentation for the following:
 - i. Weekly Walk Around Documentation
 - ii. Weekly Safety Meeting Documentation
 - iii. Pre-Task Plan
 - iv. Job Hazard Analysis
 - v. Subcontractor Site Specific Safety Plans/CAP Compliance
 - vi. Hazardous Communication Log and SDS sheets
 - c. Meet with the jobsite safety officer/superintendent and discuss activities happening onsite at the time of visit.
 - d. Walk the job with the jobsite safety officer/superintendent, if opportunity allows, and document any hazards or concerns.
 - e. Document each instance being specific to as to the violation with photo, do not make general statements in regard to hazards.

Example: Worker from Such and Such Drywall standing on railing of scissor lift to gain additional work height.
**Workers asked to secure self in lift and come down to the ground. Worker was informed of the policy and asked to comply.
 - f. On minor issues talk through them with the Safety Officer/superintendent, correct and do not document unless it is deemed a recurring issue.
 - g. Coach project team members on areas to improve and continue to be leaders in safety.
 - h. Work with Director of Environmental, Safety, & Health to provide solutions for safety infractions.
 - i. Formalize visit and email report to the following recipients:

CEO/President
Vice Presidents
Director of Field Operations or Operations Manager
Director of Environmental, Safety, & Health
Site Superintendent
Project Manager
And others

10. Recommend a candidate for Safety Superintendent and Field Worker of the year.
11. Provide safety resources and actively support Project Managers, Superintendents, and Field Workers with problem solving for successful jobsite safety in alignment with Abbott Construction's safety commitments.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section e



SAFETY LEADERSHIP BOARD

Abbott Construction's Safety Leadership Board is a group of representative employees who meet together to discuss methods and means of eliminating unsafe practices and conditions in the workplace. They do not assume Management's responsibilities or privilege, but rather work closely with Executive Management in reviewing and suggesting methods to provide a safe and healthful workplace.

1. Board members will consist of both corporate and regional representation.
2. The mission of the board will be to initiate safety directives to be carried out by the individual regions. Employees in each region are encouraged to be involved in carrying out these directives.
3. Meetings will be held at least quarterly, unless otherwise specified by the Board chairperson.
4. Minutes will be taken at meetings and distributed to all members in a timely manner. Minutes may also be distributed to the field for review.
5. Board meetings shall follow normal parliamentary procedures. All members shall have opportunity to add items to the agenda.
6. Annually, the board shall establish and communicate goals for the coming year and produce an end of year summary of accomplishments for Executive Management.
7. Annually each January, the board shall review the Hazardous Communications Policy and Program for potential need for modifications.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section f

PROJECT MANAGER / PROJECT ENGINEER

1. Have well defined knowledge of Abbott Construction's company policies along with adequate knowledge of OSHA and OSHA State Plan Regulations as they apply. Follow them yourself and insist on complete compliance on the jobsites. Monitor by inspection, employee and Subcontractor compliance.
2. Take the proper time at the time of bid to identify and account for safety needs of the project. Budget time and materials appropriately and encourage field workers to utilize the recourses at hand to maintain a high level of safety on the job.
3. Work closely with Subcontractors. Actively review and enforce Subcontractor policies for compliance with policies and procedures enlisted by Abbott Construction, OSHA, and OSHA State Plan Regulations as they apply.
4. Check that there has been a designated Safety Officer elected to prepare and present jobsite safety meetings on a weekly basis for all site workers. Encourage workers to participate in site safety issues. Check that copies of the documentation for these meetings are filed at the jobsite and posted on the jobsite safety bulletin board.
5. Monitor that the site is formally inspected weekly. Check that all identified hazards are corrected.
6. Be knowledgeable concerning SDS of substances used at your site. Work with Superintendent to monitor that proper training of employees has been conducted on hazardous chemicals for situations that they might encounter during normal working conditions or during emergencies.
7. Check that first aid kits are stocked, and emergency numbers are posted.
8. During visits to the jobsite inspect the job while you are there. Monitor any safety hazards you personally observe or that are brought to your attention by employees or Subcontractors. Discuss your observations with the Superintendent and work to eliminate the hazard.
9. Monitor that all Subcontractors and Abbott Construction employees have established and are adhering to any and all Fall Protection and Job Hazard Analysis Plans necessary to perform their work.
10. Be actively involved with the monitoring of and the response to site inspections and participate in resolution when issues of safety occur.
11. Study and be familiar with all sections of Accident Prevention Program and Site Specific Plans.
12. Setup any training required for any specific areas of safety concern.
13. Check that the site safety bulletin board is maintained according to code, company policy, and that it is neat and organized.
14. Work alongside field workers and coach them in the proper use of safety policies and procedures.
15. Actively acknowledge and reward those workers who demonstrate great performances regarding safety.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section g

SUPERINTENDENT

1. Shall oversee jobsite's compliance with Abbott Construction, OSHA and OSHA State Plan regulations as they apply regarding all safety policies and procedures.
2. Have well defined knowledge of Abbott Construction's company policies along with adequate knowledge of OSHA and OSHA State Plan regulations as they apply. Follow them yourself and insist on complete compliance on the jobsites. Monitor by inspection, employee and Subcontractor compliance.
3. Work closely with Subcontractors. Actively review and enforce Subcontractor policies and monitor compliance to policies and procedures enlisted by Abbott Construction, OSHA, and OSHA State Plan regulations as they apply.
4. Monitor that the site is formally inspected weekly. Frequently check that all identified hazards are corrected.
5. Be knowledgeable concerning SDS of substances used at your site. Inform and train employees on hazardous chemicals for situations that they might encounter during normal working conditions or during emergencies. Update site SDS log on a regular basis as materials show up on site.
6. Check that first aid kits are stocked, and emergency numbers are posted.
7. Inspect the jobsite on a regular basis. Monitor any safety hazards you personally observe or that are brought to your attention by employees or Subcontractors. If unable to eliminate the hazard, coordinate a best practice for safety compliance.
8. Establish a Fall Protection Plan for your site and monitor the guidelines are followed. Regularly monitor the site for possible fall hazards and enforce fall protection policies. Follow Abbott Construction, OSHA and OSHA State Plan regulations as they apply.
9. Provide and monitor the proper use and care of all company personal protective equipment.
10. Check that a designated Safety Officer is elected to prepare and present jobsite safety meetings for all site workers on a weekly basis. Encourage workers to participate in site safety issues. Check that copies of the documentation for these meetings are filed at the jobsite and posted on the jobsite safety bulletin board.
11. Maintain a site specific safety manual at the jobsite. Include in your manual photocopies of first aid cards, site specific fall protection plan, site specific safety plans, completed safety meeting notes, and emergency site plan. Also maintain a copy of the Abbott Construction Accident Prevention Program.
12. Review SDS for substances Subcontractors and Abbott Construction employees will use at the jobsite. Subcontractors should highlight precautions. Work with Subcontractor to determine if less toxic substances can be used if necessary. If a respirator is required to work with a substance, Subcontractor must document their program, training and equipment.
13. Accurately complete and report accident and near miss report forms to the Director of Environmental, Health and Safety within 8 hours of an injury or near miss. All injuries, even if minor shall be reported immediately. Use the Injured Worker Flowchart. All Subcontractors must submit a copy of their accident report for any accident that occurs on an Abbott Construction jobsite. If the accident or near miss is serious, an in-house accident investigation shall be done to supplement Subcontractor's information. Always follow the accident reporting guidelines located in Chapter 10 of the Accident Prevention Program.
14. Monitor that injured employees receive medical care as needed. Always follow procedures for handling injury or illness on the job located in Chapter 10 of the Accident Prevention Program. Actively follow the progress of injured employees and display an interest in their return to work.
15. Following a severe accident, participate in the accident investigation. Do not allow equipment or the accident scene to be tampered with except to prevent further injury or to remove a victim.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section g continued

16. Study and be familiar with all sections of the Accident Prevention Program.
17. Receive training for Blood Borne Pathogens and treat blood as a hazardous substance. Report any blood spills immediately to the Director of Environmental Health and Safety.
18. Prepare jobsite emergency plan for your jobsite. Train employees and post the plan on the jobsite safety bulletin board.
19. Although Subcontractors are responsible for the training, equipping, and monitoring of their own employees, it is the responsibility of the Superintendent to require the Subcontractor to work according to code, follow Subcontractor safety discipline policies, and monitor that Subcontractors have site specific safety plans and fall protection plans as needed.
20. Supervise and enforce employee and Subcontractor safety discipline policies.
21. Check that site is closed down each evening with hazards to public secured. Follow site security guidelines.
22. Request training on any job specific area of concern for the site.
23. Maintain site safety bulletin board according to code, company policy, and that it is neat and organized.
24. Work alongside field workers and coach them in the proper use of safety policies and procedures.
25. Actively acknowledge and reward those workers who demonstrate great performances in regard to safety.
26. Be prepared to conduct new to the jobsite orientations for both Abbott Construction employees as well as Subcontractors.
27. Actively lead, promote, and participate in the Abbott Construction Stretch and Flex Program.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section h

FOREMAN

1. Be familiar with Abbott Construction's Safety Policy and Accident Prevention Program including the jobsite safety rules. Be familiar with the OSHA and OSHA State Plan regulations as they apply to the jobsite.
2. Require the proper use, care, and maintenance of all required personal protective equipment, machinery, and tools.
3. Eliminate any hazards that you observe or that are brought to your attention. If unable to resolve hazards refer them to site Superintendent.
4. Receive and take initial action on employee suggestions.
5. Be knowledgeable concerning SDS for substances used by the site's crew.
6. Obtain First Aid / CPR and Blood Borne Pathogen training.
7. Be familiar with site fall protection plan and check that crews are working in accordance to the plan's guidelines. Constantly monitor crew and work area for fall protection hazards.
8. Be familiar with the site emergency plan and your crew's responsibilities in case of emergency.
9. Follow site specific safety plans specifications for the tasks that Abbott Construction is performing as well as the task of Subcontractors.
10. Prepare and present site safety meetings as assigned by Superintendent.
11. Assume any other safety responsibilities assigned by Superintendent.
12. Monitor that accident reports and documentation thereof are completed for any accident involving any of the site's crew members. Report any blood spills immediately to the jobsite Safety Officer.
13. Positively reinforce safe work practices of employees and Subcontractors.
14. Enforce company safety discipline policy with the assistance of the site Superintendent.
15. Be prepared to acknowledge individual workers of the crew and Subcontractors that are doing a great job in regard to safety.
16. Be prepared to conduct new to the jobsite orientations for both Abbott Construction employees as well as Subcontractors.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section i

FIELD EMPLOYEES

1. Attend new employee orientation. Receive training in general safety, company policies, hazardous substances, emergency procedures, fall protection, personal protective equipment, and safe practices for specific duties of your job.
2. Comply with all company, OSHA, and OSHA State Plan regulations as they apply. Use your common sense, think ahead, work as a team and question what you consider to be unsafe.
3. Consistently wear personal protective equipment and dress as required.
4. Inspect all equipment and tools daily, prior to use.
5. Immediately report all on the job injuries to your Supervisor.
6. Immediately report potential safety hazards or near misses to your Supervisor.
7. Operate only equipment and tools that you have been trained and authorized to use.
8. Read labels on and do not handle chemicals or substances unless you have been trained on their safe use. Know where to find and be familiar with the SDS for substances that you are using.
9. Attend weekly safety meetings.
10. Learn the correct methods of lifting and use them as you work. Use equipment or an adequate number of workers when lifting heavy items.
11. Review information on safety bulletin board in the site office on a regular basis.
12. Good housekeeping practices must be followed. Clean up as you go, bend nails over, dump garbage frequently, keep area neat, and never block stairs, doorways, or halls.
13. Be familiar with the fall protection guidelines as outlined in Chapter 15 of the Accident Prevention Program. Be an active participant in the setup and follow up of the Fall Protection Work Plan for the specific jobsite. Inspect your fall protection equipment prior to each use.

EQUIPMENT MANAGER

1. Monitor that each jobsite has access to first aid kits and supplies that meet or exceed the requirements for that specific site. Some sites may require multiple kits.
2. Upon return to the Equipment Center from a jobsite, check that all first aid kits are properly stocked, and fire extinguishers are charged. All charges to perform this work will be charged to the project they were received from.
3. When driving or riding in a company vehicle, fasten your seat belt and follow defensive driving rules.
4. Order, maintain and disperse safety equipment, as needed to the jobsites. Check that all personal protective equipment is available as needed. Remove any fall protection device that has been involved in restraining a fall from inventory.
5. If any chemicals, paints, liquids and / or powders are stored at the Equipment Center monitor that SDS are available and included in the Site Specific SDS binder. Update this regularly as new products come off jobsites. If products are sent out to sites from the Equipment Center, check that all containers are properly labeled and a copy of the SDS is sent with the product.
6. Maintain a Site Specific Safety Manual and SDS binder at the Equipment Center. Perform weekly walk around and fill out Job Hazard Analysis, updating if new hazards arise.
7. Monitor that all workers in the Equipment Center actively participate in the Abbott Construction Stretch and Flex program daily at the start of the work shift.
8. Obtain First Aid / CPR and Blood Borne Pathogen training.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section k

OFFICE SAFETY OFFICER

The Office Safety Officer shall be a person who has been nominated by the office staff to promote and support safety in the office environment. Duties of the Office Safety Officer are as follows:

1. Procure, setup, and maintain the Site Specific Safety manual and Hazard Communication manual for the office. Update all changes on a regular basis as needed.
2. Check that the proper amount and type of Fire Extinguishers are located throughout the office. Visually inspect fire extinguishers monthly. Return any discharged or damaged extinguishers to Equipment Manager.
3. Monitor for and correct any possible fire hazards, electrical, and / or slip trip and fall hazards. Check that no smoking signs are posted and obeyed.
4. Monitor and maintain the Safety Bulletin Board at office with all required documentation. Check that it is in an area that is frequently visited by all staff.
5. Be available to have dialogue with office staff on issues related to safety in the workplace.
6. Obtain First Aid / CPR and Blood Borne Pathogen training. Monitor that first aid kits are stocked.
7. Perform monthly walk around and fill out documentation of the walk noting any hazards or problems. Maintain the records of the walk around documentation
8. Prepare and maintain an office emergency plan. Post on the safety bulletin board and monitor that all office staff members are aware of their responsibilities. Include floor plan of office with locations of exits, SDS books and fire extinguishers. Post emergency numbers by all telephones. Conduct an emergency evacuation drill at least annually.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section I

OFFICE STAFF

1. Stop and correct unsafe conditions immediately.
2. Attend new employee orientation. Receive training in general safety, company policies, emergency procedures, and safe practices for specific duties of your job.
3. Comply with all company, OSHA, and OSHA State Plan regulations as they apply.
4. Immediately report all on the job injuries, accidents, and near misses using the Injured Worker Flowchart.
5. Halls, aisles, stairwells, doorways, fire doors and passageways need to be kept clear of obstructions. Trash cans, briefcases, and desk or file drawers should never protrude into walking space. Do not allow anything to block exits, even temporarily.
6. Pick up pencils, paper clips and rubber bands when they fall. They along with coffee and water spills can cause very serious slip and fall injuries.
7. Only trained workers shall stand on step stools or use ladder; never stand on swivel chairs or other office furniture.
8. Telephone and electrical cords that clutter floor area under desks should be clipped or taped down. Cords that cross walkways must be protected by cord protectors. Do not use frayed or cut extension cords or overload electrical outlets; never use one plug strip to power another plug strip.
9. Check that heavy cabinets or file cupboards are bolted down and don't store heavy or glass items on top of them. Do not open more than one file drawer at once. Make sure that you open / close cabinet doors with caution. Items tend to slide or fall over time. Evaluate your personal work area to see what would fall on you during an earthquake
10. Report any faulty equipment, chairs, flooring, handrails, or any other item you deem hazardous to the Office Safety Officer.
11. Do not move furniture, cabinets, equipment or heavy boxes or supplies.
12. Learn how to correctly lift. Use your legs, not your back. Never lift and twist. Know your limitations and get help. Avoid carrying a load that obstructs your vision.
13. Rotate your tasks if possible. Alternate standing, typing and other deskwork. If you feel neck, eye, hand, or back strain, change what you are doing and come back to it later. Adjust your desk, footrest, computer monitor, chair, and keyboard to fit you. Report uncomfortable work stations to the Office Safety Officer.
14. Be familiar with your office and building layout. Study floor plans and learn location of all exits and fire extinguishers. Review the office emergency plan periodically and know your role in an emergency.
15. Be observant of fire hazards. Coffee pots that are empty, but still on, are a frequent office fire culprit. Report any equipment that overheats, sparks, or has a cord that shows sign of wear. Do not overload an electrical outlet. Learn how to operate a fire extinguisher and review the office fire protection policies.
16. Review information and materials on your location's safety bulletin board.
17. Be aware of chemicals used at the office. Know where the Safety Data Sheets (SDS) are stored and how to read them. Learn about chemicals and the hazards they create before you use them.
18. Know who is First Aid / CPR trained at your location, where the first aid kits are located and how to call for help.
19. Although blood spills are uncommon in an office setting, workers need to be aware of the company Blood Borne Pathogen policy. Blood is to be treated with universal precautions. Gloves are to be worn when administering first aid and special clean up kits are to be used for blood spills. Every time there is a blood spill and other employee(s) are exposed to the blood, the Office Safety Officer must be notified immediately.
20. Use good housekeeping practices at your own workstation. Do not mix sharp items like tools or scissors with desk clutter.

CHAPTER 2 – SAFETY RESPONSIBILITIES

section I continued

21. Be alert for pinch points in drawers, elevators, and doorways.
22. Smoking is not allowed, except in a designated smoking area away from hazards and area used by non-smokers.

SAFETY TRAINING & ORIENTATION POLICY

At Abbott Construction, we strongly believe that if you teach employees safe work principles and methods, they will practice them. All employees are required to participate in continuing safety education. The following practices are policy:

1. All new employees, regardless of hiring for the field or office, will receive a Safety Orientation prior to beginning their regular duties.
2. In addition to the New Hire Orientation all workers assigned to a project in the field will receive a safety orientation specific to that jobsite, prior to beginning work. Completed orientation forms should be kept in the jobsite Site Specific Safety binder or the digital project folder and will remain with the archived records of that job. See Chapter 3, Section c of the Accident Prevention Program for the required form.
3. All field supervisory personnel should hold a current First Aid / CPR certification per OSHA and OSHA State Plan requirements. A tracking system is in place to administer proper retraining prior to expiration dates.
4. Job site safety meetings will be held weekly at each jobsite.
5. All trade partners are required to participate in a jobsite orientation prior to performing work on site.
6. Abbott Construction is committed to providing training in all aspects of safety as it pertains to the work that we perform.

CHAPTER 3 – SAFETY TRAINING & ORIENTATION

section b



SAFETY ORIENTATION (New to Jobsite)

Job Name: _____ Job #: _____

Employee Name: _____ Company Name: _____

Office Phone #: _____ Supervisor Name: _____

Is this employee First Aid / CPR Certified? _____

- Introductory Safety 360 Video
- Safety 360 – Everybody-Everywhere-Everyday

Review the Items Below

- Introduction to Abbott site Supervision
- Contents of the Project Safety Bulletin Board
- Weekly Safety Meetings location and time
- Jobsite Emergency Action Plan, jobsite address information & site map and muster points
- Hazard Communication Program
- Hazardous Material Lists and SDS
- Pre-Task Plan requirements and expectations
- Location of First aid kits, eye wash stations, and spill kits
- Fire extinguisher locations and expectations in event of fire
- Fall protection plans
- Ladder work/safety
- Heat related illness/air quality information
- Proper equipment usage requirements, i.e., forklift, boom lift, etc.
- Personal Protective Equipment – Hardhat, Safety glasses, High Visibility vest or clothing, boots, and gloves. Additional tasks require additional equipment, i.e., ear plugs and respirators.
- Trench & Excavation Safety
- Red & Yellow rope – Discuss proper use of each
- Lock Out & Tag Out Procedures
- Crane Safety & Rigging
- Scaffold Use – Competent person required for each trade using scaffold
- Hot Work (welding, cutting, burning, grinding)
- Confined Spaces requirements
- Notes of concern and awareness from recent safety walks and safety meetings
- Tool inspections
- Keep Work Area Clean and Organized
- Fitness for Duty – includes 'State of Mind' – look out for your fellow workers
- Distribute Orientation sticker

I affirm that the items initialed above have been reviewed and explained to me

Employee Signature

Date

PROJECT SAFETY RULES

1. **KNOW YOUR JOB.** Follow instructions. If you do not know the correct and safe way to do the job, ask your supervisor.
2. **USE THE RIGHT TOOLS.** Be sure they are in good repair. Use only tools for the purpose for which they were intended.
3. **KEEP YOUR WORK AREA CLEAN AND ORDERLY.** Keep paths of travel free of tools, material, and scrap. No materials shall be stored on stairways or in walkways. Keep cords and hoses off the stairways. Always use designed walkways and not shortcuts.
4. **DRESS APPROPRIATELY FOR CONSTRUCTION WORK.** Long trousers, shirts with sleeves four inches over the shoulder, and sturdy work boots appropriate for the task are the minimum acceptable requirements for this project. Loose or ragged clothes, including athletic pants, shall not be worn.
5. **USE PERSONAL PROTECTIVE EQUIPMENT.** Wear your hard hat, safety vests, gloves, and safety eyewear at all times. Use face protection, hearing protection, and respirators as the job demands for your protection.
6. **FALL PROTECTION.** Fall protection may be required at any height. Falling onto or into something from any height can cause serious injury. Inspect your work space for hazards. Reference Chapter 15 of the Abbott Construction Accident Prevention Program or ask your Supervisor for the Fall Protection Rules applicable for this project.
7. **INSPECT ALL LADDERS AND SCAFFOLDS BEFORE USE.** Follow the manufacturer's instructions for the safe use of this equipment. If you have not received training for the safe use of this equipment, see your Supervisor.
8. **MATERIAL HANDLING EQUIPMENT & AERIAL LIFTS.** Operate only equipment that you have been trained and authorized to operate. Observe all warning signs and manufacturer's instructions. Do not operate unsafe equipment.
9. **HANDLE MATERIALS SAFELY.** Know the correct way to lift. Get help when necessary.
10. **TRENCHING AND EXCAVATION WORK.** This work must be under the direction of a competent person that is knowledgeable in the safety requirements and the potential hazards. Do not enter any excavation unless it has been inspected by the competent person.
11. **ELECTRICAL SAFETY.** Electrical equipment must be installed or repaired only by trained, authorized personnel. All electrical tools, extension cords, and equipment must be effectively grounded or double insulated. Inspect your tools, cords, and equipment daily or before each use. Remove any tool, cord, or equipment that is damaged from service immediately.
12. **OBEY ALL WARNING SIGNS AND WARNING TAPE.** Examples of warning signs that are to be observed are "Keep Out", "No Smoking", "Hard Hat Required", etc.
13. **REPORT ALL INCIDENTS.** Get first aid immediately. Notify your supervisor as soon as possible of the incident, the extent of your injury, and the unsafe condition or unsafe act that caused your injury. Refer to injured worker flowchart.
14. **ILLEGAL DRUGS, CONTROLLED SUBSTANCES, ALCOHOL.** All workers at this project are prohibited from being under the influence of, or otherwise being involved with illegal drugs, controlled substances, marijuana, or alcohol.
15. **HAZARDOUS CHEMICALS.** All hazardous materials used or in storage at this site are subject to the provisions of the Hazard Communication Standards in OSHA and OSHA State Plan regulations as they may apply. Any employee that may use or be exposed to such hazardous material must receive training of the hazards associated to that material. All containers must be properly labeled. Hazardous Materials are only to be stored in areas designated. Any spill or accidental release of any chemical is to be reported to Abbott Construction immediately.
16. **HIV (AIDS), HBV (HEPATITS), BLOOD BORNE PATHOGENS.** Contact with blood or other body fluids can be hazardous. Contact your Supervisor immediately if any contact is made. Take precautions to prevent contact and wash all skin as soon as possible after any contact.

CHAPTER 3 – SAFETY TRAINING & ORIENTATION

section c continued

17. **FOLLOW JOB SAFETY RULES.** Abbott Construction reserves the right to remove from the project, any worker that fails to comply with the Project Safety Rules. Workers are to report any unsafe conditions, unsafe acts, injuries, incidents or near misses to their Supervisor immediately!
18. **SCAFFOLDING.** Do not erect, use, or maintain scaffolding, of any type, unless you have been specifically trained to do so and can show evidence of such training. Report unsafe scaffolding or misuse of scaffolding to the project leadership immediately.
19. **FORKLIFTS.** Do not get on or operate any type of forklift or material handling equipment unless you have been trained in accordance with Abbott Construction Policy and such training has been documented with the record onsite. Refer to Chapter 11 of the Abbott Construction Accident Prevention Program for policies in regard to forklifts and material handling.
20. **HEARING PROTECTION.** Be aware of loud noise and know that it can be harmful to your hearing. Look for signs that require hearing protection. Wear hearing protection in any area where harmful noise levels may be present or where signs have been posted.

Additional Safety Requirements are in the Abbott Construction Accident Prevention Program

CHAPTER 3 – SAFETY TRAINING & ORIENTATION

section d

NORMAS DE SEGURIDAD PARA PROYECTOS

(Project Safety Rules in Spanish)

1. **CONOCER SU TRABAJO.** Siga las instrucciones. Si usted no sabe la forma correcta y segura para hacer el trabajo, pregunte a su supervisor.
2. **UTILIZAR LAS HERRAMIENTAS ADECUADAS.** Asegúrese de que están en buen estado. Utilice sólo herramientas con el propósito para el que fueron destinados.
3. **MANTENGA SU LUGAR DE TRABAJO LIMPIO Y ORDENADO.** Mantener rutas de paso libre de las herramientas, materiales y desechos. Ningún material se almacenarán en las escaleras o en los pasillos. Mantenga los cables y mangueras fuera de las escaleras. Utilice siempre pasarelas diseñadas y no accesos directos.
4. **VÍSTASE APROPIADAMENTE PARA LA CONSTRUCCION.** Pantalones largos, camisas con mangas de cuatro pulgadas sobre el hombro, y zapatos de trabajo o botas apropiadas para la tarea son los requisitos mínimos aceptables para este proyecto. La ropa suelta o irregulares, incluyendo pantalones de sudor, no se deben usar.
5. **USAR EQUIPO DE PROTECCIÓN INDIVIDUAL.** Use su casaco, chalecos de seguridad, guantes y gafas de seguridad en todo momento. Utilice protección de la cara, protección para los oídos y respiradores como las solicitudes de empleo para su protección.
6. **CAER DE PROTECCIÓN.** Protección contra caídas puede ser requerido a cualquier altura. Cayendo sobre o en algo desde cualquier altura puede causar lesiones graves. Inspeccione su espacio de trabajo para los peligros. Referencia Capítulo 15 del programa de prevención de accidentes de construcción abbott o pregunte a su supervisor para las reglas de protección contra caídas aplicables para este proyecto. Los requisitos pueden variar de estado a estado.
7. **INSPECCIONE TODAS LAS ESCALERAS Y ANDAMIOS ANTES DE USAR.** Siga las instrucciones del fabricante para el uso seguro de este equipo. Si usted no ha recibido formación para el uso seguro de este equipo, consulte a su supervisor.
8. **MATERIAL HANDLING EQUIPMENT Y PLATAFORMAS AÉREAS.** Opere único equipo que le ha entrenado y autorizado para operar. Observe todas las señales de advertencia y las instrucciones del fabricante. No opere el equipo inseguro.
9. **MANEJAR CON SEGURIDAD MATERIALES.** Conocer la forma correcta de levantar. Pida ayuda cuando sea necesario.
10. **ZANJAS Y EXCAVACIONES TRABAJO.** Este trabajo debe estar bajo la dirección de un supervisor con experiencia que tenga conocimiento en los requisitos de seguridad y los peligros potenciales. No entrar en una excavación a menos que esté bajo la supervisión directa de este usuario.
11. **SEGURIDAD ELÉCTRICA.** El equipo eléctrico debe ser instalado o reparado por personal entrenado y autorizado. Todas las herramientas eléctricas, cables de extensión y el equipo deben estar conectados a tierra de manera efectiva o doble aislamiento. Inspeccione sus herramientas, cables y equipos al día, o antes de cada uso. Retire cualquier herramienta, el cable o el equipo que se encuentra en necesidad de reparación de servicio de inmediato.
12. **OBEDECER TODAS LAS SEÑALES DE ADVERTENCIA Y ATENCIÓN TAPE.** Los ejemplos de señales de advertencia de que se deben observar son "keep out", "no fumar", "hard hat required", etc.
13. **REPORTAR TODOS LOS ACCIDENTES.** Obtenga primeros auxilios inmediatamente. Notifique a su supervisor tan pronto como sea posible del accidente, el alcance de su lesión, y la condición insegura o acto inseguro que causó su lesión.
14. **DROGAS ILEGALES, SUSTANCIAS CONTROLADAS, ALCOHOL.** Todos los trabajadores de este proyecto se les prohíbe estar bajo la influencia de, o estar involucrado con las drogas ilegales, sustancias controladas, la marihuana o el alcohol.

CHAPTER 3 – SAFETY TRAINING & ORIENTATION

section d continued

15. **PRODUCTOS QUÍMICOS PELIGROSOS.** Todos los materiales peligrosos utilizados o almacenados en este sitio están supeditadas a las disposiciones de las normas de comunicación de riesgos en las regulaciones osha y del plan estatal de osha, ya que pueden aplicarse. Cualquier empleado que se pueden usar o estar expuestos a este tipo de material peligroso debe recibir entrenamiento y adoctrinamiento a la hoja de datos de seguridad (fds) para ese material peligroso. Todos los envases deben estar etiquetados correctamente. Materiales peligrosos son sólo para ser almacenado en áreas
16. designadas. **CUALQUIER DERRAME O FUGA ACCIDENTAL DE CUALQUIER PRODUCTO QUÍMICO DEBE SER REPORTADA DE ABBOTT CONSTRUCCIÓN DE INMEDIATO.**
17. **VIH (SIDA), VHB (HEPATITIS), SANGRE PATÓGENOS TRANSMITIDOS.** El contacto con la sangre u otros fluidos corporales al venir a la ayuda de un trabajador lesionado, o durante el acto de la limpieza, o la manipulación o la eliminación de materiales contaminados puede ser peligroso. Póngase en contacto con su supervisor inmediato si se hace ningun contacto. Tome precauciones para evitar el contacto, y lave toda la piel tan pronto como sea posible después de cualquier contacto.
18. **SEGUIR LAS REGLAS DE SEGURIDAD DE EMPLEO.** Abbott Construction se reserva el derecho de eliminar del proyecto, cualquier trabajador que no cumpla con las reglas de seguridad del proyecto. Los trabajadores deberán informar cualquier condición insegura, actos inseguros, lesiones, accidentes o casi accidentes a su supervisor de inmediato!
19. **ANDAMIO.** No te erecto, utilizar o dar mantenimiento a los andamios, de cualquier tipo, a menos que haya recibido formación específica para ello y puede mostrar evidencia de dicha formación. Informar sobre andamios inseguros o mal uso de los andamios al superintendente inmediatamente.
20. **MONTACARGAS.** No te pongas en u operar cualquier tipo de carretilla elevadora o de manipulación a menos que haya sido entrenado de acuerdo con Abbott política urbanización y dicha formación se ha documentado con el onsite registro material. Consulte el Capítulo 11 del programa de prevención de accidentes de construcción abbott de las políticas en lo que respecta a las carretillas elevadoras y manipulación de materiales.
21. **PROTECCIÓN AUDITIVA.** Sé consciente de un ruido fuerte y saber que puede ser dañino para su audición. Busque señales que requieren protección para los oídos. Consulte a su supervisor para protectores auditivos individuales. Use protección para los oídos en cualquier área donde los niveles de ruido nocivos puedan estar presentes o donde se han colocado letreros.

Requisitos de seguridad adicionales están en el Programa de Prevención de Accidentes de Construcción Abbott

CHAPTER 4 – EMERGENCY PREPAREDNESS

section a

EMERGENCY POLICIES

Planning for emergencies can help our responses to them be more appropriate and reduce the potential for loss involved.

1. The project team is responsible to prepare the jobsite's safety plan. New employees to the jobsite will be oriented to the plan and their role. This information should be reviewed periodically at weekly safety meetings. The form shall be posted on the site safety bulletin board and at various locations on the site as needed.
2. Emergency evacuation plans should include evacuation procedures, routes, communication methods, shutdown procedures, and meeting points to account for employees.
3. Lists of who to notify for different types of emergencies shall be a part of the emergency plan. A specific person and backup person shall be designated to make these calls.
4. Emergency plans shall include provisions for employees or visitors with disabilities or special needs.
5. Superintendents shall be aware of potential hazards. Work shall be restricted when hazards are present due to windy or icy conditions or lightning. Precautions shall also be taken during high summer temperatures and low winter temperatures. Jobsites should always be secured against unexpected elements.
6. If you are approached by a member of the media, direct all questions to the authorized spokesperson for the company.

CHAPTER 4 – EMERGENCY PREPAREDNESS

section b

EMERGENCY PHONE LIST – WASHINGTON

Job Name: _____ Job #: _____

Address: _____

ABBOTT TEAM INFORMATION

TITLE	CONTACT	WORK #	CELL #
Superintendent			
Project Manager			
Account Executive			
Project Engineer			
Project Assistant			
Vice President	Steve Jarvis	206.467.8500	206.850.6801
Vice President	Doug Klein	206.467.8500	206.507.8055
Director of Field Operations	Ron Nelson	206.467.8500	206.295.6956
Safety Director	Andrew Norris	206.467.8500	303.877.1152
President	Troy Stedman	206.467.8500	818.482.4423
Human Resources	Dan Lee	801.563.3553	702.499.6577

SITE INFORMATION

	CONTACT	PHONE #	AFTER HOURS
Police EMERGENCY			
Police NON-EMERGENCY			
Fire Department			
Electric Utility			
Water Utility			
Gas Utility			
Natural Disasters			
Site Security			
Traffic Control			

OWNER / LANDLORD INFORMATION

TITLE	CONTACT	WORK #	EXT.	CELL #	EMAIL
Owner / Landlord – Main					
Owner / Landlord – 2 nd					

NEAREST MEDICAL FACILITIES – IN CASE OF INJURY

TITLE	ADDRESS	PHONE #
Urgent Care		
Emergency Room		

CHAPTER 4 – EMERGENCY PREPAREDNESS

section c

EMERGENCY PHONE LIST – CALIFORNIA

Job Name: _____ Job #: _____

Address: _____

ABBOTT TEAM INFORMATION

TITLE	CONTACT	WORK #	CELL #
Superintendent			
Project Manager			
Account Executive			
Project Engineer			
Project Assistant			
Vice President	Michael Sloane	206.380.8312	206.380.8312
Vice President	Larry Lantero	626.627.4069	626.627.4069
Director of Field Operations	Jeff Frye	661.210.9985	661.210.9985
Safety Director	Andrew Norris	206.467.8500	303.877.1152
President	Troy Stedman	206.467.8500	818.482.4423
Human Resources	Ashley Hill	801.563.3590	801.879.7591

SITE INFORMATION

	CONTACT	PHONE #	AFTER HOURS
Police EMERGENCY			
Police NON-EMERGENCY			
Fire Department			
Electric Utility			
Water Utility			
Gas Utility			
Natural Disasters			
Site Security			
Traffic Control			

OWNER / LANDLORD INFORMATION

TITLE	CONTACT	WORK #	EXT.	CELL #	EMAIL
Owner / Landlord – Main					
Owner / Landlord – 2 nd					

NEAREST MEDICAL FACILITIES – IN CASE OF INJURY

TITLE	ADDRESS	PHONE #
Urgent Care		
Emergency Room		

CHAPTER 4 – EMERGENCY PREPAREDNESS

section d

EMERGENCY ACTION PLAN

Job Name: _____		Job #: _____	
Address: _____			
Emergency Contacts		Details	
Police / Fire / Ambulance	911 or _____	Assigned Emergency Leader _____	
_____	_____	First Aid Kit Locations _____	
_____	_____	_____	
_____	_____	Fire Fighting Equipment and Location _____	
_____	_____	_____	
OSHA	_____	Emergency Meeting Site _____	
_____	_____	_____	
Gas Main Turn Off	_____	Alternate Meeting Site _____	
Company	_____	_____	
Onsite Turn Off Location	_____	_____	
Water Main Turn Off	_____	SDS Location and Access _____	
Company	_____	_____	
Onsite Turn Off Location	_____	Handicapped Employee Provisions _____	
Electrical Turn Off	_____	_____	
Company	_____	Blood Spill Kit Locations _____	
Onsite Turn Off Location	_____	_____	
Procedures Reviewed		First Aid Trained Persons Onsite _____	
<ol style="list-style-type: none"> 1. Fire Procedures 2. Power Outages / Emergency Shut Down 3. Extreme Weather / Wind 4. Earthquake Procedures 5. Blood Spill Procedures 6. Chemical Spill 7. Multiple Injury / Fatality 		Specific Employee Assignments _____	
_____		_____	
In Attendance or Material Reviewed By		Prepared by: _____	
_____		Signature: _____	
_____		Date: _____	

CHAPTER 4 – EMERGENCY PREPAREDNESS

section e

CHEMICAL SPILL

1. SDS are to be available for review in case of a spill.
2. It is usually what is not known about a chemical, which makes the release an emergency. It is important to review all SDS prior to chemical use so employees are immediately able to respond correctly to a spill. Refer to the Hazardous Communication Program in Chapter 6 of the Accident Prevention Program for further details.
3. If an emergency exists, call for help, block off the area of the spill, and evacuate as needed, being sure to evaluate any downwind hazards. Only employees who have received specific training in hazardous material spill cleanup shall be involved if the spill is an emergency.

CHAPTER 4 – EMERGENCY PREPAREDNESS

section f

EARTHQUAKE PROCEDURES

1. During an earthquake, keep calm and stay where you are. If you are inside, stay in. If you are outside, stay out.
2. After the quake is over, all employees are to gather at the prearranged meeting site. Do not go home until you have reported to your Superintendent or Manager that you are okay and are leaving. Not doing so may cause others to risk their lives looking for you.
3. Check for injured employees and administer first aid. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury. Watch for shock symptoms among everyone on site.
4. Workers on scaffolds or ladders may be at risk for falling. At the first sign of an earthquake, make effort to reach a lower or safe level protected from falling debris or material. Be prepared to help others that may be stranded while they were using fall protection equipment or working in a confined space.
5. Get out and stay out of seriously damaged buildings.
6. The site Superintendent for jobsites and the Office Safety Officer for the Office will account for all employees, supervise administration of first aid and call for emergency assistance. If safe to do so, equipment will be turned off.
7. Gas lines, electrical, and water mains should be turned off if any potential of damage exists and not be turned on until inspected by a professional. Do not smoke or light candles if there is any possibility of a gas leak.
8. As soon as possible, the region leadership should be contacted with a jobsite status report.
9. Be prepared for additional earthquake aftershocks.
10. After any building has been evacuated, do not re-enter it until building is deemed safe and open for business.
11. At the beginning of a job, each jobsite should review specific needs and site specific hazards in case of earthquake during which time assignments for responsibilities should be outlined.
12. When working in an occupied or campus environment, Abbott Construction will be knowledgeable and compliant with the facilities' emergency action plan.

CHAPTER 4 – EMERGENCY PREPAREDNESS

section g

EXTREME WEATHER

Weather Hazards are most serious at jobsite locations where workers are out of doors, but also can exert their influence in office locations. Site Superintendents should be aware of weather reports and the potential for extreme weather prior to its occurrence.

High Winds

1. All materials must be secured. Be aware that plywood, sheetrock, shingles, and stacked lumber can all become projectiles in high winds. High winds are official at 30 mph. The site Superintendent must keep in touch with weather conditions that could affect the safety of the project.
2. Do not sit out a wind storm in a trailer or other structure that is under any power lines or in a trailer that is not properly anchored.
3. Power outages can be expected during high winds. Turn off all electrical power to prevent a power surge or for equipment that could automatically start up or be energized when power is restored.
4. Do not work on scaffolds or ladders in unsafe weather conditions.
5. Do not use a scissor lift outdoors in unsafe weather conditions.
6. Follow the manufacturer's recommendation for crane operations during any condition where wind could affect the safe operation of the crane. Never leave any load suspended during any gusty or high wind conditions.

Lightning

1. If there is potential of lightning strikes, all exterior work must stop.
2. Expect power surges and outages. If practical, equipment should be unplugged.

Ice & Snow

1. Special care and precautions must be taken to ensure walkways and entrances are free from slip and fall hazards.
2. Work on roofs, slopes, ladders, and scaffolds should be evaluated carefully for safety.

Hot Weather

Heat stress illnesses include:

Heat cramps

Heat cramps are painful spasms of muscles caused when workers drink large amounts of water but do not replace their salt loss. The person's skin is usually sweaty and body temperature is normal. Treatment includes resting in a cool location and drinking juice, pop or sports drinks and gently massaging muscles.

Heat Exhaustion

Heat exhaustion develops when lost fluids are not replaced. The person is cool to the touch with moist clammy skin. Weakness, fatigue, headache, disorientation, nausea, or vomiting may be seen. Treatment includes removing the person from the heat and applying cool wet cloths. Fan the person, but not to the point of developing goose bumps or shivers, as that will cause their temperature to rise. Get medical care if no improvement is seen.

Heat Stroke

Heat stroke is a serious heat disorder and immediate medical attention is needed. It is caused when the body fails to regulate its heat by sweating. Symptoms include hot dry skin, red or spotted skin, extremely high body temperature, mental confusion, convulsions and passing out. **Call 911 immediately.** Have the person lie down in the shade and elevate the feet, use cool compresses, or wet down clothing if possible.

CHAPTER 4 – EMERGENCY PREPAREDNESS

section g continued

Hot Weather safety procedures

1. Worker should be trained to the hazards of heat stress, its symptoms and prevention.
2. Normal work clothing and hard hats must be worn. They will reduce the body temperature.
3. Breaks should be held more frequently, and a shady area will be provided. Adequate cool water should be available, and workers will be encouraged to drink it.
4. Workers are encouraged to get adequate rest, eat moderately, wear lightweight protective clothing, and avoid the use of alcohol off duty.
5. Superintendents and Foremen must be aware of other heat related factors such as decreases in mental alertness and physical performance, poor judgment and increased emotional irritability.

*For further information regarding Heat Related Illness see Chapter 7, section f of the Accident Prevention Program.

CHAPTER 4 – EMERGENCY PREPAREDNESS

section h



CRISIS MANAGEMENT TEAMS

WASHINGTON

TEAM INFORMATION

TITLE	CONTACT	CELL #	EMAIL
Vice President	Steve Jarvis	206.850.6801	steve.jarvis@abbottconstruction.com
Vice President – Back up Spokesperson	Doug Klein	206.507.8055	doug.klein@abbottconstruction.com
President & CEO - Company Spokesperson	Troy Stedman	818.482.4423	troy.stedman@abbottconstruction.com
Safety Director	Andrew Norris	303.877.1152	Andrew.norris@abbottconstruction.com
Director of Field Operations	Ron Nelson	206.295.6956	ron.nelson@abbottconstruction.com
Legal	Jeffrey Stevens	801.635.8982	jstevens@laytonconstruction.com
Human Resources	Dan Lee	702.499.6577	dlee@laytonconstruction.com

CALIFORNIA

TEAM INFORMATION

TITLE	CONTACT	CELL #	EMAIL
Vice President	Michael Sloane	206.380.8312	michael.sloane@abbottconstruction.com
Vice President – Back up Spokesperson	Larry Lantero	626.627.4069	larry.lantero@abbottconstruction.com
President & CEO - Company Spokesperson	Troy Stedman	818.482.4423	troy.stedman@abbottconstruction.com
Safety Director	Andrew Norris	303.877.1152	Andrew.norris@abbottconstruction.com
Director of Field Operations	Jeff Frye	661.210.9985	jeff.frye@abbottconstruction.com
Legal	Jeffrey Stevens	801.635.8982	jstevens@laytonconstruction.com
Human Resources	Ashley Hill	801.879.7591	ahill@laytonconstruction.com

CHAPTER 5 – SITE SPECIFIC SAFETY

section a

SITE SPECIFIC SAFETY GUIDELINES

The safety hazards and challenges at each site, although similar, are unique and should be evaluated and monitored specifically. The way that this is done is by developing and maintaining a Site Specific Safety Manual for each project separate from the Accident Prevention Program. These are to be filled out and placed at the jobsite for easy use and viewing by anyone that visits the site.

These manuals shall be accurately prepared and maintained. This manual becomes a living document of the project in regard to safety and should be treated like any contract or legal document that pertains to the job.

Everything needed to develop the Site Specific Safety Manual is provided in the Accident Prevention Program. The following items are topics that are to be included in the Manual although if your project's specific site has additional needs, please insert them into the manual for use.

1. Emergency Action Plan
2. Bulletin Board Checklist
3. Pre-Task Plan
4. Job Hazard Analysis
5. Fall Protection Plan
6. Safety Orientation
7. Weekly Walk Around
8. Weekly Safety Meeting
9. Housekeeping Policies
10. Jobsite Security
11. Heat Related Illness
12. Accident Report Forms
13. Safety Discipline Forms
14. Subcontractor Requirements
15. Hazardous Communication Program
16. Miscellaneous

CHAPTER 5 – SITE SPECIFIC SAFETY

section b

PRE – TASK PLAN (PTP)

Each Abbott Construction crew and subcontractor crew is expected to complete a daily pre-task plan, discussing tasks for the day, scope of work, possible hazards, and how to mitigate those hazards.

The PTP needs to be an active discussion of the day's work, allowing the craft workers to go over the possible hazards that could occur during the day, as well as how those hazards can be mitigated. To complete work safety, the day's tasks need to be clearly outlined and discussed. This will include reviewing the staging of materials and preparation to avoid any possible material handling incidents. Making sure that people are aware of the other work going on around them. When the PTP is done in the work area, the crew can visibly see potential hazards, issues, and get an idea of what they will be doing that day. Each crew should complete the PTP in the work area. This helps ensure that materials are available (and if not how to get the materials from point A to point B can be discussed as part of the PTP.

Any high hazard tasks should be discussed in detail, including making sure that required trainings have been completed, and that any new employees are aware of the expectations of the high hazard task, the possible hazards, and how to avoid any unnecessary risk during the days' production. Planning is essential and planning for safety is a key element of a successful crew PTP for the day. Hazard discussion is an important element of a successful PTP, giving the crew the opportunity to go over what may happen, how to avoid incidents, and clearly define what could go wrong. Before creating a PTP each crew should have a solid knowledge of the hierarchy of controls. There are many ways to mitigate hazards on a jobsite. Using the hierarchy of controls will provide the best protection for workers.

Once the PTP is complete and signed by every worker on the crew it should be uploaded to the project folder in CMiC using the checklist tool.

CHAPTER 5 – SITE SPECIFIC SAFETY

section c

JOB HAZARD ANALYSIS (JHA)

Job Hazard Analysis (JHA) is a safety management tool used to evaluate a task and determine a safe and consistent way of doing it. This should be done at the beginning of the project and include all tasks, especially high-risk tasks with the potential for loss. When a JHA is completed, it is inserted into the Site Specific Safety Manual where it is shared with the workers on the site. Steps involved in completing the JHA include:

1. Break the task down into basic steps or movements in the order that they should be completed. Critically review each step in depth to see if it is necessary, or if there is a better way to do the task. Use input of experienced workers to help evaluate this area.
2. Identify the hazards associated with each step. This should include both potential and existing hazards. Ask "what if?" and be critical. Seek input of those who do the task.
3. List procedures, equipment, methods, or specific recommended action for each hazard listed. Be specific and clear. Evaluate steps and hazards carefully to provide the best procedure or protection for the step. Consider engineering controls, personal protective equipment, ergonomic factors, training, and housekeeping. Each hazard must have at least one recommendation.
4. Be concise, clear and specific. Keep the JHA form on file so it can be reviewed as needed by new workers or when significant time lapses between task performances.
5. Institute the safe methods you have developed, making sure needed supplies and tools are available. Train workers to do the task using the JHA as a guideline for the training.
6. Update the JHA whenever the task has changed or as the project progresses.
7. If task includes a potential fall hazard of greater than 10', Abbott Construction requires that a Fall Protection Plan must be prepared per the requirements of Chapter 15 of the Accident Prevention Program. If the task only has fall protection hazards, a Fall Protection Plan would be adequate, and a JHA would not be needed. If the task includes other hazards a JHA should also be done.
8. Subcontractors are to prepare a JHA or site specific safety plan for all work they will be doing onsite prior to beginning work.

CHAPTER 5 – SITE SPECIFIC SAFETY

section d

JOB HAZARD ANALYSIS FORM

Job Name: _____ Job #: _____

Superintendent: _____ Safety Officer: _____

Subcontractor: _____ Safety Officer: _____

Plan Prepared By: _____ Date Prepared: _____

Date	Basic Job Tasks	Potential Hazards	Procedure for Protection

Sign and date below to acknowledge training of JHA has occurred

CHAPTER 5 – SITE SPECIFIC SAFETY

section e

JOB HAZARD ANALYSIS FORM (SAMPLE)

Job Name: _____ Job #: _____

Superintendent: _____ Safety Officer: _____

Subcontractor: _____ Safety Officer: _____

Plan Prepared By: _____ Date Prepared: _____

Date	Basic Job Tasks	Potential Hazards	Procedure for Protection
	Equipment Moving & Setup	<ol style="list-style-type: none"> 1. Struck by or against 2. Ground stability under concrete truck 3. Electrical Shock 4. Pinch Points 5. Slips / Trips 	<ol style="list-style-type: none"> 1. Clear area of obstructions, plan concrete truck traffic pattern, barricade or warning line 2. Avoid Loosely back filled or excavation areas, keep area dry & free of mud holes 3. De-energize electrical lines if possible, locate all above and below ground utilities 4. Unfold & add chutes with care, install stop blocks when possible 5. Good Housekeeping, keep area dry if possible
	Shotcrete Operation	<ol style="list-style-type: none"> 1. Slips / Trips 2. Back Injury 3. Cement chemical burns 4. Eye injury 5. Noise exposure 6. Struck by or against 7. Gasoline vapors / Fire 8. Falls / Scaffolding 9. High Pressure Concrete 10. Moving machinery parts 	<ol style="list-style-type: none"> 1. Good housekeeping, clear area of obstructions, utilize mats with expanded metal if needed, steel-toed work shoes with good ankle support 2. Communicate lifting plan with crew, lift with legs not back, team work, lifting limits 3. Long sleeve shirts, full pants, raingear, cloth or rubber gloves 4. All workers to wear safety glasses with side panel or goggles during placement, nozzle man to watch out for others while shooting 5. All workers must wear ear protectors during placement 6. Hard hats, whip checks on all airlines and grout lines, chains on pump truck secure do not clear pack using pump pressure; do not kink delivery hose 7. Generator vented to open air, gasoline stored in in safety container, no smoking area, shut of engine to refuel fire extinguisher at site 8. Site Fall Protection Plan, planks and rails in place prior to work, harness and tied off 9. Reverse pump to remove pressure prior to opening delivery line 10. Hopper grill cover intact while pump in operation, never place body part in hopper, even if engine is stopped, without discharging accumulator to read zero and removing remixer shaft
	Clean Up	<ol style="list-style-type: none"> 1. Puncture wounds 2. Eye injury 3. Cement chemical burns 4. Slips 	<ol style="list-style-type: none"> 1. High pressure water directed away from skin. Rinse work boots & rain gear with no pressure fresh water 2. Safety glasses or goggles on during clean up 3. Remove all concrete from body, wash well, rinse boots and rain gear with no pressure fresh water 4. Direct water away from work area

CHAPTER 5 – SITE SPECIFIC SAFETY

section f

WEEKLY WALK AROUND

Use this form to document your process to discover hazards in the workplace. Discuss the findings at the next Weekly Safety Meeting.

SAFETY IS YOUR FIRST RESPONSIBILITY

For the Weekly Walk Around Safety Inspection, the following persons conducted the inspection:

Employee's Elected Representative:

Name: _____ Initials: _____

Management's Selected Representative:

Name: _____ Initials: _____

Inspection Notes & Findings:

☆ Include positive comments when applicable, such as "Good Housekeeping", etc.
 ☆ For unsafe acts or conditions, please note the corrective action taken

1.		<input type="checkbox"/>	Corrected		<input type="checkbox"/>	Looks Good
2.		<input type="checkbox"/>	Corrected		<input type="checkbox"/>	Looks Good
3.		<input type="checkbox"/>	Corrected		<input type="checkbox"/>	Looks Good
4.		<input type="checkbox"/>	Corrected		<input type="checkbox"/>	Looks Good
5.		<input type="checkbox"/>	Corrected		<input type="checkbox"/>	Looks Good

Use the following reminder topics as a guide for your inspection; however, do not limit your inspection to these topics. Also, correct unsafe conditions and unsafe actions as necessary during the inspection.

= inspected

General Conditions

- Fire Protection Equipment
- First Aid & Emergency Equipment
- Emergency Phone Numbers Posted
- Sanitary Toilets & Wash Water
- Drinking Water

Cranes, Forklifts, & Rigging

Fall Protection

- Personal Protective Equipment is safe
- Rigging & anchors are safe
- Workers in compliance with fall protection rules
- Guardrails & handrails are safe
- Floor holes & openings are covered or guarded
- Wall openings or open sided floors are guarded

Access, Egress, Walking Surfaces

- Safe access & egress provided to all work areas
- Ladders & stairs safe and used correctly
- Aisles & passageways free from hazards
- Scaffolds, proper construction & free from hazard

Personal Protective Equipment

- Proper work clothing & footwear
- Head protection
- Eye protection
- Hearing protection

Tools, cords & hoses

- Electrical tools & cords
- Pneumatic (air) hoses and connections
- Oxy-Acetylene gauges, cylinders, hoses & torch

Project: _____ **Date:** _____

CHAPTER 5 – SITE SPECIFIC SAFETY

section g

SITE SAFETY MEETINGS

1. All employees and Subcontractors at every jobsite must participate in weekly safety meetings. These meetings will be conducted by any employee of Abbott Construction.
2. Pick an appropriate topic and review material prior to presentation. Best practice is to choose a topic that applies to the work at hand or the work coming up.
3. Review most recent jobsite inspection along with any accidents or close calls. Specifically ask workers for any hazards noted or safety suggestions. Review upcoming work and safe processes for that work. Frequently review housekeeping and public safety concerns.
4. Periodically review emergency telephone numbers, first aid certified personnel, first aid kits, fire extinguisher locations, site emergency plan, fall protection plan and site-specific safety analysis.
5. Review SDS for materials being used onsite at the time of the meeting.
6. Document meeting and attendance by keeping minutes and having employees sign the form. Maintain a copy of all safety meetings with the project files. They shall be kept on file for seven years. Discuss the projects upcoming activities and hazards.
7. Safety meetings are a good time to coordinate safety issues between Subcontractors and Abbott Construction employees. Require Subcontractors to share concerns.

CHAPTER 5 – SITE SPECIFIC SAFETY

section h

WEEKLY SAFETY MEETING

Job Name: _____ **Job #:** _____

Date / Time: _____ **Conducted By:** _____

Check topics discussed:

- | | | | |
|--|---|---|---|
| <input type="checkbox"/> Assured Grounding | <input type="checkbox"/> Excavation / Trenching | <input type="checkbox"/> Ladders | <input type="checkbox"/> Teamwork |
| <input type="checkbox"/> Blood Borne | <input type="checkbox"/> Extinguishers | <input type="checkbox"/> Lifting | <input type="checkbox"/> Scissor & Aerial Lifts |
| <input type="checkbox"/> Compressor Use | <input type="checkbox"/> Eye Protection | <input type="checkbox"/> Lighting | <input type="checkbox"/> Silica Dust |
| <input type="checkbox"/> Confined Space | <input type="checkbox"/> Fall Protection | <input type="checkbox"/> Lock Out / Tag Out | <input type="checkbox"/> Tools, Hand |
| <input type="checkbox"/> Crane & Rigging | <input type="checkbox"/> Fork Lift Safety | <input type="checkbox"/> Material Storage | <input type="checkbox"/> Tools, Power |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Fire Prevention | <input type="checkbox"/> SDS | <input type="checkbox"/> Welding & Cutting |
| <input type="checkbox"/> Dress Code | <input type="checkbox"/> Gasoline Safety | <input type="checkbox"/> Near Misses | <input type="checkbox"/> Weather Hazards |
| <input type="checkbox"/> Drugs & Alcohol | <input type="checkbox"/> Hazard Analysis | <input type="checkbox"/> Public Safety | <input type="checkbox"/> Warning Signs |
| <input type="checkbox"/> Egress & Exiting | <input type="checkbox"/> Hearing Protection | <input type="checkbox"/> Respiratory | <input type="checkbox"/> _____ |
| <input type="checkbox"/> Emergency Plan | <input type="checkbox"/> Housekeeping | <input type="checkbox"/> Scaffolding | <input type="checkbox"/> _____ |

Comments from last Safety Consultant Report: _____

Actions taken as a result of last Safety Meeting: _____

Safety Suggestions from site Workers and Subcontractors: _____

Upcoming tasks and safe methods to be used (Fall Protection, Hazardous Material, Equipment Required, etc.)

CHAPTER 5 – SITE SPECIFIC SAFETY

section i

HOUSEKEEPING POLICIES

1. Specific assignments shall be given during weekly jobsite meetings for housekeeping. However, housekeeping is everyone at the site's responsibility and should be done as the work progresses on a daily basis.
2. All tools, equipment, hoses, machinery, and supplies must be kept in orderly and clean condition, to the extent that the nature of the work allows. Waste should be promptly cleaned up and disposed of.
3. Lighting should be adequate for work and passage.
4. Stairways, halls, and ramps are to be kept free of clutter or equipment. Handrails, guardrails, and stair treads are to be in good condition. Walkways should be even and clear of obstructions.
5. Never block fire doors, exits, sprinkler heads or extinguishers.
6. If a Subcontractor's housekeeping at the site poses a hazard, the Superintendent shall request of the Subcontractor to bring the work area up to standard.
7. Clean toilets, potable water, and sanitary eating conditions as required by OSHA and OSHA State Plan regulations as they apply. Food rubbish should be placed into trashcans when finished.
8. Nails must be pulled or bent in all scrap lumber immediately upon removal.
9. Slipping hazards such as ice, tar, water, grease, or oil can cause serious injury. If you spill it clean it up and if you didn't spill it but you see it, clean it up.
10. Round items such as rebar, nuts, bolts, and pipes are more hazardous than they appear. Pick them up and store safely.
11. A special trash container for flammables shall be used for oily or solvent soaked rags and empty solvent, paint, or glue cans. This container shall be labeled and have a lid. Flammables shall never be discarded with regular trash.
12. Tools should be returned to the proper storage area when complete with use. Personal tools shall be carried in a container rather than scattered the over work area.
13. Materials should be sorted and stacked neatly, following stacking height limits.

CHAPTER 5 – SITE SPECIFIC SAFETY

section j

JOBSITE SECURITY

Vandalism, theft, children at play, the general public and curious adults all are hazards to jobsite security. Each location and site has its own hazards and risks, which must be carefully evaluated, and prevention planned. The following are potential steps, which might need to be taken.

1. Contact local law enforcement officials to inform them of your project location, duration, and any other details that might help them monitor the site security when they are in the area.
2. Include plans for site security in preconstruction safety planning meeting with Subcontractors.
3. Check that site is adequately fenced or secured for risk. Consider using evening and weekend security guards.
4. Make contact with neighbors or businesses in the area. Provide them with numbers to call in the event they notice something unusual.
5. A designated person should sign for all deliveries and escort delivery personnel while they are onsite.
6. All keys to storage areas, gates, jobsite offices and security areas should be under the control of a supervisory person always and not casually left or passed around.
7. Tools, equipment, and other valuable items should be listed and recorded by serial numbers or the company name and item number should be permanently embossed on items. Other identifying details should also be recorded. A quick method of inventory should be developed to check that tools or items are not "walking" off the site.
8. Warning signs including "No Trespassing", "Reward for Information", "Danger Construction Zone" etc. shall be posted.
9. Keys to machinery shall never be left in the machines when they are not in use. Never suspend a load by crane for overnight storage.
10. Always report vandalism or theft to the local authorities.
11. Consider the use of alarm systems in high risk areas.
12. Public protection shall be a number one concern. Do not allow children or youths to play or ride bikes on landfill areas.
13. Do not be an easy mark. Keep the site clean, organized, with valuables and flammables locked and stored at night.
14. Encourage employees to mark their tools with some form of identification and to lock their vehicles while working.

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section a

HAZARDOUS COMMUNICATION PROGRAM

Policy

At all Abbott Construction jobsites, offices, warehouse and shop areas, chemical products including solid materials such as wood or metal shall be suspect of being hazardous until proven otherwise. By the implementation and maintenance of this program, Abbott Construction can protect its workers, Subcontractors, Clients, and the Public from exposure to any hazard created using dangerous products in the workplace. This program will be managed to comply with the criteria specified in the revised OSHA Hazard Communication Standard (HCS 2012) for a written program, labels, and other forms of warnings, safety data sheets, employee information, and training. It is also the policy of Abbott Construction to seek out alternatives to hazardous products that are efficient, effective and provide safety to our projects.

General Requirements

At the commencement of each project, the site Superintendent shall establish a system using the Hazardous Materials list form located in Chapter 6 of the Accident Prevention Program. This form will be used to maintain an inventory of all chemicals being used by Abbott Construction employees. The Site Superintendent must keep on file, with the Hazardous Materials List, copies of the most current SDS (Safety Data Sheet) provided by the Manufacturer and maintain them in the order listed on the Hazardous Materials List for easy access.

The SDS must be reviewed for information regarding any hazards associated with the chemical product and if any hazard is noted, a Job Hazard Analysis (JHA) must be developed for the use of that product and the SDS sheet shall be attached. A copy of the JHA shall be posted on the jobsite safety bulletin board for use in employee training. The workers that will be using the product and any other affected workers onsite shall be trained on any JHA related to SDS. This training shall be documented using the Hazardous Materials Safety Training Checklist Form located in Chapter 6 of the Accident Prevention Program and a copy maintained with the JHA.

Products that contain hazardous materials will have precautions that include the use of Personal Protective Equipment (PPE). The use of this Personal Protective Equipment will be described in detail in the JHA developed for the use of that product. Workers will be specifically trained on the use and limitations of any PPE while using the product covered by the JHA. This training shall be documented using the Hazardous Materials Training Checklist Form located in Chapter 6, section e of the Accident Prevention Program and a copy maintained with the JHA.

Follow any SDS instructions or create effective Engineering Controls to reduce or eliminate any hazard. Using vapor barriers or forced ventilation are common engineering controls.

All chemical products entering the workplace must have labels that contain at least the following:

- Product Identifier
- Signal Word
- Hazard Statement
- Pictogram(s)
- Precautionary Statement
- Name, Address, Phone Number of the Manufacturer, Importer or Responsible Party

Liquid chemical products that need to be transferred to secondary containers for use or dispensing must have a label that conveys the same information as the original container label as shown above.

Site Superintendents must be prepared to control exposure or contain any hazards using barriers, signage, forced ventilation, or other engineering controls to keep any hazard exposure to safe levels for all onsite workers and any persons that may be exposed. Site Superintendents must also be prepared to prove that exposure levels are safe.

Prior to commencement of work, Subcontractors shall submit a hazardous materials list and a copy of the SDS for each chemical on the submitted list. The list shall contain only those chemicals that are to be used on the project. The site Superintendent is to review the submitted list with the Subcontractor to identify any chemicals that could expose Abbott Construction employees or others to the hazards listed on the SDS. If needed, a JHA shall be developed for each of the chemicals that present a hazard. The JHA will be posted and all potential exposed employees will be trained on the JHA for those chemicals. Subcontractors shall provide their own training and documentation thereof. These records must be submitted to the site Superintendent for review before work begins using a hazardous chemical product.

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section a continued

A checklist for training shall be used by Subcontractors to document the necessary elements of employee training. The hazardous material list, SDS, and JHA's will be filed in the Site Specific Safety Manual with the other Subcontractor documents.

Subcontractors are to maintain the hazardous material list, SDS, and any JHA's during the project. New materials that have an element of hazard must be discussed with the site Superintendent before any use of the product begins.

Subcontractors must be prepared to control exposure or contain any hazards using barriers, signage, forced ventilation or other engineering controls to keep any hazard exposure to safe levels for all onsite workers and any persons that may be exposed. Subcontractors must also be prepared to prove that exposure levels are safe.

Abbott Construction will not be responsible for storage or disposal of any chemical products supplied by the Subcontractors. Subcontractors must provide safe, secure storage for chemical products or remove them from the project daily or when not immediately in use. Subcontractors must provide for the safe and legal disposal of any excess product not used for the completion of the project unless prior agreements are made.

During all site safety inspections and weekly walkaround safety inspections, the policy and procedures for safe use of chemicals will be audited. Corrective action will be implemented immediately for any disregard for chemical safety or this written program.

A copy of this policy, program and all materials related to the Hazard Communications Program will be available to all employees of Abbott Construction and their Subcontractors and their employees on all shifts for each project. This condition will be covered at the jobsite orientations meetings.

An annual review of this policy and program will be conducted the Abbott Safety Leadership Board in January of each year.

General Information

Labeling – labels on shipped containers must include the following:

- Product Identifier
- Signal Word
- Pictogram
- Hazard Statement(s)
- Precautionary Statement(s)
- Supplier Identification (Name, Address, Phone Number)

Signal Word – means a word used to indicate the relative level of severity of hazard and alert the reader to potential hazard on the label. The signal words used in this section are “danger” and “warning”. “Danger” is used for the more severe hazards while “warning” is used for the less severe.

Pictogram – means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category as referenced on the OSHA 3491 Quick Card Pictograms located in Required Jobsite Postings Sections in Chapter 7 of the Accident Prevention Program. This Quick Card shall be posted on the jobsite safety bulletin board.

Transport Labels – for reference use the Department of Ecology, Washington State Hazard Class label chart.

Hazard Statement – means a statement assigned to a hazard class and category that describes the nature of the hazards(s) of a chemical, including, where appropriate, the degree of hazard. Example: “Fatal if swallowed (Acute Oral Toxicity)”.

Precautionary Statement – means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling. Example: “Do not eat, drink, or smoke when using this product” or “Keep container tightly closed”.

The statements assigned to a chemical address the following four areas:

- Prevention
- Response
- Storage
- Disposal

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section a continued

See the Required Jobsite Postings sections of Chapter 7 for an example of the Mandatory Label Information OSHA 3491 Quick Card. This Quick Card shall be posted on the jobsite safety bulletin board.

Role of the SDS (Safety Data Sheet)

The Safety Data Sheet is the detailed source of information about the chemical. SDS sheets have many audiences and are thus a reference to help ensure a chemical is handled safely. New safety data sheets will be organized using a specified order of information and the required information will appear in the same sections of an SDS regardless of the supplier. The most important information will be listed in the first sections of the SDS.

SDS sections include the following:

1. Identification
2. Hazard(s) identification
3. Composition / Information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control / Personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. **Ecological Information**
13. **Disposal considerations**
14. **Transport information**
15. **Regulatory information**
16. Other information

Reference the Required Jobsite Postings sections of Chapter 7 in the Accident Prevention Program for the OSHA 3493 Safety Data Sheet Quick Card. This Quick Card shall be posted on the jobsite safety bulletin board.

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section c

CHEMICAL PRODUCT HAZARD ANALYSIS FORM

Job Name: _____ Job #: _____ Date: _____

Superintendent: _____ Safety Officer: _____

Subcontractor: _____ Safety Officer: _____

Plan Prepared By: _____ Date Prepared: _____

Hazardous Product: _____

Product Trade Name: _____ Manufacturer: _____ Listed as #: _____

Activity or Operation	Chemical Hazards	Prevention or Corrective Action

Sign and date below to acknowledge training of JHA has occurred



CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section d

CHEMICAL PRODUCT HAZARD ANALYSIS FORM (SAMPLE)

Job Name: _____ Job #: _____ Date: _____

Superintendent: _____ Safety Officer: _____

Subcontractor: _____ Safety Officer: _____

Plan Prepared By: _____ Date Prepared: _____

Hazardous Product: Klean Strip Green Denatured Alcohol, 1 gallon quantity in a can

Product Trade Name: Klean Strip Green Manufacturer: Klean Strip Listed as #: 4

Activity or Operation	Chemical Hazards	Prevention or Corrective Action
Surface Prep Cleaning	Poison	<ol style="list-style-type: none"> Do not ingest (eat or swallow) this product Keep product in original container clearly marked or in a secondary container clearly labeled as POISON
	Vapors are Harmful	<ol style="list-style-type: none"> Use only in a well-ventilated area with a cross current of air away from people. If ventilation is not possible, use an approved respirator – a dust mask is not adequate. Check with the Respirator Program Administrator. Keep the lid on the can when not dispensing
	Eye Irritant	<ol style="list-style-type: none"> Contain splashing Wear safety glasses, goggles, and possibly face shield as the use dictates to prevent product from entering the eyes. Do not wear contact lenses while using this product
	Fire Hazard	<ol style="list-style-type: none"> Use only in an area that is free from sparks or open flame Static charge can also ignite the vapors Dispose of rags in a fire safe container Use a Flammable Liquids Dispenser for wetting cleaning rags Keep the lid on the container
	Hazard to the Skin	<ol style="list-style-type: none"> Use only impermeable gloves to protect the hands Wash skin promptly if exposed to the product Remove any clothing that has absorbed the product to keep the product off the skin

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section e

HAZARDOUS MATERIALS SAFETY TRAINING CHECKLIST

Job Name: _____ Job #: _____

Employee Name: _____ Trainer Name: _____

Use this checklist to be certain that all required training topics have been covered

- The content and purpose of the Abbott Construction Hazard Communication Program
- The location of the written program for employee review
- The location of the Hazardous Chemicals Lists and Safety Data Sheets (SDS) for any chemical in use on the jobsite

Review of SDS, health risks, how exposure can occur, how to detect the presence or release of the chemical product, and how to protect yourself from the hazards such as safe work practices, emergency procedures, and the use of PPE for the following:

- Chemical Products that employee will be using on this jobsite
- Hazardous Chemicals currently in use on this jobsite
- Hazardous Chemicals that will be used in the future on this jobsite

***list all reviewed SDS on the 2nd page of this form**

- Signs, barriers, or other methods that will be used on this jobsite to warn employees of chemical hazards
- Methods that will be used to alarm employees of a hazardous release into the workplace such as a siren or other emergency alert system
- How and where to evacuate in the event of a chemical emergency
- The purpose and usefulness of container labeling systems. Review poster of Label Pictograms
- How to safely and correctly transfer a chemical to a secondary container
- How to report any misuse of a chemical, a spill, a release into the air, strange odors, illness, or condition that may be related to chemical exposure on this project. Any suspected of the above must be reported to the site Superintendent immediately
- How to obtain additional information on products
- Products that do not have labels are NOT to be used and products with labels that indicate a hazard are NOT to be used unless the employee has received instructions from the SDS provided by Abbott Construction or their employer

I affirm that the items above have been reviewed and explained to me and any questions have been answered to my satisfaction

Employee Signature

Date

I affirm, as the Trainer that I reviewed the above with the employee and answered all questions regarding this training topic.

Trainer Signature

Date

CHAPTER 6 – HAZARDOUS COMMUNICATION PROGRAM

section e continued

HAZARDOUS MATERIALS SAFETY TRAINING CHECKLIST (con't)

Job Name: _____ Job #: _____

Employee Name: _____ Trainer Name: _____

Safety Data Sheets reviewed during employee Hazardous Material Safety Training:

Number from Hazardous Material List	Product Identifier (Name)

Personal Protective Equipment Training Provided

CHAPTER 7 – SAFETY COMMUNICATION

section a

SAFETY COMMUNICATION POLICY

The communication of safety information from Management to Superintendents, Superintendents to Foremen and Foremen to Field workers and back is a vital part of our Accident Prevention Program. It goes hand in hand with our orientation and training programs. The following methods have been established to assure free flowing safety communication.

1. Bulletin board. The main office and each jobsite will have a bulletin board dedicated to safety. Employees are requested to read the board regularly assuring that everyone has seen an item before it is taken down. See Job Start-Up Checklist and Required Postings Guidelines.
2. Field workers are required to immediately confront, seek correction, and report all hazards or safety problems immediately to the site Foreman and or designated Jobsite Safety Officer. In the case that the issue is not resolved at this level it should be reported to the Superintendent and then on to the Director of Field Operations if needed.
3. Superintendents and Foremen are to work closely with Subcontractors to resolve safety concerns which involve the project and workers. Subcontractors are required to be an active participant in safety specific to the project. A **PROACTIVE** approach is required over a **REACTIVE** approach.
4. Field workers will be asked as part of each safety meeting for their safety suggestions. These will be addressed onsite or referred to the Director of Field Operations or Operations Manager as needed. Safety meetings are the primary method of safety communication but should not be limited to that time frame. Employee participation is a requirement.
5. Safety Consultant reports and project documentation may be reviewed by the Director of Field Operations or Operations Manager and members of the Safety Leadership Board monthly. Safety Consultant reports are also placed into individual employee files to be reviewed annually.
6. Safety Consultant reports are reviewed by the Field Operation Manager prior to annual employee reviews and discussion regarding overall employee safety will result from this.
7. Workers shall be made to feel secure and comfortable to share, at any given time their questions and / or concerns regarding safety on the site or in the office. It is up to Management and Supervision to set the platform for free and open dialogue.

CHAPTER 7 – SAFETY COMMUNICATION

section b

JOB START-UP CHECKLIST AND POSTING REQUIREMENTS

Before work starts, the following must be on site:

- A copy of the **Accident Prevention Program (APP)**
- An up to date and accurate **Site Specific Safety & SDS Manual**
- An up to date and accurate **Hazard Communication Manual**
- A hard copy, electronic copy, or the appropriate site online saved as a favorite, of the OSHA an OSHA State Plan regulations for the state in which the project is located
- First aid kit(s)
- Blood spill Kit(s)
- Emergency first aid quick response kit(s)
- Adequate amount of Fire Extinguishers for the site

Before work starts, the following shall be prepared and posted on the jobsite Safety Bulletin Board:

- Copy of the Company Policy Statement (APP, Chapter 1, section a)
- Copy of the Project Safety Rules (APP, Chapter 3, section d)
- Filled out copy of the Emergency Phone list (APP, Chapter 4, section b)
- Filled out copy of the Emergency Action Plan (APP, Chapter 4, section c)
- A Site Plan that clearly shows emergency escape routes and where personnel are to gather for assessment and a head count following a disaster or major accident.
- Copy of recent Safety Consultant report.
- Injury Worker Flowchart
- On-Site Health and Safety Poster

On Washington jobs, the following State required items will be posted on the jobsite Safety Bulletin Board.

- Notice to Employees
- Job Safety and Health Protection
- Your Rights as a Non-Agricultural Worker
- Discrimination in Employment
- Minimum Wage
- Unemployment Benefits
- Equal Employment Opportunity
- Fair Labor Act
- Employee Polygraph
- Family Medical Leave Act
- Your Rights Under USERRA
- Employee Responsibilities
- Religious Unemployment Benefits
- Identifying Heat Related Illness
- OSHA Pictogram Quick Card
- OSHA Safety Data Sheet Quick Card

CHAPTER 7 – SAFETY COMMUNICATION

section b continued

On California jobs, the following State required items will be posted on the jobsite Safety Bulletin Board.

- Wage Orders #16
- Wage Orders #4
- California Minimum Wage – English
- California Minimum Wage – Spanish
- Payday Notice
- Safety & Health Protection on the Job – English
- Safety & Health Protection on the Job – Spanish
- Emergency Phone Numbers
- Access to Medical & Exposure Records – English
- Access to Medical & Exposure Records – Spanish
- Notice to Employees – Injuries Caused by Work
- MPN Guide
- Notice to Employees – State Compensation Insurance Fund – English
- Notice to Employees – State Compensation Insurance Fund – Spanish
- Whistleblower Protections
- Workplace Discrimination and Harassment
- Family Care & Medical Leave & Pregnancy Disability Leave
- Family and Medical Leave Act
- Notice to Employees – Unemployment Insurance Benefits
- Notice to Employees – Unemployment Insurance Code
- Elections Code
- Equal Employment Opportunity
- Federal Minimum Wage
- Employee Polygraph Protection Act
- Employee Rights under the National Relations Act
- OSHA Pictogram Quick Card
- OSHA Safety Data Sheet Quick Card

As work progresses, post the following for at least a week, before filing:

- Notes from the weekly “Job Site Safety Meeting”, with signatures of all attendees
- A copy of the “Weekly Walk Around” inspection report reflecting all deficiencies noted during the inspection have been corrected. Review this report at the next Jobsite Safety Meeting
- Any site specific posters and / or notices that need to be viewed by the workers as a reminder of specific hazards as the job progresses

CHAPTER 7 – SAFETY COMMUNICATION

section c

SAFETY SUGGESTIONS

1. Most safety suggestions will be handled on site during day-to-day work. Foremen and site Superintendents shall be responsive to workers' suggestions. Corrections shall be made at once and noted in the jobsite safety meeting notes.
2. Safety suggestions shall be requested and recorded at each jobsite safety meeting. It is the responsibility of everyone on the site to make suggestions, whether solicited or not.
3. Suggestions beyond the scope of site Superintendent shall be referred to the Director of Field Operations or Operations Manager to be addressed by Management.
4. Suggestions from sites should be routed through the Safety Consultant, the Director of Field Operations or Operations Manager.
5. Concerned employees are invited to contact Director of Field Operations or Operations Manager directly.
6. Employees are to be commended for making suggestions, even if they can't be used. The making, listening to, evaluation of and the following up on suggestions shall be an ongoing process at every jobsite.
7. When exceptional safety suggestions are given, recognition shall be given to the worker at site safety meetings and throughout the company.
8. Safety Suggestion boxes are available for all jobsites. Please contact a member of the Safety Leadership Board or the Director of Field Operations or Operations Manager for delivery of box to the site.

CHAPTER 7 – SAFETY COMMUNICATION

section d

WORKPLACE VIOLENCE PREVENTION

Abbott Construction is committed to preventing workplace violence and to maintaining a safe work environment. Given the increasing violence of society in general, Abbott Construction has adopted the following guidelines to deal with intimidation, harassment, or other threats of (or actual) violence that may occur during business hours or on its premises.

All employees, including Supervisors and temporary employees, shall be treated with courtesy and respect always. Employees are expected to refrain from fighting, horseplay, or other conduct that may be dangerous to others. Employees who wish to bring a weapon (for after-hours sporting purposes) must first disclose to their immediate Supervisor their intent before bringing it into the workplace.

Conduct that threatens, intimidates, or coerces another employee, a customer, or a member of the public at any time, including off duty periods, will not be tolerated. This prohibition includes all acts of harassment, including harassment that is based on an individual's sex, race, age, or any characteristic protected by federal, state, or local law.

All threats of (or actual) violence, both direct and indirect, shall be reported as soon as possible to your immediate Supervisor or any other member of Management. This includes threats by employees, as well as threats by customers, vendors, solicitors, or other members of the public. When reporting a threat of violence, it is important to be as specific and detailed as possible.

All suspicious individuals or activities shall also be reported as soon as possible to a Supervisor. Do not place yourself in peril. If you see or hear a commotion or disturbance near your workstation, do not try to intervene or see what is happening.

Abbott Construction will promptly and thoroughly investigate all reports of threats of (or actual) violence and of suspicious individuals or activities. The identity of the individual making a report will be protected as much as is practical. To maintain workplace safety and the integrity of its investigation, Abbott Construction may suspend employees, either with or without pay, pending investigation. Anyone determined to be responsible for threats of (or actual) violence or other conduct that is in violation of these guidelines will be subject to prompt disciplinary action up to and including termination of employment.

Abbott Construction encourages employees to bring their disputes or differences with other employees to the attention of their Supervisor or the Human Resources Director before the situation escalates into potential violence. Abbott Construction is eager to assist in the resolution of employee disputes and will not discipline employees for raising such concerns.

PURPOSE

To define the policy of this company that all employees have the right to work in an environment free from physical violence, threats, and intimidation.

Abbott Construction's position is that violence is a form of serious misconduct that undermines the integrity of the employment relationship. No employee shall be subject to unsolicited physical violence, threats, or intimidation. Such behavior may result in disciplinary action up to and including termination of employment.

POLICY

Abbott Construction has a strong commitment to its employees to provide a safe, healthy, and secure work environment. Abbott Construction also expects its employees to maintain a high level of productivity and efficiency. The presence of weapons and the occurrence of violence in the work place during working hours or otherwise are inconsistent with these objectives. While the company has no intention of intruding into the private lives of its present or potential employees, it expects all employees to report on the work site without possessing weapons and to perform their job without violence towards any other individual. Abbott Construction expects all of its employees to work in a manner so that they can perform their duties in a safe and productive manner.

POLICY IMPLEMENTATION

It is the responsibility of Human Resources to monitor that all employees are informed of, and aware of this policy and legal guidelines.

Employees who are victims of or witnesses to violent incidents shall immediately report such conduct to their Supervisors or the Human Resources Director.

CHAPTER 7 – SAFETY COMMUNICATION

section d continued

DEFINITIONS

CRIME OF VIOLENCE

- Includes any degree of murder, voluntary manslaughter, rape, mayhem, robbery, burglary, aggravated assault, and physical or verbal threats.

WEAPON

- Includes an explosive weapon, a device principally designed, made or adapted for delivering or shooting an explosive weapon, a machine gun, a short barrel rifle or shotgun, a handgun, a firearm silencer, a switchblade knife or metal knuckles, or any other implement for infliction of bodily injury, serious bodily injury or death which has no common lawful purpose.

ON THE WORK SITE

- Includes all property owned or occupied by Abbott Construction (including company jobsites) or in a company vehicle.

POSSESSION

- Includes, but is not limited to, the presence of weapon on the employee, in his or her motor vehicle, lunch box, locker, tool kit, bag, purse, cabinets, office, etc.

PROHIBITED ACTIVITIES

Abbott Construction specifically prohibits the following and will routinely discipline an employee up to and including termination of employment for any of the following that takes place on company premises including jobsites:

- Use, possession, or sale of any weapon as described above.
- Storing any weapon in a locker, desk, vehicles, lunch box, tool kit, bag, purse or other repository on the jobsite or other company premises.
- Illegal possession, use, or sale of a weapon off company property that adversely affects his or her own or other's safety at work or indicates a propensity for the same.
- Refusing to submit to an inspection for the presence of a weapon that is requested by the company.
- Refusing to sign a statement to comply with the company's policy on Work Place Violence.
- Refusing to participate in an investigation pertaining to allegations or suspicion that violence has or is likely to occur, or an investigation pertaining to the carrying of a weapon by the employee or a co-employee.
- Verbal or physical threats, threatening gestures, or statements
- Fighting

Abbott Construction, at its discretion, may from time to time modify this policy. In the event that this Work Place Violence Policy is revised, a copy of the revised policy will be communicated to employees.

REPORTING

An employee who witnesses an incident of violence or threatening language or conduct must report the incident to his or her Supervisor or Human Resources promptly.

Abbott Construction has no tolerance for retaliation for those who witness, report, or take part in an investigation.

DISCIPLINE

An employee who violates this policy by engaging in violent conduct or bringing a weapon into the workplace is subject to discipline up to and including immediate termination.

An employee who violates this policy by bringing onto the worksite a weapon and whose employment is not terminated by the company will be subject to searches from time to time, for an indefinite period of time not to exceed one (1) year from the date of the violation.



CHAPTER 7 – SAFETY COMMUNICATION

section d continued

An employee's consent to submit to a search is required as a condition of employment and the employee's refusal to consent may result in disciplinary action, including termination of employment, for a first refusal or any subsequent refusals.

MISCELLANEOUS

Abbott Construction has the right to search any areas on company premises for weapons including, but not limited to, lockers, furniture, containers, drawers, equipment or other facilities, lunch boxes, briefcases, personal bags, personal toolboxes or tool kits, parking lots, company vehicles and personal vehicles parked on company premises.

If an employee is injured while participating in a fight or after instigating a fight, then entitlement to workers compensation benefits may be denied.

No part of this policy or any procedure herein is intended to affect the Abbott Construction's right to manage or control its workforce or be construed as a guarantee or contract of employment or continued employment.

NON-RETALIATION

This policy also prohibits retaliation against employees who report incidents of threats, physical violence, intimidating conduct, or weapons possession. Any employee bringing a harassment complaint or assisting in the investigation of such a complaint will not be adversely affected in terms and conditions of employment, nor discriminated against or discharged because of the complaint.

EXCEPTIONS

Exceptions to this policy must be approved by the President of the company. If violence is committed by another person, local law enforcement will be contacted, and the effected party will be informed of their right to protection orders through a court of law.

CHAPTER 7 – SAFETY COMMUNICATION

section e

HEAT RELATED ILLNESS (HRI) TRAINING POLICY & PROCEDURES

All employees and workers on Abbott Construction sites have the right to know and understand hazards as they relate to Heat Related Illness. Workers that are working in situations where they are exposed to Heat Related hazards shall include those hazards in their daily Pre-Task Plan.

Hot weather can kill. Workers can be protected if they know how to prevent heat-related illness and if they are familiar with the signs, symptoms and appropriate first aid procedures for serious heat related illnesses.

High temperatures and high humidity conditions in combination with other risk factors can limit the body’s ability to cool. When the body retains more heat than it can release, protective mechanisms can be overwhelmed resulting in heat related illness (HRI).

HRI ranges from relatively harmless conditions such as heat edema (swelling) and heat cramps to more serious illness such as heat syncope (fainting) and heat exhaustion. The most serious and often fatal form of HRI is heat stroke.

Heat related illness training will be conducted annually on all Abbott Construction jobsites where workers are at risk for heat related illness.

On jobsites in the Washington and Oregon region, training will commence on all jobsites that have outdoor work environments from May 1st through September 30th, only when employees are exposed to outdoor heat at or above an applicable temperature on the chart listed below.

On jobsites in the California region, training will commence on all jobsites regardless of the time of year when workers are exposed to outdoor heat at or above an applicable temperature on the chart listed below.

We will provide enough shade to fully cover everyone taking a break at the same time with room to sit comfortably in a normal posture. Use this shade whenever you need to cool down, so you don’t get overheated and during any required, cool-down rest period. This will be achieved by using trees, portable shade tents, jobsite offices or other means.

Drink water before work so you start your day hydrated. We will ensure you have access to Acceptable drinking water. Don’t wait to be thirsty to drink; and drink small amounts often throughout the day to stay hydrated.

It can take 7-14 days to fully adjust to hot working conditions. Most of this adjustment (also called acclimatization) happens in the first 4-5 days. Acclimatization is lost if you are away from hot conditions for a week or more. If you are newly assigned to work in the heat and are covered by this program, you should acclimatize. In addition to newly assigned workers, workers who have been away from the heat for a week or more and crews working during a heat wave should also acclimatize.

When covered by this program you are encouraged to take a cool down rest period anytime to prevent overheating. Furthermore, **when the temperature reaches 89°F, every worker is required to take at least a 10-minute cool down rest period every 2 hours.** Make sure that anyone experiencing heat illness is given proper first aid and taken care of.

If the employee receives medical attention get a written authorization from the provider that the worker can get back to work and if there is any restriction or limitations.

To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment each employee is required to wear.

Outdoor Temperature Action Levels	
Type of Clothing	Work in Direct Sun
All other Clothing	89 degrees F
Double-layer woven clothes (e.g cotton coveralls, jackets and sweatshirts)	77 degrees F
Non-breathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52 degrees F

All employees and supervisors will be trained in a language that they understand prior to outdoor work at or above the temperatures listed above and at least annually thereafter.

CHAPTER 7 – SAFETY COMMUNICATION

section e continued

Employee Training

Training in the following topics will be provided to all employees who may be exposed to a heat-related illness hazard:

- The environmental factors that contribute to the risk of heat-related illness.
- Awareness of personal factors that may increase susceptibility to heat illness.
- procedures for identifying, evaluating, and controlling exposure.
- The importance of removing heat-retaining personal protective equipment and clothing such as nonbreathable chemical resistance clothing during all breaks.
- The importance of frequent consumption of small quantities of water, 1 quart or more over the course of an hour may be necessary when the work environment is hot, and employees may be sweating more than usual in the performance of their duties;
- The importance of acclimatization.
- The different types of heat-related illness and the common signs and symptoms of heat-related illness.
- The importance of immediately reporting to Abbott Construction, LLC symptoms, or signs of heat illness in themselves, or in coworkers.
- procedures for responding to symptoms of possible heat-related illness, including how emergency medical services will be provided should they become necessary.
- The purpose and requirements of this standard; and
- The worker's right to receive the protections provided by this standard.
- Staying hydrated, where to find shade, remove heat retaining PPE if applicable.
- Personal factors that may increase susceptibility to heat-related illness including age, not being acclimatized, having medical conditions such as hormonal and heart issues and diabetes, dehydration, and use of substances that can affect the body's response to heat like drugs, alcohol, caffeine, nicotine, and medications.
- Update training to reflect the requirements for cool-down rest periods and what temperature triggers there are for these preventative and mandatory rest periods.

Supervisor training

Prior to assignment, supervisors must have training on the following topics:

- The information required to be provided in employee training above.
- The procedures the supervisor is to follow to implement the applicable provisions in this section;
- The procedures the supervisor is to follow when an employee exhibits signs or symptoms consistent with possible heat-related illness, including emergency response procedures;
- Procedures for moving employees to a place where they can be reached by an emergency medical service provider, if necessary; and
- How to provide clear and precise directions to the emergency medical provider who needs to find the work site.
- Supervisor's responsibility to ensure proper shading is available.
- Close observation procedures at or above 89 degrees.

It is the responsibility of the site Superintendent to identify a site specific plan for Heat Related Illness including, but not limited to the location of drinking water, access to shade if applicable, weather monitoring, and acclimatization monitoring.

Responding to Heat-related Illness

Let a supervisor or someone nearby know if you or a co-worker is experiencing any signs or symptoms of heat-related illness and take immediate action to ensure things don't get dangerously worse.

1. Time is critical. Quick action increases the chances for a full recovery. Get the worker away from the hot area and into the cool shaded area provided. (Describe use of shade or other means that will be available to use to cool down the worker)
2. Let the worker rest and drink cool water. (List other practices adopted to reduce heat and to help cool affected individuals such as removing PPE. List available supplies such as ice packs and other first aid supplies.)
3. Never leave an employee who is experiencing heat-related problems alone, things could get worse. (For lone workers, you may want to specify the supervisor staying on the line to monitor their recovery and the need to contact emergency services.)
4. If the employee does not respond quickly, call emergency medical services. (Describe the method to access emergency medical services. Include a map and clear directions to give if emergency services are called.)

CHAPTER 7 – SAFETY COMMUNICATION

section e continued

- If the employee is in a remote or non-developed area with unidentified roads, create procedures for moving or transporting them to a place where they can be reached by emergency medical services. For example, you may need to have the supervisor or another person meet emergency services at the closest point to guide them to the victim's location.

HEAT RELATED ILLNESS SYMPTOMS & FIRST AID

	Signs and Symptoms	First Aid and Treatment
Sunburn	<ul style="list-style-type: none"> red, hot skin may blister 	<ul style="list-style-type: none"> move to shade, loosen clothing apply cool compresses or water
Heat Rash	<ul style="list-style-type: none"> red, itchy skin bumpy skin skin infection 	<ul style="list-style-type: none"> apply cool water or compresses keep affected area dry control itching and infection with prescribed medication
Heat cramps	<ul style="list-style-type: none"> muscle spasms in legs or abdomen grasping the affected area abnormal body position 	<ul style="list-style-type: none"> move person to a cooler location stretch or massage muscles for cramps get medical evaluation if cramps persist give cool water or electrolyte-containing fluid to drink
Heat exhaustion	<ul style="list-style-type: none"> headaches clumsiness dizziness/lightheadedness/fainting weakness/exhaustion/fatigue heavy sweating/clammy/moist skin irritability/confusion nausea/vomiting paleness high pulse rate 	<ul style="list-style-type: none"> move person to a cooler place (do not leave alone) loosen and remove heavy clothing that restricts evaporative cooling if conscious, provide small amounts of cool water to drink fan person, spray with cool water, or apply a wet cloth to skin to increase evaporative cooling lay flat and elevate feet evaluate mental status (ask who, where, when questions) call 911 if not feeling better within a few minutes
Heat stroke	<ul style="list-style-type: none"> any of the above, but more severe sweating may or may not be present red or flushed, hot dry skin bizarre behavior mental confusion or losing consciousness panting/rapid breathing rapid, weak pulse seizures or fits can be fatal 	<ul style="list-style-type: none"> call 911 move person to a cooler place (do not leave alone) cool worker rapidly if conscious, provide small amounts of water to drink loosen and remove heavy clothing that restricts evaporative cooling fan person, spray with cool water, or apply a wet cloth to skin to increase evaporative cooling lay flat and elevate feet monitor airway and breathing, administer CPR if needed

CHAPTER 7 – SAFETY COMMUNICATION

section f

HEAT RELATED ILLNESS Weekly Toolbox Safety Meeting

Date: _____ Jobsite: _____ Discussion Leader: _____



Attendance Sign In

Heat Related Illness

Heat Illness occurs when the body’s means of controlling its internal temperature starts to fail. The body cools itself by blood flow to the skin’s surface and by sweating. The sweat evaporates from the body which results in a cooling effect. Keep in mind that excessive sweating can lead to dehydration therefore drink plenty of water (a cup every 15-20 minutes). Don’t wait until you are thirsty.

Factors such as air temperature, work rate, humidity, clothing worn while working, age, weight, personal fitness, medical conditions (diabetes, heart condition, etc.), medications (water pills, blood pressure, heart conditions, allergies, etc. check with your doctor), caffeine, and alcohol may lead to heat illness. Clothing, PPE’s, and humidity can restrict sweat evaporation and not allow the body to cool. The body continues to produce heat but can’t release the heat so the deep body temperature rises. Eventually the body’s control mechanism starts to fail. When this occurs symptoms of heat illness start to appear.

There are 4 different types of heat-related illnesses: heat rash, heat cramps, heat exhaustion, and heat stroke. Typical symptoms of heat illnesses are red bumps, muscle spasms in legs or abdomen, headaches, clumsiness, dizziness, lightheadedness, fainting, weakness, exhaustion, heavy sweating, clammy moist skin, irritability, confusion, nausea, vomiting, paleness, sweating may or may not be present, red or flushed hot dry skin, bizarre behavior, mental confusion or losing consciousness, panting and / or rapid breathing, rapid weak pulse, seizures or fits.

Watch out for yourself and coworkers. If you or a coworker experience symptoms, notify your supervisor and / or call 911 immediately (directions to this site are located on the safety board) and cool the person. Cool the person by moving to a shaded area, fanning, spraying with cool water, remove restrictive clothing, provide cool drinking water, etc. **COOL THE PERSON!** It is important to get treatment before harmful damage is done to the body.

To prevent heat illness keep hydrated throughout the day, eat properly, build up a tolerance to heat, wear breathable clothing (if possible), remove PPE while taking breaks in cool shaded areas, avoid caffeine and alcohol, work during cooler parts of the day, and watch out for yourself and coworkers.

Drinking water is located: _____

Shade (if applicable) is located: _____

Safety standards require employees to be trained on Heat Related Illness and the employer’s safety program to identify, evaluate, and control hazards. Ask your supervisor for a copy of the HRI rule. Our procedures for identifying, evaluating, and controlling exposures are: _____

(refer to our APP)

Other Safety Items Discussed:

CHAPTER 7 – SAFETY COMMUNICATION

section g

Wildfire Smoke / Air Quality

Employees who work outdoors when there is a heightened level of exposure to wildfire smoke and the AQI for PM_{2.5} exceeds 69 are at risk of experiencing negative health effects from breathing in hazardous chemicals. It is the policy of the Abbott Construction, LLC to reduce employee exposure to harmful respiratory hazards when wildfire smoke causes unhealthy air quality by developing employee and supervisor awareness of the health effects of wildfire smoke and proper response. All employees who work outdoors when AQI for PM_{2.5} exceeds 151 are expected to comply with the procedures in this program.

This policy is based on the Washington Administrative Code (WAC) 296-62-085 *Wildfire Smoke*.

The following workplaces and operations are exempt from this rule:

- Enclosed buildings or structures in which the employer ensures that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to open doors to enter and exit.
- Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to open doors to enter or exit.
- Employees exposed to a concentration of PM_{2.5} of 20.5 µg/m³ (Washington Air Quality Advisory [WAQA] 101, Air Quality Index [AQI] 69) or more for a total of one hour or less during a shift.
- Firefighters engaged in wildland firefighting.

Definitions

Air Quality Index (AQI)

A unitless index used by the U.S. Environmental Protection Agency (EPA) to communicate air quality for several pollutants, including PM_{2.5}.

Current PM_{2.5}

The concentration of PM_{2.5} for the most current hour available, calculated using an hourly average of PM_{2.5} data.

NowCast Air Quality Index (AQI)

The method used by the U.S. Environmental Protection Agency (EPA) to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

NowCast Washington air quality advisory (WAQA)

The method used by the Washington state department of ecology to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

PM_{2.5}

Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter (µg/m³).

Sensitive groups

People with preexisting health conditions and those who are sensitive to air pollution who are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke;
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, flu, or those with, or recovering from COVID-19;
- People with existing heart or circulatory problems, such as irregular heartbeat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke;
- Children under eighteen years old, and adults over age sixty-five;
- Pregnant women;
- People with diabetes;
- People with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician.

CHAPTER 7 – SAFETY COMMUNICATION

section g continued

Wildfire smoke

Emissions from fires in wildlands or in adjacent developed areas. Wildfire smoke contains a complex mixture of gasses and particulates. Fine particulates such as PM_{2.5} are the primary pollutant in wildfire smoke.

Wildlands

Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

Air Quality Monitoring and Communication

Abbott Construction, LLC will determine the air quality for exposure to PM_{2.5} before each shift using one of the methods listed in WAC 296-62-08530. then communicate wildfire smoke hazards of PM_{2.5} is 20.5 µg/m³ (WAQA 101, AQI 69) or more. Employees are encouraged to inform their supervisor, site supervision, or safety professional when air quality is worsening, or adverse symptoms are noticed that could be related to wildfire smoke exposure.

Training

Abbott Construction, LLC will train all employees regarding the health effects (including those in sensitive groups), action limits, controls, and accepted measurement/ reporting of wildfire smoke concentrations. Employees will be trained in their rights to seek medical treatment for wildfire smoke exposure, the requirements of WAC 296-62-085 through 296-62-08590. This training will also detail the company plan for tracking and mitigating wildfire smoke exposure, including respirator use and limitations.

Supervisors will be given additional training prior to supervising employees performing work that exposes the worker to PM_{2.5} levels that are 20.5 µg/m³ (AQI 69) or more,

- Company procedures for implementation of this policy
- Employee adverse symptom response and monitoring,
- Procedures for moving or transporting employees to an emergency medical service provider, if necessary
- How to get medical help for employees in the event of adverse reactions.
- The procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure, including appropriate emergency response procedures.

Controls

Where the NowCast PM_{2.5} is 20.5 µg/m³ (WAQA 101, AQI 69) or more, the employer *is encouraged* to implement exposure controls.

Where the NowCast PM_{2.5} is 55.5 µg/m³ (WAQA 173, AQI 101) or more, the employer **must** implement exposure controls whenever feasible.

Controls include:

- providing enclosed buildings, structures or vehicles
- providing portable HEPA filters in enclosed areas
- relocating work to a safer air quality location
- changing work schedules
- reducing work intensity
- providing additional rest periods

Respiratory Protection

At an AQI above 69, employers are encouraged to provide respirators upon request, no cost to employees.

At an AQI above 101, employers are required to provide respirators and encourage their use.

Training for use of respirators shall follow Appendix B of WAC 296-62-08590 and include:

1. The health effects of wildfire smoke
2. The right to obtain medical treatment without fear of reprisal
3. How to obtain the NowCast PM 2.5
4. Resources to obtain the air quality data
5. Requirements of WAC 296-62-085 through 296-62-08590
6. The company's methods to protect employees from wildfire smoke
7. The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke
8. How to properly use and care for respirator

CHAPTER 8 – SUBCONTRACTOR SAFETY

section a

SUBCONTRACTOR SAFETY POLICIES

Subcontractors provide a valuable service to our company. We are appreciative of this service and the quality of work performed. Working to provide a safe site is a task which we must perform together. Abbott Construction expects all work done onsite to align with our commitment to safety and to follow all OSHA and OSHA State Plan Regulations as they apply. The following requirements will help us all to do this:

Pre-Qualification:

1. Along with a Subcontractor's bid for a project, they will be required to submit a copy of their current Worker's Compensation Carrier Loss Run for the current three years and a safety questionnaire, which will be reviewed by the Director of Field Operations or Operations Manager and may influence our acceptance of their bid.
2. Subcontractors with significant safety concerns will be notified of concerns and encouraged to receive training to improve their program.

Pre-Construction:

1. Prior to construction, Subcontractors will attend a preconstruction meeting where Abbott Construction's expectations, policies, and standards will be reviewed.
2. Prior to construction, the Subcontractor will submit a copy of all SDS for substances to be used at the site. **This is not to be a collection of all SDS the Subcontractor has ever used**, rather the site specific substances which will be used. These SDS shall be sent to the site Superintendent for review. Please note that if the SDS for a substance requires the use of goggles or any other protective equipment, this equipment must be provided and used by the Subcontractor.
3. Subcontractors must submit a copy of their Accident Prevention Program. These will be reviewed regarding the work being done for Abbott Construction. We will particularly be watching for hazards to which a company's workers are exposed. For example; an electrical company shall have a detailed and complete electrical policy and Lockout / Tagout procedures and a roofing company shall thoroughly address fall protection. Our review and acceptance of the Accident Prevention Program in no way expresses our approval of it as being complete or adequate for the company or for State criteria.
4. All Subcontractor personnel who will do actual work on the site must be covered by L&I Workers Compensation Insurance. This includes Owners and Partners who might be exempt from the State requirement.
5. Subcontractor must provide a named onsite competent person. This is defined by WISHA as "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."
6. Subcontractor must supply a Certificate of Insurance prior to commencement of work.

Construction:

1. All work done onsite must be performed according to OSHA and OSHA State Plan Regulations as they apply and Abbott Construction's published policies and procedures.
2. All required Personal Protective Equipment for Subcontractor companies must be supplied and worn by the Subcontractor. Hardhats and safety glasses are to be worn always on Abbott Construction jobsites. Safety vests are required on a per project basis.
3. Subcontractor's competent person must be onsite whenever work is in progress. Abbott Construction shall be notified if there is a change in competent person assigned to the site.
4. Subcontractor must provide the Superintendent with SDS for any substances added or changed from the preconstruction meeting. Coordinate with other workers onsite to check that they are adequately protected from Subcontractor's hazards. All protection required by SDS must be used. All containers at the site must be adequately labeled.
5. Subcontractor must submit a completed site specific work plan for all work to be done on the site. Fall Protection Plan(s) must be submitted to the Superintendent and must be in accordance with Chapter 15 of Abbott Construction's Accident Prevention Program. These plans must be submitted prior to any work where a fall protection plan is required.
6. Subcontractor must complete an accurate and detailed Job Hazard Analysis and submit it to the Superintendent prior to beginning work at the site. Analysis shall be updated as needed as the job changes or progresses.

CHAPTER 8 – SUBCONTRACTOR SAFETY

section a continued

7. Attendance at weekly jobsite safety meetings is **mandatory**.
8. Subcontractor must inspect all tools and equipment to check that they are well maintained and safe.
9. Subcontractor must check that all of their employees are oriented and trained in the safe methods and practices for their work. They shall enforce and inspect for these safety practices on a regular basis and provide records of such training to Abbott Construction upon request.
10. Subcontractor shall keep all stairs, doorways and halls clear at all times.
11. Subcontractor shall report any safety hazards observed or safety suggestions which could make the site better to the site Superintendent.
12. **All** accidents which occur at the site must be reported and a copy of the Subcontractor accident report form given to the site Superintendent. This shall be done within 8 hours for a minor accident. Serious accidents must be reported immediately. Refer to Chapter 10 Abbott Construction's Accident Prevention Program for accident procedures.
13. Subcontractors must maintain safety supplies as required by the OSHA and OSHA State Plan Regulations as they apply. This includes fire extinguishers and first aid kits.
14. Dress code for construction is enforced. No shorts, tennis shoes, sleeveless shirts, or loose clothing such as sweat pants are allowed. (Trades with a variance, such as roofers and carpet layers can wear approved athletic shoes in specified areas only).
15. Drug and alcohol use, fighting, horseplay or reckless behavior is not allowed.
16. Abbott Construction has a discipline policy for Subcontractor employees working at our sites. Subcontractor employees who do not work in a safe manner may be asked to leave the site. This policy in no way limits the Subcontractor's right to discipline the employee or use the employee at non-Abbott jobsites. Please refer to the policy in Chapter 8 of the Accident Prevention Program for further details.
17. Abbott Construction's Superintendent and the Jobsite Safety Officer will conduct routine safety inspections. If Subcontractor employees are working in an unsafe manner, they will be noted in our report. Employees may be asked to stop work until they are able to work in a way which complies with OSHA and OSHA State Plan Regulations as they apply. Subcontracting company will be notified of violations encountered. Companies with a serious or inconsistent safety problem will be evaluated to determine if their contract shall be pulled.

Evaluation:

1. At the completion of each project, the Abbott Construction Superintendent will be asked to review the safety performance of each Subcontractor.
2. Safety inspections findings, Superintendent reviews, Subcontractor employee discipline records, and any OSHA and OSHA State Plan Regulation inspections will be considered along with production performance to determine if future bids shall be awarded.

CHAPTER 8 – SUBCONTRACTOR SAFETY

section b

SUBCONTRACTOR EMPLOYEE SAFETY DISCIPLINE POLICY

Abbott Construction expects Subcontractors and their employees to practice safe procedures as established by the OSHA and OSHA State Plan Regulations as they apply. Although we have no control over who our Subcontractors hire, we can refuse to have specific employees who have demonstrated unsafe work practices on our sites. If multiple employees from a Subcontractor company have demonstrated unsafe work practices, we must assume that they have been inadequately trained and we reserve the right to terminate our contract with the company.

The following is action that will be taken upon Subcontractor employees should unsafe work practices occur:

1. **Verbal Warning** - Is given to Subcontractor companies during the preconstruction meeting. Our expectation of a safe site is explained to all workers during the Site Specific Safety Orientation. Notification and explanation of our Subcontractor employee safety discipline policy is available to workers onsite, but it is our expectation that Subcontractors will instruct their workers of the Abbott Construction discipline policy.
2. **First written notice** - Is given to Subcontractor's site Supervisor, by the Abbott Construction Supervisor, at the time of any violation. Documentation of this notice is maintained at the jobsite; a copy is given to Subcontractor's site Supervisor and a copy is sent to the Subcontractor's main office.
3. **Second written notice** - Is given to Subcontractor's site Supervisor, by the Abbott Construction Supervisor, at the time of any specific employee's second violation. Documentation of this notice is maintained at the jobsite; a copy is given to Subcontractor's site Supervisor and a copy is sent to the Subcontractor's main office. The subcontractor will be asked not to work the cited employee on our site the next working day.
4. **Third written notice** - Is given to Subcontractor's site Supervisor, by the Abbott Construction Supervisor, at the time of any specific employee's third violation. Documentation of notice is maintained at the jobsite; a copy is given to the Subcontractor's site Supervisor and an order that this employee not be sent to work at Abbott Construction jobsites will be sent to Subcontractor's main office. The employee must be removed from the jobsite immediately.
5. This policy in no way prohibits the request for immediate and permanent removal of a Subcontractor's employee(s) for a gross safety violation or to shut down a Subcontractor's work at the site if needed.

CHAPTER 8 – SUBCONTRACTOR SAFETY

section c

SUBCONTRACTOR SAFETY QUESTIONNAIRE

Subcontractor Name: _____ Job Bid: _____

Person in Charge of Safety: _____ Title: _____

Phone Number: _____ Email: _____

Experience: _____

Competent Person Onsite: _____ Title: _____

Phone Number: _____ Email: _____

Experience: _____

Please fill in the following information for the last three years:

	Current Year	Previous Year	Previous Year	Previous Year
EMR Rating				

Do you have a written Accident Prevention Plan? Yes No

If yes, when was it last updated? _____

Do you have a drug testing policy? Yes No

Do you have documented orientation for new hires? Yes No

Who conducts safety inspections and how often are they done? _____

Do you have a Safety Discipline Policy? Yes No

If yes, how does it work? _____

Explain any special features of your safety program: _____

Completed By / Title _____

Date _____



CHAPTER 8 – SUBCONTRACTOR SAFETY

section d

PRE-CONSTRUCTION SUBCONTRACTOR SAFETY CHECKLIST

Subcontractor Name: _____ Date: _____

Job Name: _____ Scope of Work: _____

Prequalification

N/A	Done	
<input type="checkbox"/>	<input type="checkbox"/>	Copy of current Worker Compensation Carrier Loss Run for the current and past 3 years
<input type="checkbox"/>	<input type="checkbox"/>	Completed Safety Questionnaire
<input type="checkbox"/>	<input type="checkbox"/>	Competent Person Named
<input type="checkbox"/>	<input type="checkbox"/>	Subcontractor's prior safety performance at our sites reviewed
<input type="checkbox"/>	<input type="checkbox"/>	Pre-Qualification Materials Reviewed by Safety Manager
<input type="checkbox"/>	<input type="checkbox"/>	Concerns / Recommendations Communicated

Pre-Construction

<input type="checkbox"/>	<input type="checkbox"/>	Site Specific Safety Plan, Job Hazard Analysis, & Fall Protection Plan submitted
<input type="checkbox"/>	<input type="checkbox"/>	Copy of Accident Prevention Program submitted
<input type="checkbox"/>	<input type="checkbox"/>	Certificate of Insurance submitted
<input type="checkbox"/>	<input type="checkbox"/>	Pre-Construction meeting held / Safety Policies Reviewed
<input type="checkbox"/>	<input type="checkbox"/>	Suggestions for Accident Prevention Program
<input type="checkbox"/>	<input type="checkbox"/>	A list of Chemical Products to be used and SDS for each chemical on the list
<input type="checkbox"/>	<input type="checkbox"/>	Copy of Abbott Construction's Subcontractor Employee Discipline Policy
<input type="checkbox"/>	<input type="checkbox"/>	Copy of Abbott Construction's Subcontractor Safety Policies

All the above-mentioned items regarding safety have been addressed and reviewed with me. I have received copies of the policies and understand they are not all inclusive and do not relieve my company from the OSHA and OSHA State Plan requirements. I understand review of Subcontractor's Accident Prevention Programs is minimal and does not constitute an endorsement of the program. I understand it is the Subcontractor's responsibility to provide a competent person on the site and will notify Abbott Construction prior to making any change in competent person.

Subcontractor Signature

Title

Date

Abbott Construction Signature

Title

Date



CHAPTER 9 – SAFETY DISCIPLINE

section a

SAFETY DISCIPLINE POLICY

The Company Disciplinary Policy describes a progressive set of actions that address an individual's violation of Company Safety Policy and/or State and Federal Safety Regulations.

The Disciplinary Policy – 4 Stage progressive policy

1. A Verbal Warning, given at the employee's new hire or job site orientation
2. 1st Written Warning
3. 2nd written Warning and mandatory suspension without pay
4. Termination

Verbal Warning

At the employee's new hire orientation, or at the new job site orientation, the Accident Prevention Program will be explained, and the employee will be warned that adherence to the requirements of that program is a condition of employment. Documentation of this verbal warning will be placed in the employee's personnel file.

1st Written Warning

A discussion of the safety violation will be conducted with the employee and the employee's immediate Supervisor. A reprimand will be written and presented to the employee and the employee's Supervisor to sign. The employee and the employee's Supervisor have the right to respond in writing on the reprimand form and are encouraged to do so.

This 1st Written Warning can affect an employee's ranking and compensation and is a serious step towards termination. The 1st Written Warning can result in immediate termination if the safety violation is flagrant and / or willful (example, removing or disabling the safety guard of a power saw).

2nd Written Warning and Suspension

The 2nd Written Warning brings with it an immediate and mandatory five-day suspension, without pay. PTO cannot be used in lieu of time off without pay. PTO will not accrue during the time off.

A discussion of the safety violation will be conducted with the employee and the employee's immediate Supervisor. A reprimand will be written and presented to the employee and the employee's Supervisor to sign. If, in the judgment of Management, the employee's immediate Supervisor is equally negligent, the suspension shall apply to the immediate Supervisor also. The employee will be sent home immediately and if more than 4 hours are left in the shift, that day will count as day number one. The 2nd Written Warning can result in immediate termination if the safety violation is flagrant and/or willful (ex: removing or disabling the safety guard of a power saw). The employee and the employee's supervisor have the right to respond, in writing on the reprimand form, and are encouraged to do so.

Termination

A 3rd safety violation and / or a safety policy violation will be discussed with the employee and the employee's Supervisor. The Human Resources Director will be informed of termination and the employee will return whatever company property has been issued to them. The employee will go through the Human Resources termination process.

CHAPTER 9 – SAFETY DISCIPLINE

section b

1ST WRITTEN WARNING

Job Name: _____ Job #: _____

Employee: _____ Date: _____

Safety Violation: _____

Employee Statement: _____

Employee Signature

Date

Field Supervisor Signature

Date

Safety Manager Signature

Date



CHAPTER 9 – SAFETY DISCIPLINE

section c

2ND WRITTEN WARNING

Job Name: _____ Job #: _____

Employee: _____ Date: _____

Safety Violation: _____

Employee Statement: _____

Employee Signature

Date

Field Supervisor Signature

Date

Safety Manager Signature

Date



CHAPTER 9 – SAFETY DISCIPLINE

section d

3RD WRITTEN WARNING – NOTICE OF TERMINATION

Job Name: _____ Job #: _____

Employee: _____ Date: _____

Safety Violation: _____

Employee Statement: _____

Employee Signature

Date

Field Supervisor Signature

Date

Safety Manager Signature

Date



INCIDENT INVESTIGATION POLICY

All accidents and near miss accidents must be investigated. All Incidents must be reported immediately using the Injury Worker Flowchart. The purpose is not to fix blame; rather to find the cause of the accident and prevent future occurrences. It is important to use an unbiased, professional, positive approach during all stages of the investigation.

The depth of each investigation will vary from a minimal Supervisor's accident report form being filled out, to a detailed investigation including pictures. The depth of the investigation is determined by the severity of the loss, the potential for future loss and the difficulty of determining the cause of the accident. The following procedures should be followed.

1. Minor injuries requiring only first aid treatment or near miss accidents will be investigated by the Foreman or site Superintendent. Report using the Worker Injury Flowchart.
2. Minor injuries requiring medical treatment at a clinic or hospital shall be investigated by the Foreman or site Superintendent. Witness statements should be taken. Report using the Worker Injury Flowchart. A Root Cause Analysis will be completed.
3. In case of fatality, potential fatality, hospitalization, or multiple injury / illness accidents occurring at the site Report immediately using the Injury Worker Flowchart.
4. Serious injury should be investigated by the Safety Department, Superintendent, and Project Manager.
 - The investigation shall begin while the site and the facts are fresh and before witnesses leave the scene. Initial accident investigation will be completed within 24 hours of the incident. Workers will be reminded to leave accident scene undisturbed and to ask witnesses to remain onsite.
 - All interviews will be handled as privately as possible and will be handled one at a time. Anyone who has knowledge of accident will be interviewed even if they did not see it happen. Interviews should be recorded, and / or a signed witness statement taken. Check that you have addresses and phone numbers for witnesses. The injured employee should be interviewed as soon as appropriate; care should be made not to place blame.
 - Graphically document the details of the accident. Take photographs, video footage, or make detailed sketches. Take pictures from a variety of angles and distances. It is difficult to predict in advance which data will be useful. Small parts and insignificant details may add up to the cause of the accident when reviewed.
 - Collect samples of materials which may have been involved. For example, dust, chemicals, residues, or ashes. Be careful not to expose yourself to injury. Take preventative measures to make sure you are not exposed to blood.
 - If a tool or equipment was involved in the injury, carefully photograph and document each item. It might have been defective, and your documentation could be critical to the recovery of claim costs. Preserve the items as found at the accident scene. If you are forced to make alterations, they should be carefully documented.
 - Be very careful with what you say during the investigation process. Your remarks to others at the accident scene or at home are admissible as evidence.
5. All accidents / incidents involving the public shall be carefully documented by the site Superintendent and witness reports shall be obtained.
6. The Director of Environmental Health and Safety will review and monitor for trends all accident reports, near miss accident reports, property damage reports, hazardous materials release report, fires, public injury reports and accident investigations. An analysis of what happened, how it happened, and how it could have been prevented will be discussed for each accident. Determine what caused the accident itself, not just the injury. Was employee training adequate? Is the company discipline program adequate? Did communications fail? Documentation of actions taken to prevent further accidents / incidences of this nature will be made. Findings and further review shall be done with Safety Leadership Board and company President.
7. A copy of all accident reports, near miss accident reports, and property damage reports, hazardous materials release report, fire reports, public injury reports and accident investigations shall be maintained in a file for a minimum of seven years.
8. Subcontractors are to report all incidents and accidents occurring to their employees because of their work. Copies of the Subcontractors documentation should be given to the site Superintendent. If this documentation is complete and the injury is minor, no further paperwork is required. If the documentation is poorly done or the injury is serious, a Supervisor Accident Investigation Form will be completed.

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID

section b

PROCEDURES FOR HANDLING INJURY OR ILLNESS ON THE JOB

Accidents and illness on the job can vary greatly in severity and needed response. Supervisors must use caution, common sense, their first aid training, and concern for employee welfare as they make decisions. We prefer to over respond rather than under respond to an injury or illness. Follow the procedures listed below in the event of an injury or illness:

1. A Supervisor or employee, should immediately take charge, assess the situation, determine whether 911 should be called, and administer first aid.
2. Follow the precautions outlined in the “Blood-borne Pathogen Policy” in Chapter 13 of the Accident Prevention Program and the “First Aid Policies” in Chapter 10 of the Accident Prevention Program.
3. Report the incident using the Injury Worker Flowchart.
4. Workers are not allowed to drive, if an injury or illness impairs their ability to do so. Always arrange for a company Supervisor to escort the worker.
5. Do not move anything at the accident site, pending an investigation. Refer to the “Accident Investigation Policy” Chapter 10 of the Accident Prevention Program.
6. Employees with impaired working ability due to personal illness, should be sent home.
7. The following forms are required to be submitted to the safety department within 24 hours of the incident.
 - a. Supervisor Incident Report
 - b. Worker Incident Report
 - Witness
8. The Superintendent is responsible for checking that documentation concerning accidents involving any Subcontractor, delivery personnel, visitors, or members of the public, are transmitted to the Safety department

Return to Work Policy

Because it is important for employees who become injured or ill to return to work as soon as possible, it is the company’s policy, whenever practical, to employ injured workers in a position that is tailored to their specific condition and needs assuming job availability. There are generally two situations that workers, who are injured on the job, encounter on their way back to their regular work.

Not yet released for work of any type

In this situation, the Doctor is requiring that the worker remain at home and the worker is not yet available for any type of work. In this case, for workers injured on the job, it is Abbott Construction’s policy that the worker’s full pay resumes on the fourth calendar day following the day of the accident.

Released for transitional light duty

In this situation, the Doctor has released the employee to a work or a work study program that is suited to his or her specific stage of recovery. It is imperative that the Doctor provide a written release that specifically defines what the worker can and cannot do. This release must specify the limits on weights that may be lifted, the durations activities may be performed, and the conditions in which the worker may function. While it is preferable that the employee works at the job site at which the injury occurred, transitional light duty work may be performed at any location, including the worker’s home, the office, or the AGC Return to Work Classroom. The light duty work need not be related to the job the worker was on at the time of the accident.

Transitional light duty work is an important part of a worker’s recovery and speeds his or her return to full duty. Every effort should be made, by the injured worker and the company, to encourage health care providers to release employees for transitional light duty work, as soon as possible. It is in the best interest of the employee and the company.

In both the situations described above and for all time related to medical care, the injured workers payroll is to be charged to the job at which the accident occurred. In the event that the job is completed, the injured worker’s payroll is to be charged to a cost code provided by the Director of Field Operations Manager or Operations Manager. All costs resulting from accidents are tracked by the Director of Field Operations or Operations Manager, whether the job of injury is active or not, and reduces the amount of performance incentives that the Superintendent, Project Manager, Senior Project Manager, and Account Executive earns.

FIRST AID POLICIES

1. All Supervisors should be first aid trained.
2. Universal precautions must be used when administering first aid to everyone. Take the time to protect yourself to the hazards present.
3. First aid kits will be maintained at the office and jobsite. Kits will be of size designated by code. Kits will be inspected weekly during Weekly Walk Arouns. If restocking is needed, the site Superintendent for the jobsite or the Office Safety Officer for the office shall be contacted.
4. Emergency numbers will be posted by all phones and first aid kits.
5. All kits will be stocked with gloves, CPR mouth shield, and cleanup kits for blood spills. **All blood spills must be reported immediately.**
6. Following the administration of first aid and removal of gloves, all involved employees shall wash carefully and change clothing, if needed, prior to eating, smoking, applying lip balm or adjusting contacts.
7. Do not move any worker who is seriously injured unless the potential for further injury requires their immediate removal.
8. Subcontractors are required to maintain their own first aid kits and have first aid certified Supervisors.

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID
section d

SUPERVISOR'S INCIDENT REPORT

Abbott Trade Partner

Project Name: _____		Project #: _____	
Project Address: _____			
Location of Incident on Project: _____			
Date of Incident: _____		Time of Incident: _____	Date of Report: _____
Name of Company: _____			
Employee's Name (First, Middle, Last): _____			
Supervisor's Name: _____			
Subcontractor's Supervisor Name: _____			
Craft Type: _____		Years of Experience: _____	
Where was the Employee Treated? <input type="checkbox"/> Clinic <input type="checkbox"/> ER Date Restriction / LTA Started: _____			
Medical Status: <input type="checkbox"/> FA <input type="checkbox"/> REC <input type="checkbox"/> REC/R <input type="checkbox"/> LTA # of Hours Worked 4 Weeks Prior to Incident: _____			
Was Safety Equipment Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No		Was Safety Equipment Being Used? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Pre-Task Plan Completed Day of? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scope Safety Plan Completed? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Week	# of Hours Worked
Last Week	
Previous Week	
Previous Week	
Previous Week	

Task being performed: _____

Is the incident questionable? State reason: _____

Signature of Supervisor: _____ Phone Number: _____

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID

section e

WORKER INCIDENT REPORT

Abbott Trade Partner

Project Name: _____		Project #: _____	
Where did the Incident Occur? _____			
Date of Incident: _____		Time of Incident: _____	Date & Time of Report: _____
Person Reported To: _____			
Name of Company: _____			
Employee's Name (First, Middle, Last): _____			
Birthdate: _____	Age: _____	Social Security Number: _____	
Street Address: _____			
City, State, Zip: _____		Phone Number: _____	
Marital Status: <input type="checkbox"/> Married <input type="checkbox"/> Single <input type="checkbox"/> Divorced	Number of Dependents: _____		
Job Title: _____	Years of Experience: _____	Hire Date: _____	
State Hired In: _____	Hourly Wage: _____	<input type="checkbox"/> Full Time	<input type="checkbox"/> Part Time
Supervisor's Name: _____			
Time Shift Began: _____		Date / Time Asked for Medical Attention: _____	
# of Hours Worked 4 Weeks Prior to Incident: _____			
All Hands Huddle Attendance?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Stretch & Flex Performed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pre-Task Plan Completed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Was Proper PPE Being Used?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Week	# of Hours Worked
Last Week	
Previous Week	
Previous Week	
Previous Week	

To be completed and submitted
in within 24 hours of notification

Body Part Injured: _____

Task Being Performed: _____

Description of Incident – What Happened? _____

Names of Witnesses: _____

Signature of Supervisor: _____ Phone Number: _____

WITNESS STATEMENT FORM

Abbott Trade Partner

Project Name: _____	Project #: _____
Employee's Name Involved in Incident: _____	
Name of Company: _____	
Witness Name: _____	Phone Number: _____
Witness Address: _____	
City, State, Zip: _____	
DESCRIPTION OF INCIDENT:	
Location of Incident on Project: _____	
Date of Incident: _____	Time of Incident: _____ Date of Report: _____
Who was Involved? _____	
What Happened? _____	
Why? What or Who Caused the Incident? _____	

Sketch Pertinent Details on the Back if Necessary

Signature of Witness: _____ Date: _____

To be completed and submitted
in within 24 hours of notification

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID

section g

ROOT CAUSE ANALYSIS

The five why process is both simple and complex. The determination of root cause should be at the fifth why and can be discovered through discussion with project leadership and all those involved in the incident. It is important to note that employee misconduct can be the 1st or 2nd item in response to the why but NEVER is that root cause.

Date: _____

Project Name: _____ Project #: _____

Injured Employee: _____ Employer: _____

Is this Subcontractor Working under a CAP? Yes No If Yes, What Color? _____

Injury Status: First Aid REC REC/R LTA Fatality

Description of injury, including any property damage (be specific):

Why did this occur?

Is it the Root Cause? Yes No

If "No" why did this occur?

Is it the Root Cause? Yes No

If "No" why did this occur?

Is it the Root Cause? Yes No

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID

section g continued

If “No” why did this occur?	Is it the Root Cause? <input type="checkbox"/> Yes <input type="checkbox"/> No
If “No” why did this occur?	Is it the Root Cause? <input type="checkbox"/> Yes <input type="checkbox"/> No
Root Cause (Ensure that this is in your control)	
Possible Solutions	

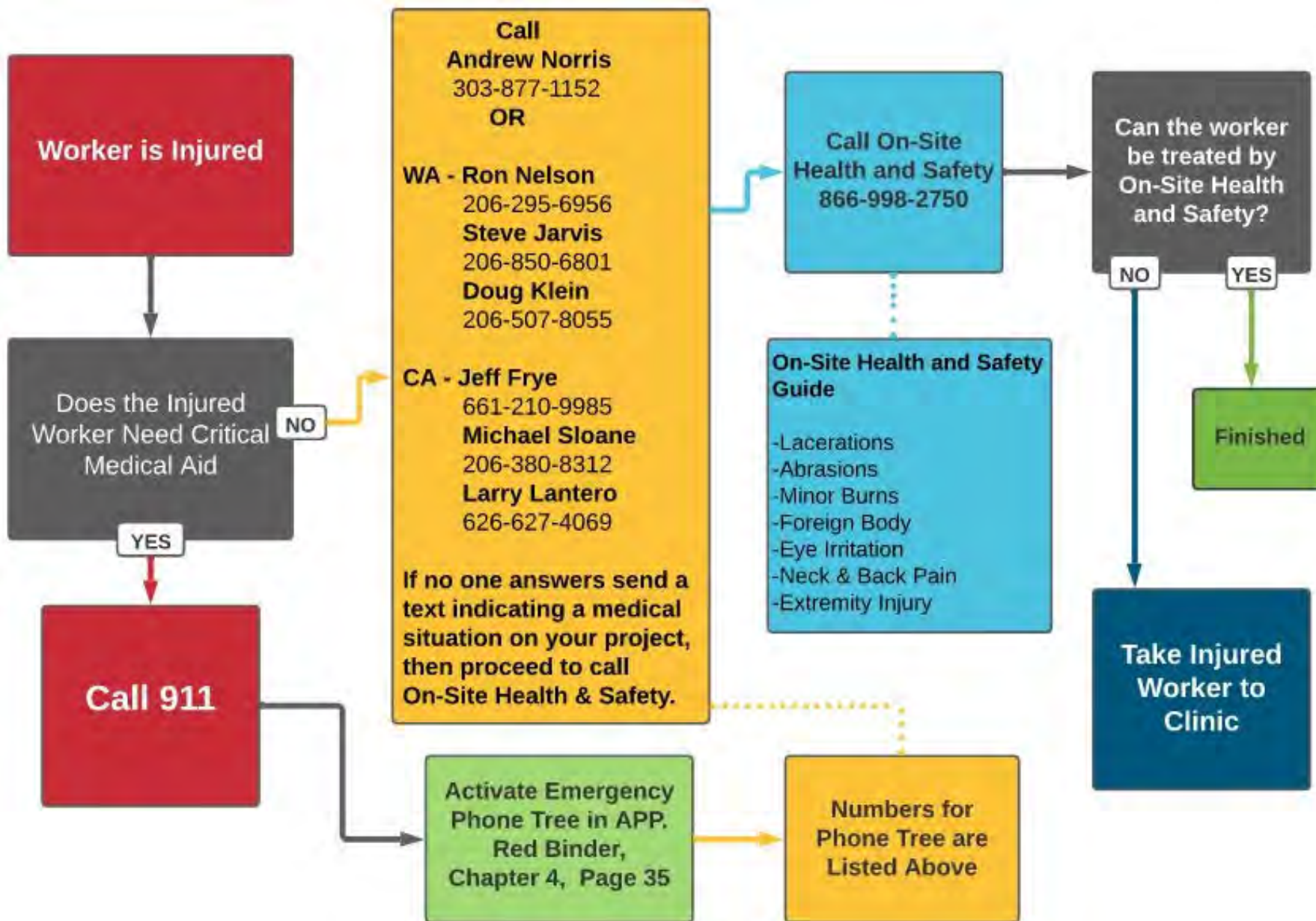
Signatures

Name	Title	Company	Email / Phone

CHAPTER 10 – ACCIDENT INVESTIGATION & FIRST AID

section h

INJURED WORKER FLOW CHART



ON-SITE HEALTH AND SAFETY POSTING



ON-SITE
HEALTH & SAFETY®

IN CASE OF INJURY

FOR ALL **LIFE THREATENING** INJURIES CALL **911**

LIFE THREATENING INJURIES ARE THOSE THAT INVOLVE:

- **LOSS OF CONSCIOUSNESS**
- **AIRWAY COMPROMISE**
- **BREATHING DIFFICULTY**
- **CIRCULATORY COMPROMISE**
- **OBVIOUS LONGBONE FRACTURES**
- **POSSIBILITY OF TRAUMATIC NECK OR BACK INJURY**
- **LARGE BURNS**
- **BURNS THAT INVOLVE THE FACE OR GENITAL AREA**

ALL OTHER INJURIES:

ON-SITE HEALTH & SAFETY

RESPONSE DIRECTLY TO YOUR WORKSITE

24 HOURS / 7 DAYS

866-998-2750

ALTERNATE AFTER-HOURS PHONE NUMBERS:

MOBILE: 925-525-9855 | 925-525-9851

Copyright © 2016 On-Site Health & Safety. All Rights Reserved.

Skip the phone call... **Schedule Online!**

www.OSHSdispatch.com



ON-SITE
HEALTH & SAFETY®

INCIDENT RESPONSE SERVICE

1. Call for response to worksite: **866-998-2750 24-hours / 7 days**
2. Technician arrives, takes report from employee, and provides first aid care.
3. Notification - Recommendation - Report
4. Phone call follow-up
5. Drug test, if requested

TYPES OF INCIDENTS:

- A. Non-injury, post-incident drug screen
- B. Non-injury, reasonable cause drug test
- C. First aid and report
- + ABRASIONS
- + LACERATIONS
- + BURNS
- + FOREIGN BODY
- + EYE IRRITATION
- + NECK OR BACK PAIN
- + EXTREMITY INJURY
- + HEALTH ILLNESS / UNKNOWN ILLNESS

TYPE OF INJURY	MANAGED ON SITE WITH FIRST AID	MEDICAL CARE REQUESTED OR RECOMMENDED
BACK PAIN	87.50%	12.50%
LACERATIONS	93%	7%
EYE IRRITATION	87.70%	12.20%
HAND/ARM/SHOULDERS	90.00%	10.00%
FOOT/ANKLE/KNEE/LEG	90.00%	10.00%

On-Site Health & Safety does NOT PROVIDE MEDICAL services.
Investigation, report, and FIRST AID ONLY!!!

Copyright © 2016 On-Site Health & Safety. All Rights Reserved.

Effective Jan T, 2020

www.OnsiteHealthandSafety.com

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section a

MATERIAL STORAGE

General

1. All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse.
2. Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads shall not be exceeded.
3. Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas shall be kept in good repair.
4. When a difference in road or working levels exist, means such as ramps, blocking, or grading shall be used to ensure the safe movement of vehicles between the two levels.
5. When necessary to store building material on public thoroughfares, care must be exercised to see that it is so piled or stacked as to be safe against collapse or falling over.
6. Material must be so located as not to interfere with, or present a hazard to employees, traffic or the public.
7. Material stored inside buildings under construction shall not be placed within 6 feet of any hoist way or inside floor openings, nor within 10 feet of an exterior wall which does not extend above the top of the material stored.
8. Temporary floors, used in steel erection, concrete forms and shoring (i.e., stripped forms, shoring jacks, clamps, steel rods or pipes, baseplates, etc.) placed within proximity to an open-sided floor for movement to another tier for placement, shall be considered "in-process equipment". When this type of equipment is to be left overnight or for longer periods of time it shall be anchored and braced to prevent displacement in any direction. In addition, this equipment shall be subject to the provisions of this subsection while in "interim storage."
9. Each employee required to work on stored material in silos, hoppers, tanks, and similar storage areas shall be equipped with personal fall arrest equipment meeting OSHA and OSHA State Plan Regulations as they apply.
10. Non-compatible materials shall be segregated in storage.
11. Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

Bagged Materials

1. Bagged materials shall be stacked by stepping back the layers and cross-keying.
2. When cement and lime is delivered in paper bags, they shall be carefully handled to prevent the bags from bursting.
3. Cement and lime bags shall not be piled more than ten bags high except when stored in bins or enclosures built for the purpose of storage.
4. When bags are removed from the pile, the length of the pile shall be kept at an even height, and the necessary step backs every five bags maintained.
5. Workers handling cement and lime bags shall wear eye protection which prevents contact between the substance and the worker's eyes (such as goggles or other sealed eye protection) and shall wear long sleeve shirts with close fitting collar and cuffs.
6. Workers shall be warned against wearing clothing that has become hard and stiff with cement.
7. Workers shall be instructed to report any susceptibility of their skin to cement and lime burns.
8. A hand cream or Vaseline and eye wash shall be provided and kept ready for use to prevent burns.
9. Lime shall be stored in a dry place to prevent a premature slacking action that may cause fire.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section a continued

Bricks

1. Bricks stacks shall not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it shall be tapered back 2 inches in every foot of height above the 4-foot level.
2. Brick shall never be stacked for storage purposes, on scaffolds or runways.
3. When delivering brick on scaffolds inside the wall lines in wheelbarrows, they shall be dumped toward the inside of the building and not toward the wall.

Blocks

1. Blocks shall always be stacked and not thrown in a loose pile.
2. When masonry blocks are stacked higher than 6 feet, the stack shall be tapered back one-half block per tier above the 6-foot level.
3. When blocks are stacked inside a building, the piles shall be so distributed as not to overload the floor on which they stand
4. Blocks shall not be dropped or thrown from an elevation or delivered through chutes.

Lumber

1. Lumber shall be stacked on level and solidly supported sills.
2. Used lumber shall have all nails withdrawn prior to stacking.
3. Lumber shall be so stacked as to be stable and self-supporting.
4. Lumber stacks shall not exceed 20 feet in height provided that lumber to be handled manually shall not be stacked more than 16 feet high.
5. All stored lumber shall be stacked on timber sills to keep it off the ground. Sills shall be placed level on solid supports.
6. Cross strips shall be placed in the stacks when they are stacked more than four feet high.

Metals

1. Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent spreading or tilting.
2. Workers handling reinforcing steel shall wear heavy gloves.
3. When bending of reinforcing steel is done on the job, a strong bench shall be provided, set up on even dry ground or a floor for the workers to work on.
4. Structural steel shall be carefully piled to prevent danger of members rolling off or the pile toppling over.
5. Structural steel shall be kept in low piles, consideration being given to the sequence of use of the members.
6. Corrugated and flat iron shall be stacked in flat piles, with the piles not more than four feet high and spacing strips shall be placed between each bundle.

Sand, Gravel, and Crushed Stone

1. Stock piles shall be frequently inspected to prevent their becoming unsafe by continued adding to or withdrawing from the stock.
2. If material becomes frozen, it shall not be removed in a manner that would produce an overhang.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section a continued

Disposal of Waste Materials

1. Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, an enclosed chute of wood or equivalent material shall be used. For the purpose of this subsection, an enclosed chute is a slide, closed in on all sides, through which material is moved from a high place to a lower one.
2. When debris is dropped without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 20 feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posed at each level. Removal shall not be permitted in this lower area until debris handling ceases above.
3. All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section b

FORKLIFT SAFETY

Prior to operating a forklift on the site, it is the responsibility of the site Superintendent or the Jobsite Safety Officer to check that each and every person authorized to operate the forklift goes through the forklift training sheet provided in this section. This filled out training sheet will serve as certification of training to operate only the forklift specific to that site. If multiple types of forklifts are on site, a separate training sheet will need to be filled out for each additional lift. This training shall be placed in the Site Specific Safety Manual for records. All Subcontractors onsite who intend to operate forklifts must also go through this training even if they carry a Forklift Certification Card. This will ensure that all workers operating a forklift will be familiar with conditions as well as equipment specific to the site.

For information on operating forklifts near or under overhead power lines, refer to Chapter 19 of the Accident Prevention Program.

A daily inspection of all forklifts is required and any Forklifts that are deemed unsafe are to be immediately shutdown and red tagged. The forklift operator will immediately report the red tagged forklift to the site Superintendent. If field supervision instructs the use of the forklift when it has been noted to be unsafe, disciplinary action will be taken against that individual.

A 2,000-pound forklift without a load, traveling at 5 MPH is capable of striking with the force of 7 tons and can easily crash through a brick wall. It is an extremely powerful, useful, and safe tool when operated properly. 70% of forklift accidents involve driver error.

Fork lifts handle differently than other vehicles, the steering mechanism is in the rear which creates problems when turning corners and turning around. Steering loaded is different than steering unloaded. The operator must always be aware of the changing center of balance when picking up, raising, lowering and shifting loads.

Basic Safety Rules for those operating or working around forklifts include:

1. Never ride as a passenger, either on forks or with the driver.
2. Never get under a forklift's load.
3. Do not smoke or have machinery running while forklift is being refueled.
4. Do not allow forklift to block doorways or exits.
5. Do not assume the operator can see you or stop for you. Stay out of the path. Be alert at corners and intersections.
6. Forklifts should not be operated recklessly or at excessive speeds. This should be reported to a Supervisor if observed.
7. The operation of a forklift in an enclosed area can produce harmful fumes. Do not allow the machine to idle for extended periods.
8. **Safety vests are required to be worn at all times by all workers when forklifts are used onsite.**

Let it be noted that during an emergency where life, health and safety of an employee or workers is in jeopardy, the operation of the forklift may be allowed by a non-certified individual to rescue or maintain life or health of the individual.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section c

FORKLIFT TRAINING FACTS

Answers to the most-often asked questions about forklift training

1. **Must employees be trained?**

Yes. All employees operating a forklift must be trained. The training consists of three elements: formal (general, classroom-type) training, practical (site-specific, hands-on) training and a visual evaluation of the operator's skill.

2. **Does an employer have to hire a professional trainer to give the training?**

No. Anyone who has the knowledge, training and experience to train and evaluate forklift operators can conduct training.

3. **Can an employer develop their own training program?**

Yes. An employer can develop their own program using, for example, WISHA Codes, Forklift Safety Guide, videos, an owner's manual review, or a hands-on training session. Additionally, the trainer would observe the operator and evaluate their ability to safely operate the forklift. Topics required to be covered during training and evaluation are listed in this section.

4. **Does the employee have to be evaluated after being trained?**

Yes. After completing the classroom training and hands-on training, the employee must demonstrate the skills learned. An evaluator designated by the employer must visually evaluate these skills. Additionally, all employees must be evaluated every three years to ensure that they are still operating the forklifts in a safe manner.

5. **Does the training have to be documented?**

Yes. The employer must keep a record of forklift training and the evaluation. The record includes the name of the operator, date of the training, date of the evaluation and the name of the person(s) giving the training and evaluation.

6. **Does the training from a previous employer count?**

Yes and No. Training received from a previous employer can meet the general, classroom-type training requirement, if such training was appropriate to the truck and working conditions encountered and if the operator was evaluated and found competent to operate the truck safely within three years. However, the current employer is still responsible for site-specific hands-on training for the specific forklift that the employee will be using. Additionally, the current employer is required to observe and evaluate the employee's ability to safely operate the forklift. Both the training and the evaluation have to be documented. (Sample on the back of this sheet).

7. **Is a license or certification required to operate a forklift?**

No. There is no license or "certification" requirement for forklift operators. The requirement is that the operator receives the following training:

- General forklift operation and safety information (topics listed in this section)
- Workplace-specific training, including hands-on demonstration on the type of forklift the operator will actually be using (topics listed in this section)
- An evaluation of the operator's skill and ability to operate the forklift safely. And remember to document the training!

The following topics must be covered when training or evaluating a forklift operator:

General Forklift Topics

- Operating instruction, warnings and precautions for types of industrial truck the operator will be authorized to operate.
- Differences between the forklift and an automobile.
- Vehicle controls and instrumentation: where they are located, what they do and how they work.
- Engine or motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).
- Fork and attachment adaptation, operation, and use limitations.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section c continued

- Vehicle capacity.
- Vehicle stability.
- Vehicle inspection and maintenance that the operator will be required to perform
- Refueling and / or charging and recharging of batteries.
- Operating limitations
- Other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicles that the employee is being trained on.

Workplace-Specific Topics:

- Surface conditions where the vehicle will be operated.
- Composition of loads to be carried and load stability.
- Load manipulation, stacking and unshackling.
- Pedestrian traffic where vehicle will be operated.
- Narrow aisles and other restricted places where the vehicle will be operated.
- Hazardous (classified) locations where the vehicle will be operated.
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
- Hands-on demonstration using the type of vehicle that the operator will actually be using.
- Changes in the workplace conditions that could affect safe operation (such as: new trenches, new worker access routes or new staging areas on construction sites).

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section d

FORKLIFT TRAINING FORM

These topics must be covered when training and evaluating a forklift, scissor lift, or aerial boom lift operator. Employers may use this checklist to document that employees have been trained and / or evaluated in all the topics listed below.

Project Name: _____ Project Number: _____ Date: _____

Type of Lift: _____ Model: _____

General Lift Topics	Initial	Workplace Specific Topics	Initial
Operator has reviewed operating instructions, warnings, and precautions for type of lift they will be authorized to operate		Operator has reviewed the surface conditions where the vehicle will be operated	
Operator acknowledges the difference between the lift and an automobile		Operator is familiar with the composition of loads to be carried and load stability	
Operator is aware of vehicle controls and instrumentation; where they are located, what they do, and how they work		Load manipulation, stacking, and unshackling have been discussed	
Steering & maneuvering controls have been tested and are working properly		Pedestrian traffic where the vehicle will be operated has been discussed with operator	
Visibility while operating the lift has been discussed (including restrictions due to loading)		Overhead and underground hazards where the vehicle will be operated have been reviewed	
Fork & attachment adaptation, operation and use limitations have been discussed		Ramps & other sloped surfaces that could affect the vehicle's stability have been reviewed	
Vehicle capacity has been discussed & capacity tag has been located		Closed environments & other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust has been discussed	
Vehicle stability & limitations have been discussed		Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation have been reviewed by operator	
Vehicle inspection and maintenance that the operator will be required to perform has been discussed & initial inspection has been performed prior to operation		Hands on demonstration using the type of vehicle that the operator will actually be using has been conducted and witnessed by the trainer	
Refueling and / or charging and recharging of batteries has been discussed		Changes in workplace conditions that could affect safe operation (such as new trenches, new worker access routes, or new staging areas on construction sites) has been discussed	
Other operating instructions, warnings or precautions listed in the operator's manual for the types of vehicle that the employee is being trained on have been discussed			

Name of Operator: _____

Date of Formal Training & Evaluation: _____

Name of Trainer: _____

Date of Practical Training: _____

Signature of Operator

Date

Signature of Trainer

Date



CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section e

HEAVY EQUIPMENT

1. All heavy equipment operators must be trained and familiar with manufacturer's instructions and code requirements. Heavy equipment is not to be casually used but rather to have a designated operator.
2. Heavy equipment must be visually inspected at the beginning of each shift to assure that all parts and accessories are in good working condition. A written and signed inspection must be done monthly. Maintenance should be done as required in accordance with manufacturer instructions.
3. Any equipment, regardless of unobstructed view to the rear must have a reverse signal alarm. Do not disconnect this alarm. Bi-directional machines must have a horn available for use in both directions.
4. All cab glass must be free from cracks and clear, with no distortion.
5. Any parts of machinery such as beds, buckets, forks, or blades must be substantially blocked prior to permitting workers under or between them.
6. Keys must be removed, and doors must be locked whenever equipment is left unattended to prevent access by unauthorized adults or children.
7. Workers should stay clear of heavy equipment. Assume the operator cannot see you and stay out of the way.
8. Operators should walk around their machines prior to each use. Several workers have been killed when they used a machine to sit and lean against during breaks and were unable to move fast enough when the operator started up.
9. Workers are not to ride on machinery unless they are seated in an authorized seat. No riding on forks, blades or any other creative part of heavy machinery, it is dangerous and strictly prohibited.
10. **Safety vests are required to be worn at all times by all workers when heavy equipment is used on a jobsite**

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section f

MOBILE CRANE SET-UP

Contractor in charge of crane operations: _____

Person in charge of crane operations: _____

Date crane was last certified: _____

Weight of load: _____

Minimum boom length needed: _____

Maximum boom length needed: _____

Length of radius for the lift: _____

Boom Angle: _____

Name of Signal Person: _____

Location of posted crane, hand, & radio signals: _____

Rigging for load inspected by: _____

Location of load set: _____

Please indicate which load chart is being used to determine safe load:

Front Rear 360 Other:

Please indicate what lift weight reductions are needed:

Hook-Block _____ lbs Headache Ball _____ lbs Misc. Rigging _____ lbs

Boom Extensions, Extended or Stored _____ lbs Other _____ lbs

Capacity of the Crane for this lift has determined to be: _____ lbs

Total weight of the load has been determined to be: _____ lbs

The capacity of the crane is greater than the weight of the load YES NO

Ground conditions have been inspected & considered safe YES NO

The crane is level & the outriggers fully extended YES NO

Crane has been inspected in accordance with the Daily Operator's Checklist YES NO

A copy of the Daily Operator's Checklist is attached YES NO

Crane swing radius has been roped off as needed YES NO

Boom angle indicator is visible to the Operator YES NO

All utilities, both underground & overhead have been located YES NO

This crane safety checklist has been reviewed and found to be Satisfactory Not Satisfactory

Reviewed By _____ Title _____ Company _____

Signature _____ Date _____



CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section g

CONCRETE SAFETY

All equipment, material and construction techniques used in concrete construction and masonry work shall meet the applicable requirements for design, construction, inspection, testing, maintenance and operations as prescribed in ANSI A10.9-1997, Concrete Masonry Work Safety Requirements.

All concrete and masonry work shall follow OSHA and OSHA State Plan regulations. Use the following tips for Concrete safety on all Abbott Construction jobsites.

Concrete is Heavy

Two tons per cubic yard / 150 pounds per cubic foot

1. Use good lifting techniques for lifting, wheeling, dumping and shoveling. Do not overload. Use teamwork and communicate the lifting plan clearly.
2. Plan ahead for setting up the location of concrete pump trucks. Be aware of trenches, previously backfilled trench lines, existing underground utilities, finished or landscaped areas, mud, and outrigger distances.
3. Check that shoring, forms, or soils involved are stable.

Concrete is a Chemical

Calcium Hydroxide can cause chemical burns with no sensation of heat

4. Wear safety glasses or goggles and the appropriate gloves at all times while working with wet concrete.
5. Long sleeve shirts, long pants and waterproof gloves shall be worn, or skin barriers applied. Boots shall be high enough to keep concrete out.
6. Wash well and clean off clothing immediately after pour.
7. Be familiar with the SDS of concrete and the additives used.

Wet Concrete Conducts Electricity

8. Treat wet concrete as you would water around power sources.
9. Be alert for overhead electrical and communication lines or lights. Do not operate any portion of pumping system near overhead wires. Refer to Chapter 19 of the Accident Prevention Program for information on operating pump trucks near overhead power lines.
10. Check that all tools are properly grounded.

Concrete is Placed with Hazardous Machinery

11. Extreme caution must be used when opening clamping devices on any part of the concrete delivery system. Warn all persons in the area of this danger and clear area before un-clamping.
12. When using a crane to move mud in a bucket, use a trained and designated signaler. Never ride the bucket.
13. Power screeds being utilized must have automatic turn off switches.

Concrete is Placed in Hazardous Places

14. Check that rebar in work area is capped both horizontally and vertically.
15. Notify the site Foreman if you notice any shifting of form work or soils.
16. Check that the fall protection plan is followed when exposed to any risk of a fall.
17. Plan work carefully, setting up concrete delivery and hoses in a manner to reduce congestion, minimize exposure of other workers or public and provide for easy access. Assure all needed warning signs or lines are in place.

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section h

LIFTING SAFETY

- 1. Plan your movements**
Size up the load and decide if you will need help. Get help if you need it! When working with a partner, lift as a team by using verbal cues. Check the path ahead before starting, to assure it is free from obstructions or slip hazards.
- 2. Get close to the object**
Move things out of the way so you are close to what you lift and then keep the load close to your body.
- 3. Maintain a wide stance**
Keep your feet shoulder width apart, with one foot slightly in front of the other.
- 4. Bend your knees**
Get down on the level of the item to be lifted, a half kneeling position is good. Try to bring the object between your knees.
- 5. Keep your back straight**
Avoid bending at the waist.
- 6. Stand**
Stand, using your leg muscles only, after you are in control of the load.
- 7. Pivot**
Never twist at the waist while lifting. Wait until your lift is completed before changing directions. Then move the lead foot in the direction you want to go and turn your entire body.
- 8. Unload**
Follow the above steps in reverse.
- 9. All workers are expected to actively participate in the Abbott Stretch and Flex program daily.**

AERIAL LIFTS OSHA FACT SHEET

OSHA FactSheet

Using Aerial Lifts

The major causes of injuries and fatalities involving aerial lifts are falls, electrocutions, and collapses or tip-overs. Aerial devices include boom-supported aerial platforms, such as cherry pickers or bucket trucks, aerial ladders and vertical towers (OSHA regulates scissor lifts as mobile scaffolds, not as aerial devices).

Safe work practices for aerial lifts include:

- Ensure that workers who operate aerial lifts are properly trained in the safe use of the equipment. Test the controls and inspect the aerial lift before use each day. Make sure that all controls are clearly marked as to their function.
- Never override hydraulic, mechanical or electrical safety devices. Maintain and operate aerial lifts according to the manufacturer's instructions. Always stand firmly on the basket floor. Do not sit or climb on the edge or rails of the basket. Never use planks, boxes or other items inside the basket to extend your reach.
- Ensure that all wheels of an elevated lift are on a solid base. Use outriggers, if provided. Set the brakes and use wheel chocks when on an incline. Do not exceed the load limits of the equipment. Allow for the combined weight of the worker(s), tools and materials.
- De-energize and lockout/tagout aerial lifts before performing any maintenance or repairs.

Working near Power Lines

Maintain a minimum clearance of at least 10 feet away from the nearest overhead line. In addition, any conductive object that can be contacted must be maintained at least 10 feet from overhead

lines. Conductive objects could be wires, transformers, ducts, pipes or other equipment. Always treat overhead lines as energized, even if they are down or appear to be insulated. (Qualified power line and communications workers and qualified line-clearance tree trimmers are trained to work closer than 10 feet to a power line. See OSHA's Tree Trimming Fact Sheet and Quick Card.) Never lose awareness of the overhead hazard.

Struck-by, Crushed-by, or Caught-in Hazards

Establish and clearly mark a danger zone around the aerial lift support vehicle. Never move the equipment with workers in the elevated platform unless the equipment has been specifically designed for this type of operation. Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. If the basket moves, the worker(s) could become trapped and crushed between the rails and the overhead object.

Fall Protection


Do not allow workers to belt off to an adjacent pole, structure or equipment while working from an aerial lift. Use a body harness or positioning device with a lanyard attached to the boom or basket to prevent the worker from being ejected or pulled from the basket.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:



AERIAL LIFTS SAFETY OSHA QUICK CARD



**Aerial Lifts
Safety Tips**

Aerial lifts include boom-supported aerial platforms, such as cherry pickers or bucket trucks. The major causes of fatalities are falls, electrocutions, and collapses or tip overs.

Safe Work Practices

- Ensure that workers who operate aerial lifts are properly trained in the safe use of the equipment.
- Maintain and operate elevating work platforms in accordance with the manufacturer's instructions.
- Never override hydraulic, mechanical, or electrical safety devices.
- Never move the equipment with workers in an elevated platform unless this is permitted by the manufacturer.
- Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. Movement of the lift could crush the worker(s).
- Maintain a minimum clearance of at least 10 feet, or 3 meters, away from the nearest overhead lines.
- Always treat powerlines, wires and other conductors as energized, even if they are down or appear to be insulated.
- Use a body harness or restraining belt with a lanyard attached to the boom or basket to prevent the worker(s) from being ejected or pulled from the basket.
- Set the brakes, and use wheel chocks when on an incline.
- Use outriggers, if provided.
- Do not exceed the load limits of the equipment. Allow for the combined weight of the worker, tools, and materials.

For more complete information:
OSHA Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA

OSHA 3287-108E-06

CHAPTER 11 – MATERIAL STORAGE & HANDLING EQUIPMENT

section k

MOBILE ELEVATED WORK PLATFORMS (MEWPS)

The overhead and underground utility considerations for aerial lifts are located in the crane section of this document.

Scissor lifts will be used in accordance with 1926.452(w). Aerial lifts will be inspected daily prior to use, this inspection will include the testing of the controls to ensure they are in safe working condition. Aerial lifts will not be used as material hoists unless the load is contained within the basket and meets the lift's rated capacity. The lift will not be modified for hoisting material unless the manufacturer approves in writing. Personal fall arrest will be worn and attached to the boom or basket when working from an aerial lift. The gates of aerial lifts will be properly engaged whenever the lift is in use. Aerial lifts will be equipped with a reverse signal alarm, and when necessary due to obstructed view, spotters will be used.

OSHA FactSheet

Using Aerial Lifts

The major causes of injuries and fatalities involving aerial lifts are falls, electrocutions, and collapses or tip-overs. Aerial devices include boom-supported aerial platforms, such as cherry pickers or bucket trucks, aerial ladders and vertical towers (OSHA regulates scissor lifts as mobile scaffolds, not as aerial devices).

Safe work practices for aerial lifts include:

- Ensure that workers who operate aerial lifts are properly trained in the safe use of the equipment. Test the controls and inspect the aerial lift before use each day. Make sure that all controls are clearly marked as to their function.
- Never override hydraulic, mechanical or electrical safety devices. Maintain and operate aerial lifts according to the manufacturer's instructions. Always stand firmly on the basket floor. Do not sit or climb on the edge or rails of the basket. Never use planks, boxes or other items inside the basket to extend your reach.
- Ensure that all wheels of an elevated lift are on a solid base. Use outriggers, if provided. Set the brakes and use wheel chocks when on an incline. Do not exceed the load limits of the equipment. Allow for the combined weight of the worker(s), tools and materials.
- De-energize and lockout/tagout aerial lifts before performing any maintenance or repairs.

Working near Power Lines

Maintain a minimum clearance of at least 10 feet away from the nearest overhead line. In addition, any conductive object that can be contacted must be maintained at least 10 feet from overhead

lines. Conductive objects could be wires, transformers, ducts, pipes or other equipment. Always treat overhead lines as energized, even if they are down or appear to be insulated. (Qualified power line and communications workers and qualified line-clearance tree trimmers are trained to work closer than 10 feet to a power line. See OSHA's Tree Trimming Fact Sheet and Quick Card.) Never lose awareness of the overhead hazard.

Struck-by, Crushed-by, or Caught-in Hazards

Establish and clearly mark a danger zone around the aerial lift support vehicle. Never move the equipment with workers in the elevated platform unless the equipment has been specifically designed for this type of operation. Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. If the basket moves, the worker(s) could become trapped and crushed between the rails and the overhead object.

Fall Protection

Do not allow workers to belt off to an adjacent pole, structure or equipment while working from an aerial lift. Use a body harness or positioning device with a lanyard attached to the boom or basket to prevent the worker from being ejected or pulled from the basket.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.



OSHA QUICK CARD

Aerial Lifts Safety Tips

Aerial lifts include boom-supported aerial platforms, such as cherry pickers or bucket trucks. The major causes of fatalities are falls, electrocutions, and collapses or tip overs.

Safe Work Practices

- Ensure that workers who operate aerial lifts are properly trained in the safe use of the equipment.
- Maintain and operate elevating work platforms in accordance with the manufacturer's instructions.
- Never override hydraulic, mechanical, or electrical safety devices.
- Never move the equipment with workers in an elevated platform unless this is permitted by the manufacturer.
- Do not allow workers to position themselves between overhead hazards, such as joists and beams, and the rails of the basket. Movement of the lift could crush the worker(s).
- Maintain a minimum clearance of at least 10 feet, or 3 meters, away from the nearest overhead lines.
- Always treat powerlines, wires and other conductors as energized, even if they are down or appear to be insulated.
- Use a body harness or restraining belt with a lanyard attached to the boom or basket to prevent the worker(s) from being ejected or pulled from the basket.
- Set the brakes, and use wheel chocks when on an incline.
- Use outriggers, if provided.
- Do not exceed the load limits of the equipment. Allow for the combined weight of the worker, tools, and materials.



OSHA 3287 (09-05)

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section a

PERSONAL PROTECTIVE EQUIPMENT “PPE”

This policy applies to all Abbott Construction Projects and personnel along with all Subcontractors, project visitors, consultants, staff, and clients not under the employment of Abbott Construction or its Subcontractors. It is intended to be the mandatory minimum requirements for any jobsite. Depending on the nature of the job, additional or special requirements may be implemented by either the site Superintendent or the Director of Field Operations or Operations Manager. Specific exceptions to this policy may be made if a site specific policy has been developed identifying the exceptions and the policy is approved by the Director of Field Operations or Operations Manager. In no event shall the site specific policy be less stringent than the Abbott Construction Policy. PPE requirements may only be waived in the event of a site related emergency. For the purpose of this policy, “construction site” shall be defined as the area where actual construction work is taking place.

Clothing

1. Clothing shall be appropriate for the work and site and must include an over the shoulder sleeved shirt. Shorts and tank tops are not acceptable. Long pants have legs that extend past the knee when the wearer stands and leaves no exposed skin on the lower leg.
2. Do not wear loose clothing, which could snag or get caught in moving parts (such as dragging pant cuffs, neckties, sweat pants, holes or frayed areas on jeans, or loose sleeves).
3. Jewelry such as dangling neckwear, bracelets, earrings, watches, rings, or other similar articles, are frequently the cause of accidents and shall not be worn on the job.
4. During daylight hours, when employees’ duties are performed near moving vehicles, Abbott Construction requires that employees wear a high-visibility safety vest, shirt, or jacket that is fluorescent yellow-green, fluorescent orange-red, or fluorescent red in color. This garment must always be worn as an outer garment. During hours of darkness (from one-half hour before sunset to one-half hour before sunrise) when employees’ duties are performed near moving vehicles, Abbott Construction requires that employees wear, at a minimum, an ANSI Class 2 approved high-visibility safety vest, shirt or jacket.

Foot Protection

1. Boots must be leather or equally firm material, non-slip, protective and hard soled. No tennis shoes, dress shoes, high heels or open toed shoes are to be worn. Shoes shall meet ANSI standards, which means they can withstand 75 pounds of impact.
2. The appropriate footwear shall always be worn for the hazard. Rubber boots shall be used when the appropriate hazard is present (i.e. concrete, chemicals, etc.)
3. When boots could damage the quality of the work being performed, the Superintendent has the discretion to determine the footwear appropriate for that specific condition.
4. Abbott Construction has partnered with Red Wing Shoes to assist in the procurement of adequate work boots for its employees. Via a voucher provided by the Main office, Abbott Construction employees may purchase a pair of Red Wing work boots at participating Whistle Workwear stores and have the cost deducted, with option of up to 4 payments, out of their weekly paycheck.

Hand Protection

1. Gloves are an excellent protection for fingers and hands. They will be worn 100% of the time by any and **all Abbott employees** when on an active jobsite and working outside of the jobsite office to prevent concrete chemical burns and cuts and scrapes.
2. The appropriate, Abbott approved glove type will be utilized for the job being performed as described below:
 - Abbott approved gloves (Lakeland Industries SpiderGrip HPPE Style 96-5202, Style 7-2506, or OXXA X-Pro-Flex Plus Style 51-295) will be worn when the following activities are being performed:
 - Using tools with any cutting blades
 - Using tools with any grinding blades
 - Performing concrete formwork
 - Hard troweling concrete
 - Wood and / or steel framing
 - Demolition Work (all types)
 - Jobsite cleanup

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section a continued

- Abbott approved chemical or water-resistant gloves (Tsunami Grip Style 590-09) will be worn when the following activities are being performed:
 - Pouring & finishing wet concrete – use caution when using latex gloves due to allergies
 - Washing & cleaning concrete tools
 - Working with chemicals that require protection per their MSDS sheet
- Abbott approved burn resistant gloves will be worn when the following activities are being performed:
 - Welding
 - Using a cutting torch
 - Soldering
- Abbott approved impact resistant gloves will be worn when using high impact tools for more than 30 minutes per day. This policy includes, but is not limited to, the following high impact tools:
 - Large Roto-Hammers
 - Jumping Jacks
 - Jackhammers
 - Rattle Guns
 - Nail Guns

Abbott Construction will provide standard gloves to its employees, if a pair of gloves are damaged and considered un-wearable by the Superintendent; they are to be replaced immediately

Head Protection

1. ANSI approved hard hats are required to be worn on the jobsite, at all times, by all personnel including visitors, clients and delivery personnel, except inside field offices. Any exception to this policy must have a written Job Hazard Analysis reviewed and approved by the Director of Field Operations or Operations Manager.
2. Abbott Construction will provide hard hats to its employees. If a hard hat is damaged, it is to be replaced immediately.

Eye and Face Protection

1. ANSI approved safety glasses are to be worn, by all personnel and visitors, at all times, on Abbott Construction jobsites. Side shields are required on prescription safety glasses.
2. Exceptions:
 - 2.1 Heavy equipment operators, while in the cab of a machine, are not required to wear safety glasses unless they are performing demolition work. They must have them with them and put them on, before leaving the cab.
 - 2.2 Visitors to the job, i.e. owners, architects, etc., are permitted to wear non-ANSI approved prescription glasses, without additional protection, unless they are exposed to an activity that is hazardous to the eyes. Hazardous activities include, but are not limited to, chipping, grinding, striking, sawing, handling hazardous materials, or using compressed air.
 - 2.3 While the operating rule is "Safety glasses must be worn unless there is a good and substantial reason not to", there may be times when they are a detriment to safety. In such cases, the wearing of safety glasses may be suspended, if all of the following criteria are met:
 - i. Written agreement from the Director of Field Operations or Operations Manager is obtained and posted on the safety bulletin board.
 - ii. Reasoned discussion supporting the decision to modify the required wearing of safety glasses is documented in the safety file.
 - iii. It is clear that the modification is for the individuals conducting a specific activity only and that when they are not specifically performing that activity; the individuals involved are required to wear safety glasses.
 - 2.4 The wearing of side shield attachments, to prescription safety glasses, is not required, where the individual is not exposed to an activity that is hazardous to the eyes, as described in 2.2 above.
 - 2.5 Eye protection is not required to be worn inside job offices where no construction hazards exist
3. Abbott Construction will reimburse employees up to \$85.00 for the additional cost of purchasing prescription safety glasses. Present receipts to the HR Director to obtain reimbursement.
4. Coverall goggles must be worn over non-ANSI approved glasses.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section a continued

5. Full-face shields along with approved safety glasses must be worn where construction activity presents a hazard to the face. These hazards include but are not limited to the following activities:
 - Grinding of any kind of metal
 - Grinding of Concrete
 - Cutting with a Skil-saw and concrete blade
 - Cutting with a metal cutting chop saw
 - Cutting with a metal cutting blade in a Skil-saw
 - Chipping or jackhammering of concrete
 - Overhead Roto-Hammer work
 - Any type of work other than listed above that presents a hazard to the face

Hearing Protection

1. ANSI approved hearing protectors are to be worn when noise level exceeds 85 dB. If workers need to raise their voices to be heard, noise levels exceed 85 dB. Hearing protectors shall be worn near jackhammers, high pressure air hoses, generators, concrete sawing, stationary power tools or any other time there is excessive noise produced.
2. See Hearing Protection policy for further details.

Visitors

1. All visitors, consultants, and clients must get permission from the site Superintendent prior to entering the construction site. If there is a construction office, visitors must sign in. Visitors must attend a visitor project specific safety orientation and may be required to be escorted while onsite per the direction of the Superintendent. No visitor under the age of 18 will be permitted onsite without approval from the site Superintendent and the Director of Field Operations or Operations Manager. Non-construction related visitors must be escorted by Abbott staff. For groups of visitors (3 or more people) or groups with children under the age of 18, site visits must be scheduled in advance and preferably after normal working hours. Groups with children under the age of 18 must be escorted by a responsible Abbott Construction representative. Visitors must wear PPE as outlined in this policy. The site Superintendent may permit visitors to wear their own PPE, provided it meets the guidelines set forth in this policy.
2. The jobsite office will keep a stock and provide approved PPE for all site visitors up to and including hard hats, safety glasses, reflective vests, gloves, and hearing protection
3. Sanitizer will be available at all jobsites for jobsite issued hard hats & safety glasses.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section b

HEARING PROTECTION POLICIES

Abbott Construction currently has no location where employees are regularly exposed to noise levels at or above 85 decibels. A quick indication of this level is that individuals standing next to each other must raise their voices to be heard. As claims have become more frequent, hearing loss has been recognized as an occupational disease that requires an active prevention program.

1. Hearing protectors will be available, at no cost, for all jobsites and maintenance locations where noise levels occasionally rise above 85 decibels. Workers shall be oriented to their location, use, and importance. Information shall be reviewed annually during a site safety meeting.
2. Workers are expected to wear provided hearing protectors whenever exposed to a noise level above 85 decibels, using the above quick indication as a guideline. Noise from chainsaws, concrete grinding, jackhammers, emergency generators, fire alarm signals, sanders and powder-actuated tools are all examples of noise for which protection should be worn. The best defense is to move out of the area where the noise is being produced. If you must work in the area, wear your hearing protectors.
3. Site superintendents or Foremen shall remind Subcontractors of the need for hearing protection if their employees are noted working unprotected in 85 decibels or above environment.
4. Follow applicable guidance from OSHA or OSHA State Plan Regulations when conducting noise exposure monitoring and ensure the sampling for noise exposure monitoring identifies the following:
 - All employees whose exposure equals or exceeds the following:
 - 85 dBA TWA₈ (noise dosimetry, providing an average exposure over an 8-hour time period)
 - 115 dBA (slow response sound level meter, identifying short-term noise exposures)
 - 140 dBA (fast response sound level meter)

SOUND LEVELS IN DECIBELS

Decibel Level	Sound Source
140	Threshold of pain
120	Riveter, Chipper
110	Punch Press
100	Passing Truck
90	Safe limit for sustained noise, Power Saw, Chainsaw
80	Noisy office
60	Conversational speech
40	Average residence
20	Whisper
10	Threshold of good hearing
0	Threshold of excellent, youthful hearing

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section c

RESPIRATOR POLICY

1. Abbott Construction employees do not ordinarily engage in any work that requires the use of any Chemical Cartridge Respirator. They do encounter the need for respiratory protection from the hazards of dust. (See #6)
2. SDS sheets will be reviewed prior to using materials to assure they do not require the use of respirators. Alternate materials will be substituted if needed.
3. Subcontractors are requested not to use materials on site for which the SDS requires the use of respirators.
4. Subcontractors using materials, for which the SDS requires the use of a respirator, when no alternate materials can be substituted, will be required to show their respirator qualification documentation, and to use required respirators. There are no exceptions to this policy.
5. Minimum N-95 dust masks will be used for all grinding, sanding, insulation, painting work and for work with any other material suggesting their use in the SDS.
6. If an unusual situation arises which requires Abbott Construction employees to do work needing respirator protection, Superintendents shall contact the Director of Field Operations or Operations Manager or the Safety Consultant / Training Officer and ensure that all proper respiratory guidelines are met which are outlined in the Abbott Construction Respiratory Protection Program in Chapter 12 of the Accident Prevention Program.
7. A physical examination is required prior to the use of any respirator regardless of the brand or configuration.
8. Copies of all medical records regarding examinations for the use of a respirator will be supplied to the trainer and also be kept in a confidential location in the Human Resources Department.
9. If a worker does not pass the examination and is not qualified to wear the proper respiratory equipment needed to perform his or her task, that worker will be asked to perform other work either on the same site or another site if a transfer is available.
10. Workers are required to be fit tested annually and issued new equipment at the expense of the employer if needed.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d

RESPIRATOR PROGRAM



Introduction

Respirators are used to protect employees from inhaling hazardous chemicals in the air. These chemicals can be in the form of gases, vapors, mists or dust. If you provide respirators to your employees to protect them from airborne chemical hazards, you must have a written respiratory protection program. The written program must spell out how you do the following at your workplace:

- How the proper respirators for the particular hazards are selected and issued (include a list of respirators used)
- When and how respirators will be used in routine work activities, infrequent activities, and foreseeable emergencies such as spill response, rescue or escape situations
- How medical evaluations of respirator wearers is provided
- How respirator fit-testing is done
- How respirators in use are cleaned, stored, inspected and repaired or discarded
- How sufficient high purity air is provided for air-supplied respirators (if you use them)
- How employees are trained about respiratory hazards at your workplace
- How employees are trained on the proper use of the respirators used at your workplace
- How you evaluate the effectiveness of your respiratory program

The answers to the above “how” questions will depend on the unique conditions at your workplace. The information must be specific and reflect what you actually do or require to be done, not just what seems like the right thing to do. It must describe actual conditions and actions at your workplace.

To provide proper protection, respirators must be the right type, must be worn correctly at all times, and must be maintained properly. They are prone to leakage, depend on the correct behavior of individual employees and may require much maintenance and management oversight. Therefore, they are considered as a last resort to protect employees from airborne chemical hazards.

It is often more protective, less trouble, and even cheaper to eliminate or reduce the respiratory hazard through various ways like exhaust ventilation, changes in process, or enclosure of the process. Sometimes the use of a hazardous chemical itself can be eliminated. But, when there is no alternative, a respirator program must be implemented to protect your employees from adverse health effects of exposure to chemicals in the air above their permissible exposure limits.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Respirators are typically used in three different situations, routine or regular exposure to processes or activities involving chemicals; infrequent, but predictable occasions where there is chemical exposure; or emergencies where there is a chemical leak or spill. The written respiratory program must address all these situations if they occur or could occur at your facilities.

If you allow employees to wear respirators (either their own or those you provide), but don't require their use, see the Rule requirements on voluntary use of respirators. An editable sample voluntary respirator use program is also available.

The WISHA Respirators Rule requires that you designate one person as the "program administrator" who is responsible for the whole program. This person should be reasonably knowledgeable about chemical exposure, respirators and their uses and limitations and will need to keep track of respirator fit-testing, use, storage, cleaning and maintenance. Don't give this job to an untrained or unmotivated employee. Training for persons acting as respirator program administrators is available from the University of Washington OSHA Training Institute or from respirator vendors.

The following sample respirator program will meet the WISHA requirements for a written program if all the blanks are filled in and it reflects actual practices at your worksite.

Respiratory Protection Program Abbott Construction

Our respirator program administrator is the Director of Field Operations.

Our administrator's duties are to oversee the development of the respiratory program and, make sure it is carried out at the workplace. The administrator will also evaluate the program regularly to make sure procedures are followed, respirator use is monitored, and respirators continue to provide adequate protection when job conditions change.

Selection of Respirators

We have evaluated our use of chemicals and exposure to particulates at Abbott and found respirators must be used by employees in the following locations or positions; or doing the following duties, tasks or activities:

Activity	Chemicals or products used, or Particulate exposed to.	Type of dust mask or NIOSH approved respirators assigned.	When used (routinely, infrequently, or in emergencies)
Light to Medium Demolition that produces non- harmful dust particles.	Moderate exposure to dust particles that could cause coughing or uncomfortable of breathing.	N95 Particulate two strap respirator. (3M #8110S or #8210)	Use when working and replace when breathing is restricted due to dust build up
Heavy Demolition that produces constant non-harmful dust particles.	Constant exposure to dust particles that could cause coughing or uncomfortable of breathing.	N95 Particulate two strap respirator with cool flow valve. (3M #8211)	Use when working and replace when breathing is restricted due to dust build up
Heavy wood sanding, Cement grinding or mixing of cement.	Constant exposure to dust particles that could cause coughing or uncomfortable of breathing.	N95 Particulate two strap respirator with cool flow valve. (3M #8211)	Use when working and replace when breathing is restricted due to dust build up
Working with lead, welding, torch cutting.	Exposure to smoke and particles.	N100 Particulate two strap respirator with cool flow valve. (3M #8233 or #8293)	Use when working and replace when breathing is restricted due to dust build up
Exposure to chemicals from solvents, sealers, glues, adhesives.	Airborne vapors and or gases	P100 Multi-Gas / vapor cartridges to be used with fit tested NIOSH approved half face piece respirator. See attached table for recommended filters. (3M #51916)	Replace filter cartridges as necessary to assure unrestricted breathing.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Abbott Construction selected the following respirators:

North 5500 series half mask (# 550030) and associated cartridges based on exposure based on the following information:

Medical Evaluations

Every employee of this company who must wear a respirator will be provided with a medical evaluation before they are allowed to use the respirator. Our first step is to give the attached medical questionnaire to those employees. Employees are required to fill out the questionnaire in private and submit it to **U.S. Healthworks or preferred provider**. Our non-readers or non-English-reading employees will be assisted by the site Superintendent. Completed questionnaires are confidential and will be sent directly to the medical provider without review by Management.

If the medical questionnaire indicates to our medical provider that a further medical exam is required, this will be provided at no cost to our employees by **U.S. HealthWorks or preferred provider**. We will get a recommendation from this medical provider on whether or not the employee is medically able to wear a respirator.

Additional medical evaluations will be done in the following situations:

- Our medical provider recommends it
- Our respirator program administrator decides it is needed
- An employee shows signs of breathing difficulty
- Changes in work conditions that increase employee physical stress (such as high temperatures or greater physical exertion).

Respirator Fit-testing

All employees who wear tight-fitting respirators will be fit-tested before using their respirator or given a new one. Fit-testing will be repeated annually. Fit-testing will also be done when a different respirator face piece is chosen, when there is a physical change in an employee's face that would affect fit, or when our employees or medical provider notify us that the fit is unacceptable. No beards are allowed on wearers of tight-fitting respirators. Respirators are chosen for fit-testing following procedures in the WISHA Respirators Rule (Table 11). Fit-testing is not required for loose-fitting, positive pressure (supplied air helmet or hood style) respirators. We do fit-testing using one or more of the following fit-testing protocols or quantitative fit-testing instruments:

- Irritant smoke protocol
- Banana Oil (isoamyl acetate) protocol
- Bitrex protocol
- Saccharin protocol

The quantitative fit-testing instrument we use is **Irritant Smoke Protocol**.

Documentation of the fit-testing results will be kept in the employee's file at the main office.

Our respirators will be checked for proper sealing by the user whenever the respirator is first put on, using the attached seal check procedures:

- Respirator storage, cleaning, maintenance and repair

Our non-disposable respirators will be stored in the following clean locations:

- Closable Storage Bags equipped with cleaning wipes will be provide with each respirator provided to employee

Respirators will be cleaned and sanitized after every time of use or whenever they are visibly dirty, this does not apply to paper dust masks which are disposed of daily. Respirators will be cleaned according to the attached instructions (either the manufacturer's instructions or the Respirators Rule cleaning procedures.)

All respirators will be inspected before and after every use and during cleaning. In addition, emergency respirators and self-contained tank-type supplied air respirators in storage will be inspected monthly.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Respirators will be inspected for damage, deterioration or improper functioning and repaired or replaced as needed. Repairs and adjustments are not to be done. New respirators will be purchased to replace damaged respirators. Supplied air respirators will be checked for proper functioning of regulator and warning devices and amount of air in tanks where used.

When supplied air respirators are used, any needed repairs or adjustments will be done by the manufacturer or technician trained by the manufacturer. On respirators with vapor or gas cartridges, the cartridges will be regularly replaced on the following schedule:

Type of respirator cartridge	Location or job duties	Chemicals in use	Replacement schedule

Respirator Use

The Program Administrator will monitor the work area in order to be aware of changing conditions where employees are using respirators.

Employees will not be allowed to wear respirators with tight-fitting face pieces if they have facial hair, (e.g., stubble or bangs) absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or other facial features that interfere with the face piece seal or valve function. Jewelry or headgear that projects under the face piece seal is also not allowed.

If corrective glasses or other personal protective equipment is worn, it will not interfere with the seal of the face piece to the face.

Full face piece respirators can be provided with corrective glasses since corrective lenses can be mounted inside a full-face piece respirator. Contact lenses can also be used with full face piece respirators if they do not cause any problems for the employee.

A seal check will be performed every time a tight-fitting respirator is put on.

The Program Administrator will make sure that the NIOSH labels and color-coding on respirator filters and cartridges remain readable and intact during use.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Employees will leave the area where respirators are required for any of the following reasons:

- to replace filters or cartridges
- when they smell or taste a chemical inside the respirator
- when they notice a change in breathing resistance
- to adjust their respirator
- to wash their faces or respirator
- if they become ill
- if they experience dizziness, nausea, weakness, breathing difficulty, coughing, sneezing vomiting, fever or chills.

The Program Administrator has identified the following areas or job duties as presenting the potential for immediately dangerous to life or health (IDLH) conditions:

IDLH conditions are to be determined through each Job hazard analysis

Where any area or confined space is designated as IDLH, we will provide **one** standby employees outside the area. These standby employees are trained in effective emergency rescue, are equipped with pressure-demand self-contained breathing apparatus (SCBAs), and will be in constant visual, voice or signal line communication with the employees in the IDLH area. The standby employees will notify the Administrator before entering the IDLH area, and we will provide the necessary assistance when notified.

Breathing Air Quality for Supplied Air Respirators (if used)

Only Grade D breathing air will be supplied to compressed air tanks for respirators.

Our compressors used for breathing air supply are non-oil lubricated and the air intake is located in an uncontaminated area. The brand name of our air compressor(s) and the location is as follows:

- Not Used

Our compressors are equipped with filters, water traps and sorbents to provide clean, safe air. They are maintained by:

- Not Used

Maintenance records are located at:

- Not Used

Optional: We use oil-lubricated compressor(s) used for breathing air. These compressor(s) are equipped with carbon-monoxide alarms, high-temperature alarms or both. They are located at:

- Not used

Periodic carbon monoxide monitoring is done by _____, on the following schedule on our compressor(s) with no carbon monoxide alarm:

- Not used

If used, our airline respirators are equipped with air couplings that are not compatible with couplings to non-respirable air (plant air for example) or other gas systems.

If used, our air cylinders for supplied air respirators are inspected and tested according to federal DOT regulations.

Respirator Training

Training is done by the Director of Field Operations or Operations Manager or the Safety Consultant / Training Officer before employees wear their respirators and annually thereafter if they wear respirators. Our Supervisors or crew bosses who wear respirators or supervise employees who do will also be trained on the same schedule.

Additional training will also be done when an employee uses a different type of respirator or workplace conditions affecting respiratory hazards or respirator use have changed.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Training will cover the following topics:

- Why the respirator is necessary,
 - The respirator's capabilities and limitations,
 - How improper fit, use or maintenance can make the respirator ineffective,
 - How to properly inspect, put on, seal check, use, and remove the respirator,
 - How to clean, repair and store the respirator or get it done by someone else,
-
- How to use a respirator in an emergency or when it fails,
 - Medical symptoms that may limit or prevent respirator use,
 - Our obligations under the Respirators Rule.

Respiratory Program Evaluation

We evaluate our respiratory program for effectiveness by doing the following steps:

- Checking results of fit-test results and health provider evaluations.
- Talking with employees who wear respirators about their respirators – how they fit, do they feel they are adequately protecting them, do they notice any difficulties in breathing while wearing them, do they notice any odors while wearing them, etc.
- Periodically checking employee job duties for changes in chemical exposure.
- Periodically checking maintenance and storage of respirators.
- Periodically checking how employees use their respirators.
- Other _____

Recordkeeping

The following records will be kept:

- A copy of this completed respirator program
- Employees' latest fit-testing results
- Employee training records
- Written recommendations from our medical provider

The records will be kept in the employee's file at the main office.

Employees will have access to these records

How to Select the Correct Respirator

The type and brands of respirators vary widely ranging from simple dust masks to supplied air respirators like the kind firemen wear. The following is description of the main types of respirators:



Dust Masks (filtering face pieces)

These simple, two-strap disposable dust masks are designed only for dusts. They are not as protective as other respirators, but do an adequate job in many cases, unless the dust is really toxic or copious. Don't confuse these two-strap masks with the less protective one-strap dust mask designed only for pollen or non-toxic dust.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued



Half-Face Air-Purifying Respirator

These respirators are sometimes called “half-face” or “half-mask” respirators since they cover just the nose and mouth. They have removable cartridges that filter out either dust, chemicals or both. Selecting the correct cartridges is essential since they are designed for particular types of chemicals or dust. A reputable respirator vendor can assist you in selecting the correct cartridges. These cartridges are typically removable and sometimes interchangeable. Cartridges are available for solvents, ammonia, chlorine, acids and other chemicals. The cartridges must be changed out or replaced periodically, especially for chemicals, since they can absorb only so much contaminant before breakthrough occurs. A few cartridges are equipped with end-of-service indicators that show when a cartridge should be replaced. Most cartridges don’t have this indicator and you must develop a change-out schedule to prevent breakthrough. The change-out schedule is based on the chemical concentration, physical work effort, temperature and humidity. Many respirator manufacturers have cartridge change schedule calculators available on the Internet.



Full-Face Air-Purifying Respirator

In some situations, you may need or want to use full-face respirators. This type of respirator is used when the air contaminant irritates the eyes. They also provide somewhat higher protection to the lungs since they tend to fit tighter and are less prone to leaking. These respirators also have replaceable cartridges that must be changed on a regular basis as described above for half-face respirators.



Powered Air Purifying Respirator (PAPR)

Powered Air Purifying Respirators have a battery pack that draws air through replaceable cartridges and blows into a full-face piece, helmet or hood. These respirators are often more comfortable in hot weather and some can provide more protection, depending on the type. The cartridges must be changed regularly as describe for half-face respirators above.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued



Airline Respirator



Tank Type Respirator (SCBA)

Supplied Air Respirators and Self-Contained Breathing Apparatus (SCBA)

In a few situations, you may need to provide a supplied air respirator to your employees. These situations include large chemical spills or leaks, entering a confined space where there is lack of oxygen or high levels of air contaminants, or working around extremely toxic chemicals. They may also be necessary working at hazardous waste sites, during sandblasting or in some spray painting operations. “Supplied air,” means that clean air is provided by means of an air hose from a compressor or a pressurized air tank.

Supplied air respirators are required when a respiratory hazard is considered “immediately dangerous to life or health” (IDLH). Respiratory hazards are classified as IDLH as follows:

- There is a lack of oxygen (less than 19.5% oxygen)
- There is too much oxygen (more than 23.5% - a fire hazard)
- You know there are toxic chemicals in the air, but you don’t know how much
- The amount of chemical in the air is known or expected to be above the IDLH level for that chemical. See the NIOSH Pocket Guide to Chemical Hazards for chemical IDLH levels

Levels of chemicals above IDLH can occur in confined spaces, or enclosed spaces where there is little or no ventilation.



Emergency Escape Respirators

Emergency escape respirators, as the name implies, can only be used for one thing – to escape or exit from a room or building in an emergency, usually a large chemical release, leak or spill, or when a supplied air respirator fails or runs out of air. An escape respirator is typically a small bottle or tank of air connected to a face piece that supplies 5-10 minutes of air. Some supplied air respirators will have an auxiliary bottle of air for escape that connects to the existing face piece.

How do you decide which type of respirator to select? First, it must be the correct type for the air contaminant. Second, it must fit properly. Third, it must provide adequate protection for the amount of chemical in the air. The more toxic or more concentrated the chemical is in the air, the higher the level of protection the respirator must provide.

Different respirators provide different protection. Depending on the amount of chemical in the air, you may need to use a respirator that provides more protection. Respirators are rated by their “assigned protection factor” (APF) which is a number between 10 and 10,000. The higher the number, the greater the protection. A respirator with a protection factor of 10 will provide adequate protection to levels of the chemical in the air 10 times the safe limit of that chemical. See Table 5 below.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

Table 5
Assigned Protection Factors (APF) for Respirator Types

Type of Respirator	APF
Air Purifying Respirator with:	
Half Face Piece	10
Full Face Piece	100
Powered Air Purifying Respirator (PAPR)with:	
Loose Fitting Face Piece	25
Half Face Piece	50
Full Face Piece equipped with HEPA filters, chemical cartridges or canisters	1,000
Hood or helmet, equipped with HEPA filters, chemical cartridges or canisters	1,000
Air Line Respirator with:	
Half face piece & designed to operate in demand mode	10
Loose fitting face piece & designed to operate in continuous flow mode	25
Half face piece & designed to operate in continuous flow, or pressure demand mode	50
Full face piece & designed to operate in demand mode	100
Full face piece & designed to operate in continuous flow or pressure demand mode	1,000
Helmet or hood and designed to operate in continuous flow mode	1,000
Self-contained breathing apparatus (SCBA) with tight fitting:	
Half face piece & designed to operate in demand mode	10
Full face piece & designed to operate in demand mode	1,000
Full face piece & designed to operate in pressure-demand mode	10,000
Combination Respirators:	
Find the APF for each type of respirator in the combination	
Use the lower APF to represent the combination	The lowest value

Note: half face piece includes ¼ masks, filtering face pieces (dust masks) and elastomeric (rubber) face pieces

For help in using this table, see the “Helpful Tool” from the Respirators Rule

Use Table 6 below to select air-purifying respirators for particle, vapor, or gas contaminants

Table 6
Requirements for Selecting Air-Purifying Respirators

Type of Contaminant	Respirator Type
Gas or Vapor	Respirator with canisters or cartridges equipped with a NIOSH certified, end of service life indicator (ESLI) or If a canister cartridge with an ESLI is not available, develop a cartridge change schedule to make sure the canisters or cartridges are replaced before they are no longer effective or Air supplying respirator
Particle, such as dust, spray, mist, fog, fume, or aerosol	Respirator with filters certified to be at least 95% efficient by NIOSH (ex. N95s, R99s, P100s, or High Efficiency Particulate Air Filters (HEPA)) or Respirator that is NIOSH certified as “dust and mist”, “dust, fume, or mist”, or “pesticides”. Only use these respirators if particles primarily have a mass median aerodynamic diameter of at least 2 micrometers. These respirators are no longer sold for occupational use, but some employers may still be using them

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

How to Evaluate your Workplace for Employee Exposure to Chemicals

Respirators are required when employees are exposed (can inhale) chemicals or dust in the air that are at harmful levels. These can include vapors from handling solvents, spray-painting, and dust from grinding or sanding, or welding fumes. If you manage a small business, you are probably quite familiar with each employee's job, what chemicals they use or how much welding, spray painting, grinding or sanding they do. Your employees may have told you that the chemical odors or dust bothered them or that they were worried about their chemical exposure. You may have switched to less hazardous chemicals or you may have no alternative but to use more hazardous chemicals to do the job or make your product. But without some knowledge of the amount of chemical or dust in the air in the workplace, you cannot know whether your employees are exposed to harmful amounts of chemicals they use.

Just about every chemical has its toxic amount or level that will make person sick. Even too much table salt can be harmful. On the other hand, highly toxic chemicals can be used without harm to employees if handled properly. Most commonly used chemicals have safe limits or "permissible exposure limits" in the air that if exceeded will cause harm. To view the list of chemicals with WISHA permissible exposure limits, if these limits are exceeded, you are required to take steps to protect your employees from that air exposure. If the levels cannot be reduced below the permissible exposure limits by ventilation, changes in the process or reduction in the length of time of exposure, then you must provide respirators to exposed employees.

The best way to accurately determine the levels of chemicals or dust in the air is to do some type of air sampling. There are a variety of instruments and devices for measuring air contaminants. Some are simple and cheap, most are quite expensive. The methods for doing the air sampling accurately are usually fairly complicated and should not be done by a layperson. Air sampling can be done by WISHA industrial hygiene consultants at your request. This is a free service and will not result in a citation or penalty or a report to WISHA safety inspectors. To request this service, contact the nearest Department of Labor & Industries office near you. You can also have a private industrial hygiene consultant conduct air sampling. They can be found under "industrial hygiene services" online.

If you belong to a trade association or industry group, that organization may have information on common chemical hazards and methods of controls. The material safety data sheets for products used also provide information about the hazards of the chemicals, permissible exposure limits, methods of controls and recommended respirators.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

RESPIRATOR FIT TEST RECORD

Name: _____ Initials: _____

Type of qualitative / quantitative fit test used: _____

Name of test operator: _____ Initials: _____

Date of Fit Test: _____

	Manufacturer	Model	Approval #	Size	Pass / Fail	or	Fit Factor
1				S M L	Pass Fail		
2				S M L	Pass Fail		
3				S M L	Pass Fail		
4				S M L	Pass Fail		

Is test subject clean shaven? YES NO (Fit Test cannot be done unless subject is clean shaven)

Is the test subject's medical evaluation complete? YES NO

Notes: _____

This record indicates if you have passed or failed a qualitative or quantitative fit test as shown above for the particular respirator(s) shown. Other types will not be used until fit tested.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section d continued

RESPIRATOR TRAINING RECORD

Employee Name: _____

I certify that I have been trained in the use of the following respirator(s):

1	
2	
3	
4	

This training included the inspection procedures, fitting, maintenance, and limitations of the above respirator(s). I understand how the respirator operates and provides protection. I further certify that I have heard the explanation of the respirator(s) as described above and I understand the instructions relevant to use, cleaning, disinfecting, and the limitations of the respirator(s).

Employee Signature: _____

Instructor Signature: _____

Date: _____

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section e

EMPLOYER PROVIDED INFORMATION FOR MEDICAL EVALUATIONS

This form may be used by the employer to give to your medical provider, information on respirator use by your employees, but it is not a required form. You may consult directly with your medical provide and discuss the information below. If you do so, you must give a copy of the written respiratory program and respirator rules to your medical provider

Employee Name: _____

Employee Title: _____

Company Name: _____

Company Address: _____

Company Contact: _____ Phone Number: _____

Will the employee be wearing protective clothing and / or equipment (other than the respirator) when using the respirator?

YES NO

If yes, describe protecting clothing and / or equipment: _____

Will the employee be working under hot conditions (temperatures exceeding 77 degrees F)? YES NO

If yes, please describe the nature of work and the duration: _____

Will the employee be working under humid conditions? YES NO

Describe any special or hazardous conditions the employee may encounter when using the respirator (confined spaces, life threatening gasses, etc.):

	Respirator Type	Face / Head Cover Type	Frequency of Use (hrs/day, week, or month)	Work Effort Light, Moderate, Heavy (see descriptions below)	Respirator Wt.
<input type="checkbox"/>	Disposable face piece particulate filter (N, R or P series)	Half face piece			
<input type="checkbox"/>	Mask with replaceable filter or cartridge				
<input type="checkbox"/>	Mask with canister				
<input type="checkbox"/>	Powered air-purifying respirator (PAPR)				
<input type="checkbox"/>	Air line, continuous flow				
<input type="checkbox"/>	Air line, negative pressure demand				
<input type="checkbox"/>	Air line, positive pressure demand				
<input type="checkbox"/>	SCBA, negative pressure demand	Full face piece			
<input type="checkbox"/>	SCBA, positive pressure demand	Full face piece			

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section e continued

Work effort Descriptions

Light Work Effort

Examples of light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

Moderate Work Effort

Examples of moderate work effort are sitting while nailing or filing, driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2mph or down a 5-degree grade about 3mph; or pushing a wheelbarrow with a heavy load (about 100lbs) on a level surface.

Heavy Work Effort

Examples of a heavy work effort are lifting a heavy load (about 50lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2mph; climbing stairs with a heavy load (about 50lbs.).

Criteria for deciding whether one or two standby employees are needed at an IDLH location

Provide standby assistance in immediately dangerous to life or health (IDLH) conditions

You must:

Provide at least 2 standby employees outside the IDLH area.

Note:

You need only one standby employee **if** the IDLH conditions are well characterized, will remain stable **and** you can show one employee can adequately do **all** of the following:

- Monitor employees in the IDLH area
- Implement communication
- Initiate rescue duties

Seal Check Procedures (from Respirators Rule)

Table 21

User Seal Check Procedure Important Information for Employees:

You need to conduct a seal check each time you put your respirator on before you enter the respirator use area. The purpose of a seal check is to make sure your respirator (which has been previously fit tested by your employer) is properly positioned on your face to prevent leakage during use and to detect functional problems.

The procedure below has 2 parts; a positive pressure check and a negative pressure check. You must complete both parts each time. It should only take a few seconds to perform once you learn it.

If you can't pass both parts, your respirator is not functioning properly, see your supervisor for further instruction.

Positive Pressure Check:

Remove exhalation valve cover, if removable.

Cover the exhalation valve completely with the palm of your hand while exhaling gently to inflate the face piece slightly.

The respirator face piece should remain inflated (indicating a build-up of positive pressure and no outward leakage).

If you detect no leakage, replace the exhalation valve cover (if removed), and proceed to conduct the negative pressure check.

If you detect evidence of leakage, reposition the respirator (after removing and inspecting it), and try the positive pressure check again.

Negative Pressure Check:

Completely cover the inhalation opening(s) on the cartridges or canister with the palm(s) of your hands while inhaling gently to collapse the face piece slightly.

If you can't use the palm(s) of your hands to effectively cover the inhalation openings on cartridges or canisters, you may use:

Filter seal(s) (if available)

or

Thin rubber gloves

Once the face piece is collapsed, hold your breath for 10 seconds while keeping the inhalation openings covered.

The face piece should remain slightly collapsed (indicating negative pressure and no inward leakage).

If you detect no evidence of leakage, the tightness of the face piece is considered adequate, the procedure is completed, and you may now use the respirator.

If you detect leakage, reposition the respirator (after removing and inspecting it) and repeat both the positive and negative fit checks.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section e continued

Respirator Cleaning Procedures (from Respirators Rule)

Step	Task
1.	Remove filters, cartridges, canisters, speaking diaphragms, demand and pressure valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2.	Wash components in warm (43°C [110°F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to help remove the dirt. If the detergent or cleaner doesn't contain a disinfecting agent, respirator components should be immersed for 2 minutes in one of the following: A bleach solution (concentration of 50 parts per million of chlorine). Make this by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F) A solution of iodine (50 parts per million iodine). Make this in 2 steps: First, make a tincture of iodine by adding 6-8 grams of solid ammonium iodide and/or potassium iodide to 100 cc of 45% alcohol approximately. Second, add 0.8 milliliters of the tincture to one liter of water at 43°C (110°F) to get the final solution. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer
3.	Rinse components thoroughly in clean, warm (43°C [110°F] maximum), preferably, running water. Note: The importance of thorough rinsing can't be overemphasized. Detergents or disinfectants that dry on face pieces could cause dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts, if not completely removed.
4.	Drain components.
5.	Air-dry components or hand dry components with a clean, lint-free cloth.
6.	Reassemble the face piece components. Replace filters, cartridges, and canisters, if necessary (for testing)
7.	Test the respirator to make sure all components work properly.

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section e continued

EMPLOYER-PROVIDED INFORMATION FOR MEDICAL EVALUATIONS

This form may be used by the employer to give to your medical provider, information on respirator use by your employees, but it is not a required form. You may consult directly with your medical provide and discuss the information below. If you do so, you must give a copy of the written respiratory program and respirator rules to your medical provider

Employee Name: _____

Employee Title: _____

Company Name: Abbott Construction

Company Address: _____

Company Contact: _____ Phone Number: _____

Will the employee be wearing protective clothing and / or equipment (other than the respirator) when using the respirator?

YES NO

If yes, describe protecting clothing and / or equipment: _____

Will the employee be working under hot conditions (temperatures exceeding 77 degrees F)? YES NO

If yes, please describe the nature of work and the duration: _____

Will the employee be working under humid conditions? YES NO

Describe any special or hazardous conditions the employee may encounter when using the respirator (confined spaces, life threatening gasses, etc.):

The use of this respirator is primarily for dust particulates but will also be used for protection against certain fumes. If additional or more site specific protection is required, employee will be re-evaluated & a different

Will be fit tested that meets the criteria of the exposure.

	Respirator Type	Face / Head Cover Type	Frequency of Use (hrs/day, week, or month)	Work Effort Light, Moderate, Heavy (see descriptions below)	Respirator Wt.
<input checked="" type="checkbox"/>	Disposable face piece particulate filter (N, R or P series)	Half face piece cloth N-95 #M 8210 or equivalent	8-20 hours per week	Moderate to Heavy	1/3 oz.
<input checked="" type="checkbox"/>	Mask with replaceable filter or cartridge	Half face piece North Series 5500-7700	8-20 hours per week	Moderate to Heavy	8 oz.
<input type="checkbox"/>	Mask with canister				
<input type="checkbox"/>	Powered air-purifying respirator (PAPR)				
<input type="checkbox"/>	Air line, continuous flow				
<input type="checkbox"/>	Air line, negative pressure demand				
<input type="checkbox"/>	Air line, positive pressure demand				
<input type="checkbox"/>	SCBA, negative pressure demand	Full face piece			
<input type="checkbox"/>	SCBA, positive pressure demand	Full face piece			

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section e continued

Work effort Descriptions

Light Work Effort

Examples of light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

Moderate Work Effort

Examples of moderate work effort are sitting while nailing or filing' driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2mph or down a 5-degree grade about 3mph; or pushing a wheelbarrow with a heavy load (about 100lbs) on a level surface.

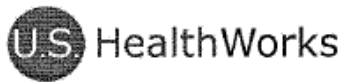
Heavy Work Effort

Examples of a heavy work effort are lifting a heavy load (about 50lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2mph; climbing stairs with a heavy load (about 50lbs.).

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section f

RESPIRATORY QUESTIONNAIRE



Occupational Safety and Health Administration (OSHA)
Respirator Medical Evaluation Questionnaire
 (App. C Section 5144 and App. C 1910.134)
Mandatory

TO THE EMPLOYER. Answers to questions in Section 1, and to question 9 in Part A. Section 2 do not require a medical examination.
TO THE EMPLOYEE. Can you read? Yes No Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient for you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional that will review it.

Supplemental Information. To be provided by the employer regarding the use of respirator and the working conditions.

1. Employer Representative: Julie Wegener Telephone: 206-467-8500

2. Respirator Type: 5500+7700 Series Weight: 5.4oz Duration of Use: 2 hrs per day Frequency of Use: 2 days per month
Half mask Airpurify. max

Expected physical effort: Light Effort (Sitting/standing while writing, performing light assembly work; or controlling machines)
 Moderate Effort (Sitting/standing/walking using tools, performing assembly work, lifting/pushing moderate loads)
 Heavy Effort (Lifting heavy loads (>35lbs.); shoveling; walking up an 8° grade, climbing stairs with a load)

Expected use of additional protective clothing and/or equipment while using the respirator. Yes No

If yes, describe: Safety glasses & hard hat

Expected working conditions: Temperature Extremes Low: 36 °F High: 80 °F
 Humidity Extremes Low: 0 % High: 80 %

Part A. Section 1. To be completed by all applicants/employees selected to use any type of respirator. Please print.

Name	Social Security #	Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	Date
Address	City	State Zip Code	Job Title
Telephone ()	Best time to reach you at this number	Date of Birth	Age
		Height (ft. in.)	Weight (lbs)

- Has your employer told you how to contact the health care Professional who will review this questionnaire? Yes No
- Check the type of respirator you will use. (Check all that apply)
 N, R, or P disposable respirator
 Other types (i.e. half or full-facepiece, powered-air purifying, Supplied-air, self-contained breathing apparatus).
- Have you worn a respirator? Yes No
 If Yes, list what type(s)

Part A. Section 2. To be completed by all applicants/employees selected to use any type of respirator. Please circle Yes or No.

- | | |
|--|--|
| 1. Do you currently smoke tobacco, or have you smoked tobacco in the last month? Yes No | f. Tuberculosis: Yes No |
| 2. Have you ever had any of the following conditions?
a. Seizures (fits): Yes No
b. Diabetes (sugar disease): Yes No
c. Allergic reactions interfering with your breathing: Yes No
d. Claustrophobia (fear of closed-in places): Yes No
e. Trouble smelling odors: Yes No | g. Silicosis: Yes No
h. Pneumothorax (collapsed lung): Yes No
i. Lung cancer: Yes No
j. Broken ribs: Yes No
k. Any chest injuries or surgeries: Yes No
l. Other lung problems that you've been told about: Yes No |
| 3. Have you ever had any of the following pulmonary or lung problems?
a. Asbestosis: Yes No
b. Asthma: Yes No
c. Chronic bronchitis: Yes No
d. Emphysema: Yes No
e. Pneumonia: Yes No | 4. Do you currently have any of the following symptoms of pulmonary or lung illness?
a. Shortness of breath: Yes No
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes No
c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes No |

CHAPTER 12 – PERSONAL PROTECTIVE EQUIPMENT

section f continued

- | | | | | | |
|---|-----|----|--|-----|----|
| d. Have to stop for breath when working at your own pace on level ground: | Yes | No | b. Pain or tightness in your chest during physical activity: | Yes | No |
| e. Shortness of breath when washing or dressing yourself: | Yes | No | c. Pain or tightness in your chest that interferes with your job: | Yes | No |
| f. Shortness of breath that interferes with your job: | Yes | No | d. In the past two years, have you noticed your heart skipping or missing a beat: | Yes | No |
| g. Coughing that produces phlegm (thick sputum): | Yes | No | e. Heart burn or indigestion not related to eating: | Yes | No |
| h. Coughing that wakes you early in the morning: | Yes | No | f. Any other symptoms that you think may be related to heart or circulation problems: | Yes | No |
| i. Coughing that occurs mostly when you are lying down: | Yes | No | 7. Do you currently take any medication for any of the following problems? | | |
| j. Coughing up blood in the last month: | Yes | No | a. Breathing or lung problems: | Yes | No |
| k. Wheezing: | Yes | No | b. Heart problems: | Yes | No |
| l. Wheezing that interferes with your job: | Yes | No | c. Blood pressure: | Yes | No |
| m. Chest pain when you breathe deeply: | Yes | No | d. Seizures (fits): | Yes | No |
| n. Any other symptoms that you think may be related to lung problems: | Yes | No | 8. Have you ever used a respirator? | Yes | No |
| 5. Have you ever had any of the following cardiovascular or heart problems? | | | If Yes, have you had any of the following problems? | | |
| a. Heart attack: | Yes | No | a. Eye irritation: | Yes | No |
| b. Stroke: | Yes | No | b. Skin allergies or rashes: | Yes | No |
| c. Angina: | Yes | No | c. Anxiety: | Yes | No |
| d. Heart failure: | Yes | No | d. General weakness or fatigue: | Yes | No |
| e. Swelling in your legs or feet (not caused by walking): | Yes | No | e. Any other problems that interfere with your use of a respirator: | Yes | No |
| f. Heart arrhythmia (heart beating irregularly): | Yes | No | 9. Would you like to talk to the health care professional who will review this questionnaire about your answers? | Yes | No |
| g. High blood pressure: | Yes | No | | | |
| h. Other heart problems you've been told about: | Yes | No | | | |
| 6. Have you ever had any of the following cardiovascular or heart symptoms? | | | | | |
| a. Frequent pain or tightness in your chest: | Yes | No | | | |

Questions 10 to 15 must be completed by all applicants/employees selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees selected to use other types of respirators, answering these questions is voluntary. Please circle Yes or No.

- | | | | | | |
|---|-----|----|--|-----|----|
| 10. Have you ever lost vision in either eye (temporarily or permanently)? | Yes | No | 15. Do you currently have any of the following musculoskeletal problems? | | |
| 11. Do you currently have any of the following vision problems? | | | a. Weakness in any of your arms, hands, legs, or feet: | Yes | No |
| a. Wear contact lenses: | Yes | No | b. Back pain: | Yes | No |
| b. Wear glasses: | Yes | No | c. Difficulty fully moving your arms and legs: | Yes | No |
| c. Color blind: | Yes | No | d. Pain or stiffness when you leaning forward or backward at the waist: | Yes | No |
| d. Any other eye or vision problem: | Yes | No | e. Difficulty fully moving your head up or down: | Yes | No |
| 12. Have you ever injured your ears, including a broken ear drum? | Yes | No | f. Difficulty fully moving your head side to side: | Yes | No |
| 13. Do you currently have any of the following hearing problems? | | | g. Difficulty bending at your knees: | Yes | No |
| a. Difficulty hearing: | Yes | No | h. Difficulty squatting to the ground: | Yes | No |
| b. Wear a hearing aid: | Yes | No | i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: | Yes | No |
| c. Any other hearing or ear problem: | Yes | No | j. Any other muscle or skeletal problem that interferes with using a respirator: | Yes | No |
| 14. Have you ever had a back injury? | Yes | No | | | |

Signature: _____

Date: _____

Healthcare Professional

Name _____

Address _____

Signature _____ Date _____

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section a

BLOOD BORNE PATHOGEN POLICY

Purpose

The potential for exposure to blood-borne disease while working at company sites is minimal and is limited to the unlikely event of exposure to someone else's blood or body fluids following injury or during the administration of first aid. There are a number of blood-borne diseases, which can be present in human blood and transferred from person to person by exposure to blood or body fluids. The most common and serious being Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV). The purpose of this program is to control these limited exposures through proper work practices and employee training. It also provides for mandated record keeping and medical follow up following an exposure incident.

Blood, blood products, semen, vaginal secretions, cerebral spinal fluid, synovial fluid, pleural fluid, peritoneal fluid, amniotic fluid, and saliva in dental settings are body fluids, which are covered by this policy. For simplicity, we will call all incidents when these body fluids are released a blood spill. For example, if a pregnant woman's water breaks at work, the amniotic fluid would be considered a blood spill. Vomit, urine, and saliva are body fluids, which are not considered a blood spill unless they in fact contain blood.

Work Practice Controls & Policies

The following controls and policies have been adopted by our company to reduce the likelihood of a blood exposure by altering the manner in which a task is performed.

Universal Precautions

1. All blood and other potentially infectious body fluids are to be treated as if they are HIV and HBV contaminated.
2. First aid will be rendered to **all persons** as though they were HIV or Hepatitis B infected. You can't tell if a person has HIV or Hepatitis B by looking at them. Infected persons can carry the disease for years prior to showing symptoms and many have no idea they are infected.
3. Personal protection will be used to prevent all blood contaminated items from breaking skin and all blood from entering the eyes, nose, mouth or breaks in the skin.

Personal Protective Equipment

1. Gloves, CPR mask, safety glasses and blood spill cleanup kits will be included in each first aid kit.
2. Bags and labels for safe transportation of materials will be provided.
3. Soap and water for hand and body washing will be provided.

First Aid

1. All first aid should be administered by trained and certified personnel who have also received training in blood-borne pathogens.
2. Medical gloves are to be worn at all times when administering first aid. Gloves will be available in all first aid kits.
3. A CPR mask will be available in each first aid kit and should be used whenever mouth to mouth resuscitation is given.
4. If there is the potential of spraying or splattering of blood, eye protection (safety glasses) must be worn.
5. Gloves worn during the administration of first aid should be peeled off inside out and hands should be thoroughly and completely washed. Blood splattered clothing should be removed as soon as feasible. Do not eat, drink, smoke, apply lip balm or adjust contacts until you are entirely clean and washed after the administration of first aid.
6. The fewer involved in administering first aid, the fewer exposed. Provide adequate care but avoid unnecessary exposure. If possible, person involved in providing first aid should clean up the spill.

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section a continued

Blood Spills

1. Blood spills must be cleaned up.
2. Only "blood-borne pathogen" trained employees are to clean up spills. Blood spill kits are available with all first aid kits. If possible, the same person who administers first aid should clean up the blood spill.
3. Gloves must always be worn when cleaning up a blood spill. Hands must be washed after the removal of gloves.
4. Abundant absorbent must be used to assure there is no dripping. Handle waste as little as possible and bag immediately.
5. Assure materials will not puncture through the bag. Double bag materials, or bag and box them, if need be.
6. Small, contained quantities of blood such as bandages, gauze, and sanitary napkins may be disposed in normal trash.
7. Use **extreme caution** if the object causing the original injury (such as broken glass or sharp edge) is involved in the cleanup. Use tools and methods, which prevent the possibility of your being injured with the same item.
8. An EPA surface disinfectant will be used to clean surfaces. Surface will be cleaned or wiped off. A second coat of cleaner will be applied and allowed to remain moist, not dripping, for the product's recommended waiting time.

Training

All employees will be oriented to the Blood-Borne Pathogen Program at hire. All first aid certified personnel will review this material annually. Training topics will include:

- Copy of Blood-Borne Policy
- Blood-borne diseases
- Modes of transmission
- Universal precautions
- Recognition of hazards
- Personal protective equipment
- Work practice controls
- Blood spills and cleanup
- Labeling requirements
- Exposure incident management
- HBV
- Post-exposure follow-up
- Questions and answers

HBV Vaccination

The three-part HBV vaccination, in anticipation of possible exposure, is not required by law for our employees. However, it is freely available to the public through personal physicians or health clinics. Children are now receiving these vaccinations routinely as part of their childhood immunization routine. We would encourage employees to protect themselves from Hepatitis B by obtaining their own vaccinations.

This vaccination will be made available, at no cost, to employees involved in a blood spill non-exposure or exposure incident. It or other prophylactics as recommended by the Health Care Provider (HCP) **must be started within 24 hours of the exposure in order to be effective.**

BLOOD-BORNE PATHOGEN FACT SHEET



OSHA **FACT** Sheet

Bloodborne Pathogens

What are bloodborne pathogens?

Bloodborne pathogens are infectious materials in blood that can cause disease in humans, including hepatitis B and C and human immunodeficiency virus, or HIV. Workers exposed to these pathogens risk serious illness or death.

What protections does OSHA's Bloodborne Pathogen standard provide?

The full text of OSHA's Bloodborne Pathogens standard, published in *Title 29 of the Code of Federal Regulations* 1910.1030, details what employers must do to protect workers whose jobs put them at a reasonable risk of coming into contact with blood and other potentially infectious materials. The standard requires employers to do the following:

- Establish an exposure control plan. This is a written plan to eliminate or minimize employee exposures. Employers must update the plan annually to reflect technological changes that will help eliminate or reduce exposure to bloodborne pathogens. In the plan, employers must document annually that they have considered and implemented safer medical devices, if feasible, and that they have solicited input from frontline workers in identifying, evaluating, and selecting engineering controls.
- Use engineering controls. These are devices that isolate or remove the bloodborne pathogen hazard from the workplace. They include sharps disposal containers, self-sheathing needles, and safer medical devices such as sharps with engineered sharps-injury protection and needleless systems.
- Enforce work practice controls. These are practices that reduce the likelihood of exposure by changing the way a task is performed. They include appropriate procedures for hand washing, sharps disposing, lab specimen packaging, laundry handling, and contaminated material cleaning.
- Provide personal protective equipment such as gloves, gowns, and masks. Employers must

clean, repair, and replace this equipment as needed.

- Make available Hepatitis B vaccinations to all employees with occupational exposure to bloodborne pathogens within 10 days of assignment.
- Provide post-exposure followup to any worker who experiences an exposure incident, at no cost to the worker. This includes conducting laboratory tests; providing confidential medical evaluation, identifying, and testing the source individual, if feasible; testing the exposed employee's blood, if the worker consents; performing post-exposure prophylaxis; offering counseling; and evaluating reported illnesses. All diagnoses must remain confidential.
- Use labels and signs to communicate hazards. The standard requires warning labels affixed to containers of regulated waste, refrigerators and freezers, and other containers used to store or transplant blood or other potentially infectious materials. Facilities may use red bags or containers instead of labels. Employers also must post signs to identify restricted areas.
- Provide information and training to employees. Employers must ensure that their workers receive regular training that covers the dangers of bloodborne pathogens, preventive practices, and post-exposure procedures. Employers must offer this training on initial assignment, then at least annually. In addition, laboratory and production facility workers must receive specialized initial training.
- Maintain employee medical and training records. The employer also must maintain a Sharps Injury Log unless classified as an exempt industry under OSHA's standard on Recording and Reporting Occupational Injuries and Illnesses.

How can I get more information?

OSHA's website provides more indepth information about bloodborne pathogens on the Bloodborne Pathogens webpage at www.osha.gov/SLTC/bloodbornepathogens and

Bloodborne Pathogens

on the Needlesticks webpages at www.osha.gov/needlesticks and www.osha.gov/SLTC/needlestick.

In addition, OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through its many safety and health programs: workplace consultation, voluntary protection programs, grants, strategic partnerships, state plans, training, and education. Documents such as OSHA's *Safety and Health Management Guidelines* provide information about elements that are critical to the development of a successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to this address:

OSHA Publications Office, PO Box 37535, Washington, DC 20013-7535; or send a request to our fax at (202) 693-2498, or call (202) 693-1888.

- Order OSHA publications online at www.osha.gov. Go to **Publications** and follow the instructions for ordering.
- To file a complaint by phone, report an emergency, or get OSHA advice, assistance, or products, contact your nearest OSHA office under the "U.S. Department of Labor" listing in your phone book, or call us toll-free at **(800) 321-OSHA (6742)**. The teletypewriter (TTY) number is (877) 889-5627.
- To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website.

This is one of a series of informational fact sheets highlighting OSHA programs, policies, or standards. It does not impose any new compliance requirements or carry the force of legal opinion. For compliance requirements of OSHA standards or regulations, refer to *Title 29 of the Code of Federal Regulations*. This information will be made available to sensory-impaired individuals upon request. Voice phone: (202) 693-1999. See also OSHA's website at www.osha.gov.



U.S. Department of Labor
Occupational Safety and Health Administration
2002

BLOOD-BORNE PATHOGEN PERSONAL PROTECTIVE EQUIPMENT



Personal Protective Equipment Cuts Risk

U.S. Department of Labor
Occupational Safety and Health Administration



Wearing gloves, gowns, masks, and eye protection can significantly reduce health risks for workers exposed to blood and other potentially infectious materials. The new OSHA standard covering bloodborne disease requires employers to provide appropriate personal protective equipment (PPE) and clothing free of charge to employees.

Workers who have direct exposure to blood and other potentially infectious materials on their jobs run the risk of contracting bloodborne infections from hepatitis B virus (HBV), human immunodeficiency virus (HIV) which causes AIDS, and other pathogens. About 8,700 health care workers each year are infected with HBV, and 200 die from the infection. Although the risk of contracting AIDS through occupational exposure is much lower, wearing proper personal protective equipment can greatly reduce potential exposure to all bloodborne infections.

SELECTING PPE

Personal protective clothing and equipment must be suitable. This means the level of protection must fit the expected exposure. For example, gloves would be sufficient for a laboratory technician who is drawing blood, whereas a pathologist conducting an autopsy would need considerably more protective clothing.

PPE may include gloves, gowns, laboratory coats, face shields or masks, eye protection, pocket masks, and other protective gear. The gear must be readily accessible to employees and available in appropriate sizes.

If an employee is expected to have hand contact with blood or other potentially infectious materials or contaminated surfaces, he or she must wear gloves. Single use gloves cannot be washed or decontaminated for reuse. Utility gloves may be decontaminated if they are not compromised. They should be replaced when they show signs of cracking, peeling, tearing, puncturing, or deteriorating. If employees are allergic to standard gloves, the employer must provide hypoallergenic gloves or similar alternatives.

Routine gloving is not required for phlebotomy in voluntary blood donation centers, though it is necessary for all other phlebotomies. In any case, gloves must be available in voluntary blood donation centers for employees who want to use them. Workers in voluntary blood donation centers must use gloves (1) when they have cuts, scratches or other breaks in their skin, (2) while they are in training; and (3) when they believe contamination might occur.

Employees should wear eye and mouth protection such as goggles and masks, glasses with solid side shields, and masks or chin-length face shields when splashes, sprays, splatters, or droplets of potentially infectious materials pose a hazard through the eyes, nose or mouth. More extensive coverings such as gowns, aprons, surgical caps and hoods, and shoe covers or boots are needed when gross contamination is expected. This often occurs, for example, during orthopedic surgery or autopsies.

Employers must provide the PPE and ensure that their workers wear it. This means that if a lab coat is considered PPE, it must be supplied by the employer rather than the employee. The employer also must clean or launder clothing and equipment and repair or replace it as necessary.

Additional protective measures such as using PPE in animal rooms and decontaminating PPE before laundering are essential in facilities that conduct research on HIV or HBV.

EXCEPTION

There is one exception to the requirement for protective gear. An employee may choose, temporarily and briefly, under rare and extraordinary circumstances, to forego the equipment. It must be the employee's professional judgment that using the protective equipment would prevent the delivery of health care or public safety services or would pose an increased hazard to the safety of the worker or co-worker. When one of these excepted situations occurs, employers are to investigate and document the circumstances to determine if there are ways to avoid it in the future. For example, if a firefighter's resuscitation device is damaged, perhaps another type of device should be used or the device should be carried in a different manner. Exceptions must be limited—this is not a blanket exemption.

DECONTAMINATING AND DISPOSING OF PPE

Employees must remove personal protective clothing and equipment before leaving the work area or when the PPE becomes contaminated. If a garment is penetrated, workers must remove it immediately or as soon as feasible. Used protective clothing and equipment must be placed in designated containers for storage, decontamination, or disposal.

OTHER PROTECTIVE PRACTICES

If an employee's skin or mucous membranes come into contact with blood, he or she is to wash with soap and water and flush eyes with water as soon as feasible. In addition, workers must wash their hands immediately or as soon as feasible after removing protective equipment. If soap and water are not immediately available, employers may provide other handwashing measures such as moist towelettes. Employees still must wash with soap and water as soon as possible.

Employees must refrain from eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses in areas where they may be exposed to blood or other potentially infectious materials.

This is one of a series of fact sheets that discusses various requirements of the Occupational Safety and Health Administration's standard covering exposure to bloodborne pathogens. Single copies of fact sheets are available from OSHA Publications, Room N-3101, 200 Constitution Avenue, N. W., Washington DC 20210 and from OSHA regional offices.

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section d

BLOOD-BORNE PATHOGEN EXPOSURE INCIDENT REPORT FORM

Location of Incident: _____ Date & Time of Incident: _____

Address: _____

Date & Time Reported: _____

Exposed Employee: _____
SSN#: _____
Address: _____
Phone Number: _____

Blood Source Individual: _____
SSN#: _____
Address: _____
Phone Number: _____

Witness: _____ Phone Number: _____

Witness: _____ Phone Number: _____

- This was a non-exposure incident. Employee administered first aid during or cleaned up following a blood or bodily fluid spill. There was no employee exposure.
- This was an exposure incident. Employee administered first aid during or cleaned up following a blood or bodily fluid spill. The following exposure occurred:
 - Parenteral – a blood or bodily fluid contaminated object pierced the skin
 - Mucous membrane or eye exposure to blood or bodily fluid
 - Non-intact skin exposure to blood or fluid

Please explain circumstances surrounding exposure and details of actual exposure: _____

This form must be completely filled out and the Director of Field Operations or Operations Manager must be notified as soon as possible. Treatment for potential HBV must be started within 24 hours of exposure in order to be most effective.

Employee Signature

Date

Supervisor Signature

Date



CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section e

POST-EXPOSURE EVALUATION & FOLLOW-UP OVERVIEW

Post-Exposure Procedures

Non-Exposure Incident

A blood spill occurs, but there is no blood or body fluid exposure to other employee's eyes, mucous membranes, and non-intact skin or parentally (under skin).

1. Must be reported immediately to the HR Director or the site Superintendent.
2. Blood spill report must be filled out and attached to an accident report. Copy of the Exposure Incident Report must be maintained in the company exposure incident files.
3. Employee will be offered HBV / HIV testing, prophylactics, or vaccination as recommended by a health care provider. **In order to be effective, the treatment must be administered within 24 hours of the exposure.** If employee chooses not to receive the testing, prophylactics or vaccination, or has already been vaccinated, a waiver must be signed.
4. A copy of all exposure incident records must be maintained in a company exposure incident file for at least the duration of exposed employee's employment plus 30 years.

Exposure Incident

A blood spill occurs and blood or body fluids from source individual make contact with exposed employee's eyes, mucous membranes, non-intact skin or parentally (under skin).

1. Exposure site is flushed and washed well.
2. HR Director or site Superintendent must be notified **immediately**. The exposed employee will be advised to see a health care provider (HCP) and provide the HCP with a copy of the standard incident report, source individual's HIV/HBV status if known and employee's Hepatitis B vaccine status if known. The Health Department is a good HCP for this type of incident as they deal with it on a regular basis.
3. Employee will be offered post exposure HBV / HIV testing, prophylactics or vaccination as recommended by a health care provider. **In order to be effective treatment must be given within 24 hours.**
4. The employee will have the opportunity, at no cost, to receive a confidential medical consultation by a licensed physician, with testing to be done at accredited laboratories. Health Departments are usually the best choice as they are trained and prepared to handle these incidents.
5. An Exposure Incident Report must be filled out and attached to the accident report.
6. The HR Director will contact the blood source individual to request a blood test for HBV / HIV. It will be explained the test will help protect the exposed employee and is cost free. All information will be handled confidentially.
7. The employee will be offered the opportunity to complete a medical history and lifestyle questionnaire and receive counseling.
8. The exposed employee will be offered testing for HBV / HIV as recommended by CDC to be done ASAP, at 6 weeks, at 12 weeks, and 6 months post exposure.
9. Follow up of the exposed worker will include counseling, medical evaluation of any febrile illness that occurs within 12 weeks post exposure, and the use of safe and effective post exposure measures according to standard medical practice.
10. Refer to the post exposure evaluation and follow up chart. Remember you will be dealing with **confidential**, private and sensitive issues, which must be handled with professionalism. The HR Director should coordinate these issues and other Supervisors and employees should not be involved.
11. A copy of Exposure Incident Report and all correspondence to and from HCP must be maintained in an exposure incident file for at least the duration of the exposed employee's employment, plus 30 years.
12. Exposure incidents are not a common occurrence. The policy should be carefully reviewed while processing each incident to assure correct procedures are followed.

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section e continued

Record Keeping

1. Training documentation should be kept on file for a minimum of three years. It should include materials covered, instructor, and employee signatures.
2. A permanent file will be used to maintain all records for exposure incidents. Records must be kept for the length of employment plus thirty years. They should be considered confidential.
3. Records to be kept include:
 - Name and Social Security number of employee
 - Exposure Incident Report
 - Any waivers or permits signed
 - Employees Hep B Vaccination status and records
 - Copy of all tests, exams and follow-up procedures
 - Copy of information provided to physician
 - The employer's copy of physicians written report

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section f

BLOOD-BORNE PATHOGEN NON-EXPOSURE INCIDENT WAIVER OR CONSENT

I am aware, by administering first aid for a blood spill or cleaning up a blood spill, I am entitled by law to receive the post-exposure treatment recommended by a consulting health care provider to prevent Hepatitis B. A non-exposure incident means I have not had direct exposure to blood or body fluids in my eyes or mucous membranes, on non-intact skin or under my skin.

I am aware there is no cost to me for this treatment.

I am aware the initial treatment must be administered within 24 hours of the incident to be most effective.

Please initial one:

_____ I do not wish to receive the post exposure care

_____ I have already been vaccinated for Hepatitis

_____ I will visit a health care provider within 24 hours for follow-up treatment

Signature

Witness Signature

Date & Time

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section g

BLOOD-BORNE PATHOGEN EXPOSURE INCIDENT BLOOD SOURCE TESTING

Secondary to your injury, a fellow employee has been directly exposed to your blood and any blood-borne diseases you might have. Many of these diseases can be carried with no outward signs or symptoms of illness for many years. We are requesting you have a simple blood test for HIV (AIDS Virus) and HBV (Hepatitis B Virus) to determine if you are carrying either of these diseases.

There is no cost to you for this testing.

If the testing is negative it will provide great peace of mind to the exposed worker. If it is positive it will allow the individual to receive the medical care needed to prevent illness or prevent the spread of the illness to his family. Not knowing can cause years of worry and changes in lifestyle, which might not have been needed.

The results of this test will go to the physician of the exposed worker and will not be reported to our company.

We thank you for your assistance in providing the best health care possible for the exposed worker.

Please initial one:

_____ I am willing to be tested for HIV and HBV

_____ I refuse to be tested for HIV and HBV

Blood Source Individual Name

Blood Source Individual Signature

Witness Signature

Date & Time

CHAPTER 13 – BLOOD BORNE PATHOGEN PROGRAM

section h

BLOOD-BORNE PATHOGEN EXPOSURE INCIDENT WAIVER OR CONSENT

I am aware that I may have been directly exposed to blood or a blood-borne disease. Many of these diseases can be carried with no outward signs or symptoms of illness for many years. We recommend that you receive post-exposure treatment, which you are entitled to by law, recommended by a consulting health care provider to prevent Hepatitis B.

I am aware there is no cost to me for this treatment.

I am aware the initial treatment must be administered within 24 hours of the incident to be most effective.

Please initial one:

_____ I do not wish to receive the post exposure care

_____ I have already been vaccinated for Hepatitis

_____ I will visit a health care provider within 24 hours for follow-up treatment

Signature

Witness Signature

Date & Time

CHAPTER 14 – SUBSTANCE ABUSE

section a

SUBSTANCE ABUSE POLICIES & PROCEDURES

Basis for the Policy

Abbott Construction is committed to protecting the safety, health, and well-being of its employees and all people who encounter its workplace(s) and property, and / or use its products and services.

Recognizing that drug and alcohol abuse pose a direct and significant threat to this goal and to the goal of a productive and efficient working environment in which all employees have an opportunity to reach their full potential, Abbott Construction is committed to assuring a drug-free working environment for all of its employees.

Drug and Alcohol Prohibitions

Abbott Construction strictly prohibits the illicit use, purchase, possession, sale, conveyance, distribution, or manufacture of illegal drugs, intoxicants or controlled substances in any amount or in any manner, including having a detectable presence of illegal drugs in the body systems.

In addition, Abbott Construction strictly prohibits employees from using or being under any influence of alcohol during working hours.

Prescription or nonprescription medications are not prohibited when taken in accordance with a lawful prescription or consistent with standard dosage recommendations. Employees in safety sensitive jobs are responsible for notifying their Supervisors when prescribed medications may interfere with their ability to do their jobs safely.

Drug and Alcohol Testing

Abbott Construction asserts its legal right and prerogative to test any employee for substance abuse. Employees may be asked to submit to a medical examination and / or to submit to urine, saliva, and / or breath testing for drugs or alcohol.

Employee acceptance of medical examinations and testing, when requested by Abbott Construction, is a mandatory condition of employment. Refusal to submit to such medical examinations and tests constitutes a violation of Company policy and is grounds for adverse employment action.

New Hires

All new hires and rehires (r-hires over 15 days) of regular full-time or part-time employees will acknowledge receipt of Abbott Construction's policy during the application process and are required to submit to a pre-employment drug test. Failure to pass this drug test shall result in denial of employment.

Notification of Criminal Convictions

Any employee convicted of a violation of a criminal drug statute that is workplace-related must notify Abbott Construction in writing within five calendar days of the conviction.

Searches

When Abbott Construction has any reason to believe that an employee is violating any aspect of this policy, he or she may be asked by Abbott Construction to submit, immediately, to a search or inspection at any time (including during breaks and the lunch period) while on Company premises or in Company property.

This includes a search of an employee's person and / or the requirement that the employee make his or her locker, lunch box, briefcase, purse, pockets, wallet, personal belongings, desk, work station, vehicles or any other property he or she uses, or has access to, available for inspection.

Entry upon Company premises constitutes consent to search and inspections.

An employee's refusal to consent to a search or inspection when requested by Abbott constitutes a violation of Company policy and is grounds for adverse employment action.

Employee Assistance

Abbott Construction urges individuals with substance abuse problems to seek help, and Abbott Construction is committed to providing assistance.

The goal of Abbott's policy on Employee Drug and Alcohol Abuse is not only deterrence; it also is detection and treatment.

Abbott Construction therefore makes available to all employees a confidential employee assistance program (EAP) whose goal is rehabilitation. This program is available at no cost to employees and their dependents, and includes initial assessment, referral, and counseling.



CHAPTER 14 – SUBSTANCE ABUSE

section a continued

The EAP includes family support, counseling, and reinforcement, all of which can be critical to the successful rehabilitation of a substance abuser.

Any subsequent treatment after the referral from Abbott Construction's EAP program to an outside treatment provider may be covered under the employee's health care coverage. The costs of continuing or long-term rehabilitation services, whether covered by the employee's medical plan or not, are the ultimate responsibility of the employee.

General Responsibility and Applicability

Substance abuse prevention is everyone's responsibility. Abbott Construction expects all of its employees to recognize and accept this responsibility, and to do their part in assuring that, working together, we can achieve and maintain a drug-free working environment for all Abbott Construction employees.

This policy applies equally to all Abbott Construction personnel, no matter what position or employment status, including all management employees, contract employees, and part-time employees—without exception.

Discipline

Any violation of this policy shall result in adverse employment action up to and including dismissal and referral for criminal prosecution. However, nothing in this policy prohibits an employee from being terminated for reasons other than the positive test result. Employees may be disciplined for failure to report an injury in the workplace.

Policy Implementation Details

Drug and Alcohol Testing

The purpose of drug and alcohol testing is to prevent the hiring of individuals who use illegal drugs, deter employees from abusing drugs or alcohol, and provide early identification and referral to treatment of employees with drug or alcohol abuse problems.

Abbott Construction will use the collection and drug testing guidelines and standards issued by the Department of Health and Human Services for Federal Government Employees.

1. Alcohol testing will be conducted using breath-testing instruments and procedures approved by the U.S. Department of Transportation.
2. The following employee protections will be incorporated to ensure the accuracy and integrity of the drug testing program:
 - a. Only a Substance Abuse and Mental Health Services Administration certified drug testing laboratory will be used.
 - b. A strict chain of custody will be used to ensure the integrity of each urine specimen.
 - c. The process will ensure individual privacy during the collection process and confidentiality of test results.
 - d. All "positive" drug screens will be confirmed by a second test using the gas chromatography / mass spectrometry method or an equivalent approved method.
 - e. All confirmed positive test results will receive a professional medical review that includes offering the employee the opportunity to explain or contest the result.
 - f. The refusal of an employee to take a drug or alcohol test will be considered by Abbott Construction to be the equivalent to a confirmed "positive" test and therefore subjects the employee to the same adverse employment actions up to and including termination of employment.
3. Types of testing required:
 - a. *Pre-employment.* Testing conducted to prevent hiring individuals who illegally use drugs.
 - b. *Post-Accident.* Testing of employees involved in accidents requiring offsite medical treatment or who engage in unsafe job-related activities that post a significant danger to themselves, other employees, or the public.

CHAPTER 14 – SUBSTANCE ABUSE

section a continued

- c. *Reasonable Suspicion.* Testing that is conducted when there is information about an employee's conduct that would cause a reasonable person to believe he or she has used or may be impaired by alcohol or drugs.

Confidentiality

All information received by the employer through a drug / alcohol testing program is confidential communication. Access to this information is limited to those who have a legitimate need to know in compliance with relevant laws.

Reservation of Rights

Abbott Construction reserves the right to interpret, change, or rescind the Employee Drug and Alcohol Abuse Policy, or any part of it, with or without notice, subject to state and federal laws.

The Employee Drug and Alcohol Abuse Policy does not create a binding employment contract or modify an existing contract.

Purpose

This section expands the short policy statement by defining the types of drug testing required, how they will be administered, and disciplinary action and confidentiality requirements.

Definitions

"Alcohol"

Ethyl alcohol, hydrated oxide of ethyl, or spirits of wine, and from whatever source or by whatever process produced.

"Alcohol Test"

A chemical, biological, or physical instrumental analysis administered for the purpose of determining the presence or absence of alcohol within an individual's body systems.

"Chain of Custody"

The methodology of tracking specimens for the purpose of maintaining control and accountability from initial collection to final disposition for all specimens and providing for accountability at each stage in handling, testing, and storing specimens and reporting test results.

"Collection Site"

A place where individuals present themselves for the purpose of providing urine, breath, or other specimen to be analyzed for the presence of drugs or alcohol.

"Confirmation Test" or "Confirmed Test"

A second analytical procedure used to identify the presence of a specific drug or metabolic in a specimen.

"Department"

The Department of Social and Health Services.

"Drug"

Amphetamines, cannabinoids, cocaine, phencyclidine (PCP), methadone, methaqualone, opiates, barbiturates, benzodiazepines, propoxyphene, or a metabolite of any such substances.

"Drug Test"

A chemical, biological, or physical instrumental analysis administered on a specimen sample for the purpose of determining the presence or absence of a drug or its metabolites within the sample.

"Employee"

A person who is employed for salary, wages, or other remuneration by an employer.

"Employee Assistance Program"

A program designed to assist in the identification and resolution of job performance problems associated with employees impaired by personal concerns. A minimum level of core services must include: Consultation and professional, confidential, appropriate, and timely problem assessment services; short-term problem resolution; referrals for appropriate diagnosis, treatment, and assistance; follow-up and monitoring; employee education; and supervisory training.

"Initial Test"

A sensitive, rapid, and reliable procedure to identify negative and presumptive positive specimens. An initial drug test must use an immunoassay procedure or an equivalent procedure or must use a more accurate scientifically accepted method approved by the national institute on drug abuse as more accurate technology becomes available in a cost-effective form.

"Injury"

A sudden and tangible happening, of a traumatic nature, producing an immediate or prompt result and occurring from without, and such physical conditions as result therefrom.

"Job Applicant"

A person who has applied for employment with an employer and has been offered employment conditioned upon successfully passing a drug test and may have begun work pending the results of the drug test.

CHAPTER 14 – SUBSTANCE ABUSE

section a continued

"Medical Review Officer"

A licensed physician trained in the field of drug testing who provides medical assessment of positive test results, requests reanalysis if necessary, and makes a determination whether or not drug misuse has occurred.

"Nonprescription Medication"

A drug or medication authorized under federal or state law for general distribution and use without a prescription in the treatment of human disease, ailments, or injuries.

"Prescription Medication"

A drug or medication lawfully prescribed by a physician, or other health care provider licensed to prescribe medication, for an individual and taken in accordance with the prescription.

"Rehabilitation Program"

A program approved by the department that is capable of providing expert identification, assessment, and resolution of employee drug or alcohol abuse in a confidential and timely service.

"Specimen"

Breath or urine; may also include other products of the human body capable of revealing the presence of drugs or their metabolites or of alcohol, if approved by the United States department of Health and Human Services and permitted by rules adopted under Chapter 440-26 WAC.

"Substance"

Drugs or alcohol.

"Substance Abuse Test" or "Test"

A chemical, biological, or physical instrumental analysis administered on a specimen sample for the purpose of determining the presence or absence of a drug or its metabolites or of alcohol within the sample.

"Threshold Detection Level"

The level at which the presence of a drug or alcohol can be reasonably expected to be detected by an initial and confirmation test performed by a laboratory meeting the standards specified. The threshold detection level indicates the level at which a valid conclusion can be drawn that the drug or alcohol is present in the employee's specimen.

"Verified Positive Test Result"

A confirmed positive test result obtained by a laboratory meeting the standards specified, that has been reviewed and verified by a medical review officer in accordance with medical review officer guidelines promulgated by the United States department of Health and Human Services.

Guidelines

Drug testing will be conducted by laboratories approved by the Substance Abuse and Mental Health Services Administration National Laboratory Certification Program using both initial and confirmation tests. Both tests must be positive (above government established threshold detection level) before the laboratory can report the result as a confirmed positive test. All laboratory positive test results must be reviewed by a Medical Review Officer (MRO) prior to the release of any information to Abbott Construction.

Alcohol testing will normally be conducted using a breath device approved by the National Highway Traffic Safety Administration. Alcohol testing should be conducted as closely as possible in accordance with DOT regulations.

Employee Protections

The following employee protections are incorporated to ensure the integrity and accuracy of the drug testing program:

1. Drug tests are conducted by a laboratory certified by the Substance Abuse and Mental Health Services Administration using the most accurate and reliable testing methodologies.
2. Chain of custody procedures are used to account for the integrity of each urine specimen by tracking its handling and storage from point of collection to final disposition.
3. All confirmed positive results receive a professional medical review that includes offering the employee the opportunity to provide information to explain the test result or to have the original sample re-tested (at the employee's expense) at a different certified drug-testing laboratory.

Reasons for Testing

Pre-employment Testing

Testing conducted to prevent hiring individuals who illegally use drugs.

1. Applicants are required to submit to a drug test after receiving an offer of employment.
2. Abbott Construction may use a refusal to submit to a drug test or a verified positive test as a basis for not hiring.

CHAPTER 14 – SUBSTANCE ABUSE

section a continued

3. Abbott Construction will not discriminate against applicants because of past drug abuse. It is the current use of drugs that will not be tolerated.
4. Passing a drug test is a condition of employment.

Reasonable Suspicion Testing

Testing based on evidence that an employee is using drugs or alcohol in violation of Abbott Construction's policy drawn from specific, objective and certifiable facts and reasonable inferences drawn from these facts in light of experience. Among other things, such facts and inferences may be based upon the following:

1. An employee showing signs of impairment such as difficulty in maintaining balance, slurred speech or otherwise appearing unable to perform assigned work in a safe and satisfactory manner.
2. Abnormal conduct or erratic behavior while at work or a significant deterioration of work performance.
3. A report of alcohol or other drug use provided by a reliable and credible source, which has been independently corroborated.
4. Arrest or conviction for a drug or alcohol related offense, or the identification of an employee as the focus of a criminal investigation into unauthorized drug possession, use or trafficking.

A *Reasonable Suspicion or Post-Accident Testing Documentation Form* (Exhibit A) must be used to document the rationale for the test.

Post-Accident Testing

Alcohol and / or drug testing conducted when an employee(s) is involved in an on-the-job accident or engages in unsafe job related activity that poses a danger to themselves or fellow employees. Post-accident testing shall be initiated in the following circumstances:

1. There was an accident that resulted in:
 - a. A death of an employee or
 - b. An injury to an employee requiring offsite medical attention or
 - c. Property damage estimated to exceed \$2000 or
 - d. Eight or more hours of lost time
2. There was a violation of a safety rule or standard that exposes the employee, other employees or the public to:
 - a. Possible death or
 - b. Serious bodily injury or
 - c. Significant property damage

The company will investigate each workplace injury that results in offsite medical attention and require an employee to submit to drug and alcohol tests if the company reasonably believes the employee has caused or contributed to an injury, which resulted in the need for offsite medical attention. A post-accident test need not be required if a trained Supervisor reasonably believes that the injury was due to the inexperience of the employee or due to a defective or unsafe product or working condition, or other circumstances beyond the control of the employee.

- No alcohol or drug specimen should ever be taken before the administration of necessary medical care.
- All employees involved in the accident or safety rule violation should be tested.
- The Reasonable Suspicion or Post-Accident Testing Documentation Form (Exhibit A) should be used to document the rationale for the test.

CHAPTER 14 – SUBSTANCE ABUSE

section a continued

Follow-up Testing

All employees who enter an alcohol or drug abuse rehabilitation program through the EAP will be subject to a new drug test following completion of treatment and will be subject to unannounced testing for a period of up to two years. This type of testing is an effective tool in helping recovering employees maintain their sobriety while holding them responsible for their own recovery.

1. If the EAP determines that the employee does not require inpatient or outpatient treatment they will still be required to participate in follow-up testing.
2. The frequency of testing will be at least four times a year for a two-year period and advance notice of the testing date may not be given.
3. Employees who fail a follow-up test will normally be terminated.
4. Employees who voluntarily enter treatment are not subject to Abbott Construction's follow-up testing program, but are subject to any follow-up testing that the treatment agency requires.

Reasonable Suspicion or Post-Accident Testing Documentation Form

The form used to request reasonable suspicion or post-accident testing is the *Reasonable Suspicion or Post-Accident Testing Form* (Exhibit A). It is used to document the rationale for testing, including observed facts and circumstances, any sources of information, date and time of observation or accident, witnesses, actions taken, etc.

A request for testing can be initiated by any Manager or Supervisor or Safety or Security Representative. The concurrence of another Manager or Supervisor or a Representative of Safety, Security or Human Resources is advised, if feasible.

One of the two individuals signing this form must be a Manager or Supervisor.

It is not necessary for the counter signer to have witnessed the incident.

This form is not needed for pre-employment, random (if authorized), and follow-up testing. Instead, a Manager will check the appropriate boxes on the *Drug / Alcohol Testing Referral Form* (Exhibit D).

Procedures for Administering the Tests

The collection for drug testing is scheduled and administered in the following manner:

Abbott Construction:

1. Informs employee that they are going to be tested and the basis for the test, e.g., post-accident, reasonable suspicion, etc.
2. Completes Abbott Construction's Reasonable Suspicion or Post-Accident Testing Documentation Form (Exhibit A) for reasonable suspicion or post-accident tests.
3. Calls the drug testing collection site and informs them that you are bringing or sending in an employee for testing.
4. Arranges for transportation to the collection site.
5. Never allow an employee to drive themselves to the collection site for post-accident or reasonable suspicion testing.
6. Applicants and employees being tested randomly or for follow-up can be given the place and time of collection, and provide their own transportation to the collection site. You should minimize the time between notification and collection.
7. Always arrange for a ride home when an employee is suspected of being under any influence of alcohol or drugs.

The employee (applicant) is required to:

1. Present signature and photo identification to the collector (e.g. state issued driver's license).
2. Sign the laboratory consent and chain-of-custody (control) forms.

CHAPTER 14 – SUBSTANCE ABUSE

section a continued

Disciplinary Actions

An employee's refusal to take the following actions when required is considered insubordination and results in disciplinary action up to and including termination of employment:

1. Take a drug or alcohol test.
2. Appear for testing (without an excused absence).
3. Accept the EAP recommendations when required to use the EAP, due to a positive drug test, or violating a company rule pertaining to drugs or alcohol.
4. Comply with the conditions of a last chance agreement.

First Verified Positive Test

As soon as possible, but within five working days after receipt of a verified positive test result the employee will be notified in writing of the positive test result, the consequences of the result, and the options available to the employee.

Normally, no employee will be terminated because of a first verified positive test result. Instead, the employee is required to submit to EAP evaluation and, if necessary, receive a one-time opportunity to enter a treatment program. These employees are subject to discipline, up to and including termination for independent reasons.

1. Upon entering a treatment program, the employee is required to accept and comply with the terms of the last chance agreement (Exhibit B).
2. The employee will also be subject to follow-up drug and alcohol testing for 2 years following the date of the last chance agreement.
3. Before returning to work, the employee must pass a drug / alcohol test.

Second Verified Positive Test

Any employee who has a second verified positive drug or alcohol test result will normally be terminated from employment.

Failure to Complete Rehabilitation Program

An employee who was required to enter a treatment program due to a verified positive drug or alcohol test or for violating a company rule associated with drugs or alcohol and who fails to complete all follow up counseling will be terminated from employment.

Handling Testing Results Showing Signs of Possible Adulteration

The advice and recommendations of the Medical Review Officer will be followed when test results indicate possible adulteration; dilution or specimens are unsuitable for testing.

Confidentiality

All information received by the employer through a drug / alcohol testing program is confidential communications. Access to this information is limited to those who have a legitimate need to know, including:

1. Disclosure to the EAP Manager or appropriate counselor;
2. Disclosure to a Supervisor or Official with authority to take appropriate personnel action against the employee;
3. Disclosure required or permitted by law or government regulation;
4. Disclosure directed by a court order or required by Abbott Construction to defend itself against a challenge to an adverse personnel action.

Communication of the Alcohol / Drug Testing Policy

New employees will acknowledge receipt of Abbott Construction's policy during the application process and pre-employment test.

Current employees will be given a copy of this policy / procedures and notice that any drug testing of current employees takes effect 60 days after issuance of the policy. This gives current employees the opportunity to quit using drugs, volunteer for treatment, or leave the company.

CHAPTER 14 – SUBSTANCE ABUSE

section b

REASONABLE SUSPICION OR POST-ACCIDENT TESTING DOCUMENTATION FORM EXHIBIT A

Employee Name: _____ SSN or ID #: _____ Date: _____

Reason for Test:

- | | |
|---|--|
| <input type="checkbox"/> Reasonable Suspicion | <input type="checkbox"/> Post-Accident |
| <input type="checkbox"/> Observed Behavior | <input type="checkbox"/> Accident Causing a Fatality |
| <input type="checkbox"/> Observed Drug / Alcohol Use | <input type="checkbox"/> Accident causing an injury requiring off-site medical attention |
| <input type="checkbox"/> Difficulty Maintaining Balance | <input type="checkbox"/> Accident causing significant property damage |
| <input type="checkbox"/> Slurred Speech | <input type="checkbox"/> Unsafe activity or near-accident that could have caused |
| <input type="checkbox"/> Abnormal / Erratic Behavior | <input type="checkbox"/> Possible Death |
| <input type="checkbox"/> Apparent inability to safely perform assigned work | <input type="checkbox"/> Possible Injury |
| <input type="checkbox"/> Credible Report | <input type="checkbox"/> Possible Property Damage |
| <input type="checkbox"/> Arrest or Conviction | <input type="checkbox"/> Other |

Comments (Describe in detail, the rationale for requesting testing, including observed facts and circumstances, any sources of information, date & time of observation or accident, other witnesses, actions taken, etc.):

Requestor's Printed Name & Title Requestor's Signature Date

Reviewer's Printed Name & Title Reviewer's Signature Date

I acknowledge that I have been informed of the company's reasons for requesting this drug and / or alcohol test and consent to the testing

Employee Signature Date



CHAPTER 14 – SUBSTANCE ABUSE

section c

LAST CHANCE AGREEMENT EXHIBIT B

I, _____ understand that my (reinstatement and) continued employment (are) is contingent upon compliance with all of the following terms of this agreement.

I will be evaluated for chemical dependency by the company’s employee assistance program (EAP).

I will comply with all of the EAP treatment and follow-up recommendations.

I authorize Abbott Construction to receive all relevant information regarding my progress in my rehabilitation program.

I will be subject to unannounced testing (follow-up monitoring) for up to two years.

I recognize, accept, and agree that any future violation of the company’s drug free workplace policy by me will result in the termination of my employment.

I am responsible for meeting the same standards of performance and conduct that are set for other employees.

I understand that failure to comply, in whole or in part, with all the terms of and conditions of this agreement will result in further disciplinary action, up to and including, termination of employment with Abbott Construction.

Employee Signature

Date

Company Representative Signature

Date

CHAPTER 15 – FALL PROTECTION PROGRAM

section a

FALL PROTECTION POLICIES & PROCEDURES

This policy and procedure shall be the minimum standard of protection for all employees and Subcontractor employees. Abbott Construction encourages all employees and management to take additional steps as necessary to ensure the goal of eliminating any accidental fall from an elevation is met.

A fall from any height can be serious; therefore, project supervision and workers must be alert to any hazard regardless of specific height requirements for fall protection or prevention. Prompt and effective measures must be taken to prevent exposure.

Employees in a supervisory role that fail to enforce this policy and workers that fail to follow the protections and training established in this policy shall be subject to disciplinary action up to and including immediate termination of employment.

General Requirements

1. For the use of any scaffold, ladder, elevated work platform, or other equipment, workers must follow the manufacturer's safety rules for the safe use of that equipment as well as the Washington Administrative Code (WAC) Rules for Construction. All workers must be trained on the safe use of this equipment.
2. Each project must designate a competent person for fall protection. The project Superintendent, by default, is the designated competent person but this duty may be assigned to any other qualified Abbott Construction employee by the Superintendent. The competent person must be knowledgeable and have authority to stop an unsafe action.
3. The project Superintendent is responsible to ensure that the Abbott Fall Protection Manual is on their jobsite and kept current as work progresses. The manual is to include the following:
 - A copy of this policy
 - A copy of OSHA standard or the applicable chapter from the state plan for Fall Protection Requirements for Construction
 - Training Program Handouts presented at the Abbott Fall Protection Training
 - Materials for the documentation of training
 - Blank Fall Protection Work Plan Worksheets
 - A section to allow the storage of any Fall Protection Equipment manuals or instruction specific to the site

Subcontractor Requirements

1. Subcontractors shall, at a minimum, follow the OSHA or state plan requirements for Fall Protection for Construction. All subcontractor work activity with fall exposures or the potential for fall exposures shall be monitored by the designated competent person.
2. Subcontractors must also designate a competent person that must demonstrate the knowledge of fall protection requirements for construction as well as the Fall Protection system and equipment that will be used during construction. The Abbott Construction competent person for the project will determine if the Subcontractor competent person is qualified to hold this duty. If it is deemed that the Subcontractor competent person is not qualified due to their lack of knowledge or inability to communicate the codes for fall protection or the use and limitations for the equipment to be used, the Abbott Construction competent person shall notify the Subcontractor that a new competent person must be identified.
3. Subcontractors with a potential fall exposure of 10 feet or more shall provide Abbott Construction with a comprehensive fall protection plan for each exposure location. This plan will identify the designated competent person for the subcontractor that developed the plan, the person that will be supervising the implementation of the plan and the names of the workers that have been trained on the plan. The subcontractor Fall Protection Work Plan will be reviewed by the Abbott Construction competent person before any employee is exposed to the fall hazard
4. Generic fall protection plans will not be accepted under any circumstances, see Fall Protection – at 10 Feet or more section of this policy and procedure.
5. Subcontractors with specific fall exposures must train their workers in the hazards and the precautions necessary to avoid an accident or injury regardless of the fall hazard height.

CHAPTER 15 – FALL PROTECTION PROGRAM

section a continued

Warning Lines & Overhead Work Hazards

All workers onsite will be respectful of warning lines, barricades, and fall protection systems in place to prevent injury. Workers that ignore specific warnings, barricades, or direction to avoid a hazard shall be subject to disciplinary action, up to and including termination for Abbott workers or removal of employee from the site for Subcontractors.

The use of barricade ribbon of red, yellow or other color shall not be used except for temporary identification of a hazard. Where it is anticipated the barricade will be used for a period of more than 48 hours, a hard barricade or guardrail will be used. Barricade ribbon, when used, must be maintained. Ribbons must be removed from the area when no longer needed. Roof warning lines must be made of rope or similar durable material. Post for warning lines must be substantial and not subject to being affected by wind. A durable warning sign that identifies the hazard and precautions to take must be posted on any warning line and shall be placed at intervals along the warning line. Example: “Danger! Open Sided Floor”

Work overhead of any workers or member of the public shall have precautions in place to prevent people below from being struck by falling objects, materials, tools, or other hazard and must be addressed in any fall protection work plan.

Fall Protection Systems Inspection

At a minimum, at the beginning of each shift, the competent person will inspect all fall protection systems including but not limited to guardrails, floor-hole covers, safety nets, barricades, warning lines, catch platforms and / or any other established system in place. Corrective action will be made to any findings prior to commencement of any work affected by any fall protection system.

Personal Fall Protection Equipment

Each worker has a responsibility to inspect each piece of fall protection equipment prior to its use. Inspection of equipment shall take place at the beginning of the shift and during the shift as needed to ensure that the equipment will function as expected during its use as a lifesaving piece of equipment. Each worker should receive training on the use and limitation of this equipment as well as the correct and accepted method of inspection. Any equipment found to be damaged or have any questionable visible wear that could diminish its effective performance will be immediately removed from service. The competent person can make any final determination as to serviceability of this equipment. Any equipment determined to be unfit for services is to be immediately destroyed in a manner that will not allow it to be used.

The competent person must be familiar with the manufacturer’s recommendations for inspection and service life for equipment being used. Where no in-service use has been recorded, the competent person will use the manufacturer’s maximum service life date as a guide. For example, if no in-service record is present and the manufacturer says the service life is five years, the piece of equipment would be destroyed five years from the date of manufacture.

Fall Protection – Regardless of Height

What you fall onto or into can be more dangerous than the fall itself. All personnel will be watchful for fall hazards regardless of height. Examples to watch for are floor-holes, the potential to fall into or onto equipment, impalement hazards such as rebar, exposed steel, or wood stakes. Impalement hazards shall be protected as they are created; under no circumstances should they be left to take care of later.

Fall Protection – At Four Feet

The requirement for fall protection at four feet does not include all exposures of four feet or more, but only those exposures from a walking / working surface. A walking / working surface is defined as:

“an area including, but not limited to, floors, a roof surface, bridge, the ground, and any other surfaces whose dimensions are forty-five inches or more in all directions, through which workers can pass or conduct work. A walking / working surface does not include vehicles or rolling stock on which employees must be located in order to perform their job duties”

If a work area meets the definition of walking / working surface and there is a fall exposure of more than four feet but less than 10 feet, fall protection must be in place for any worker exposure.

CHAPTER 15 – FALL PROTECTION PROGRAM

section a continued

Fall Protection – At 10 Feet or More

The 10 or more rule is for workers engaged in any work of which is 10 or more feet above the ground or lower level while engaged in the following:

- Roofing work on a low-pitched roof (not more than 4:12 pitch)
- Constructing a leading edge
- Working on any surface that is not a walking / working surface
- Excavation or Trenching

A fall protection plan must be developed by the competent person and be implemented prior to any work commences for this level of exposure.

The following are the basic elements of an acceptable fall protection work plan:

- Identify each area of the work place where there is an unprotected fall hazard of 10 feet or more
- Give a complete description of the fall protection method being used of which must comply with the OSHA or State plan
- Give a description of the procedures that will be used to complete the following:
 - Install the protective system with workers protected during the installation
 - Maintenance of the system
 - Inspection of the system
 - Removal of the protective system with workers protected during removal
- Give a description of the protective measures to be taken for securing materials, tools, and their proper storage to eliminate the risk to workers below these items or materials.
- Give a description of the methods used for overhead protection for anyone below the elevated worksite
- Have a system in place with the necessary equipment to remove an injured worker from an elevation in the event of a fall.

A completed copy of the fall protection work plan must be onsite and available for review during anytime that workers are engaged in work covered by the plan.

All workers engaged in work covered by the fall protection plan must receive training from the competent person on all elements of the plan.

Any changes made to the fall protection methods or equipment being used require the fall protection plan to be updated to include the changes and all workers are to be re-trained on the modified plan.

Applicable Standards for Fall Protection

- Washington – WAC 295-880
- Oregon – Oregon Administration Rules, Construction, Division 3 Subpart M, Fall Protection
- California – CAL OSHA Subchapter 4. Construction Safety Orders Article 24. Fall Protection
- Federal – 1926 Subpart M

CHAPTER 15 – FALL PROTECTION PROGRAM

section b

FALL PROTECTION POLICIES & PROCEDURES – CALIFORNIA

Falls from any elevation are a major cause of injuries and deaths in the Construction Industry. The implementation of this program on all Abbott Construction projects is aimed at the elimination of any injury or fatality from a fall from an elevation. This policy and procedure shall be the minimum standard of protection for all employees and Subcontractor employees. Abbott Construction encourages all employees and Management to take additional steps as necessary to ensure the goal of eliminating any accidental fall from an elevation is met.

A fall from any height can be serious; therefore, project supervision and workers must be alert to any hazard regardless of specific height requirements for fall protection or prevention. Prompt and effective measures must be taken to prevent exposure.

Employees in a supervisory role that knowingly fail to enforce this policy and workers that fail to follow the protections and training established in this policy shall be subject to disciplinary action up to and including immediate termination of employment.

General Requirements

1. For the use of any scaffold, ladder, elevated work platform, or other equipment, workers must follow the manufacturer's safety rules for the safe use of that equipment as well as the California Code of Regulations, Title 8. All workers must be trained on the safe use of this equipment.
2. Each project must designate a competent person for fall protection. The project Superintendent, by default, is the designated competent person but this duty may be assigned to any other qualified Abbott Construction employee by the Superintendent. The competent person must be knowledgeable and have control and authority over fall hazards and protective systems being used. The competent person shall train all workers exposed, or potentially exposed to any fall hazard.
3. Every Superintendent and Foreman must complete the Abbott Fall Protection Training Class within four weeks of their hire date or promotion.
4. The project Superintendent must maintain a copy of Abbott Fall Protection Manual is on their jobsite and keep it current as work progresses. The manual is to include the following:
 - A copy of this policy
 - A copy of the CAL OSHA Subchapter 4. Construction Safety Orders Article 24. Fall Protection.
 - Training Program Handouts presented at the Abbott Fall Protection Training
 - Materials for the documentation of training
 - Blank Fall Protection Work Plan Worksheets
 - A section to allow the storage of any Fall Protection Equipment manuals or instruction specific to the site

Subcontractor Requirements

Subcontractors shall, at a minimum, follow the CAL OSHA Subchapter 4. Construction Safety Orders Article 24. Fall Protection.

1. All subcontractor work activity with fall exposures or the potential for fall exposures shall be monitored by the designated competent person. Subcontractors must designate a competent person that can demonstrate knowledge of CAL OSHA Subchapter 4. Construction Safety Orders Article 24. Fall Protection as well as the Fall Protection system and equipment that will be used during construction.

The Abbott Construction competent person for the project will determine if the Subcontractor competent person is qualified to hold this duty. If it is deemed that the Subcontractor competent person is not qualified due to their lack of knowledge or inability to communicate the codes for fall protection or the use and limitations for the equipment to be used, the Abbott Construction competent person shall notify the Subcontractor that a new competent person must be identified.

1. Subcontractors with specific fall exposures must train their workers in the hazards and the precautions necessary to avoid an accident or injury regardless of the fall hazard height.
2. Subcontractors without specific fall exposures must train their workers to avoid any fall exposures and the locations of those hazards.

CHAPTER 15 – FALL PROTECTION PROGRAM

section b continued

Warning Lines & Overhead Work Hazards

**Note: Cal OSHA has two sets of rules for Warning lines:
T8CCR1730 for Roof Hazards
T8CCR 1671.2 for exposures to fall hazards other than Roofing Work.**

Before using a warning line be certain to read the appropriate code for all the details of correct warning line use. Below is a summary of the warning line requirements.

Warning Lines

T8CCR 1671.2 requires that warning lines used to control access to areas such as leading edge work and they be placed not closer than 6 feet nor farther than 25 feet from the unprotected area. Abbott Construction recommends that increased distance be used as appropriate for the activity to increase the level of safety. If workers are backing up while working, then increase the distance to 10 feet. If mechanical equipment is being used such as powered buggies, then 10 feet would be more appropriate.

Warning lines may only be used on low sloped roofs or surfaces for fall protection. Low slope is 0:12 to 4:12.

Signs are to be used to warn of the hazard being protected. Flagging or highly visible rope must be used to get attention of workers approaching the warning line.

Warning lines must be supported in a manner that hold the warning line to a height of at least 39 inches but not more than 45 inches from the floor, deck or roof. Each line must have a minimum breaking strength of 200 pounds for other than roofing work. Roofing work requires a warning line with 500 pounds tensile strength.

All workers onsite will be respectful of warning lines, barricades, and fall protection systems in place to prevent injury. Workers that ignore specific warnings, barricades, or direction to avoid a hazard shall be subject to disciplinary action, up to and including termination for Abbott workers or removal of employee from the site for Subcontractors.

Abbott Construction's policy for the use of barricade ribbon of red, yellow or other color it that it shall not be used except for temporary identification of a hazard. Where it is anticipated the barricade will be used for a period of more than 48 hours, a hard barricade or guardrail will be used. Barricade ribbon, when used, must be maintained. Ribbons must be removed from the area when no longer needed. Open Sided Floor, Floor Hole Openings or Roof warning lines must be made of rope or similar durable material. Post for warning lines must be substantial and not subject to the effect of wind. A durable warning sign that identifies the hazard and precautions to take must be posted on any warning line and shall be placed at appropriate intervals along the warning line. Example: "Danger! Open Sided Floor".

Warning lines used during Roofing work must be at least 5 feet from the hazard of the roof edge. 10 feet back will be maintained where any powered buggies or similar equipment is in use. Warning line protection is not approved for roof slopes of greater than 4 in 12 (vertical to horizontal).

Workers between the warning line and the hazard must be protected by other means of Fall Protection. Personal Fall Arrest/Restraint Equipment, Standard Guardrail is examples.

Work overhead of any workers or member of the public shall have precautions in place to prevent people below from being struck by falling objects, materials, tools, or other hazard and must be addressed in any fall protection work plan.

Fall Protection Systems Inspection

At a minimum, at the beginning of each shift, the competent person will inspect all fall protection systems including but not limited to guardrails, floor-hole covers, safety nets, barricades, warning lines, catch platforms and / or any other established system in place. Corrective action will be made to any findings prior to commencement of any work affected by any fall protection system.

Personal Fall Protection Equipment

Each worker has a responsibility to inspect each piece of fall protection equipment prior to its use. Inspection of equipment shall take place at the beginning of the shift and during the shift as needed to ensure that the equipment will function as expected during its use as a lifesaving piece of equipment. Each worker will have had training on the use and limitation of this equipment as well as the correct and accepted method of inspection. Any equipment found to be damaged or have any questionable visible wear that could diminish its effective performance will be immediately removed from service. The competent person can make any final determination as to serviceability of this equipment. Any equipment determined to be unfit for services is to be immediately destroyed in a manner that will not allow it to be used.

CHAPTER 15 – FALL PROTECTION PROGRAM

section b continued

The competent person must be familiar with the manufacturer's recommendations for inspection and service life for equipment being used. Where no in-service use has been recorded, the competent person will use the manufacturer's maximum service life date as a guide. For example, if no in-service record is present and the manufacturer says the service life is five years, the piece of equipment would be destroyed five years from the date of manufacture.

CAL - OSHA FALL PROTECTION TRIGGER HEIGHTS

Above 30' – Iron Workers Connecting Steel Only

Above 20' - Roofers

Above 15' - Ironworkers, panelized roof construction (Section 1717.1) and employees on 4-inch nominal or wider structural members

Above 7½' - Anyone working on unprotected platforms, scaffolds or edge of structures.

Above 6' – Rod Busters working with rebar (exception is point to point travel)

Grade or Ground – Not required

Fall Protection – Regardless of Height

What you fall onto or into can be more dangerous than the fall itself. All Abbott Construction personnel will be watchful for these hazards and take action immediately upon discovery to protect workers from these exposures. Examples to watch for are floor-holes, the potential to fall into or onto equipment, impalement hazards such as rebar, exposed steel, or wood stakes. Impalement hazards shall be protected as they are created; under no circumstances should they be left to take care of later.

Fall Protection – At 7 1/2 Feet

See CAL OSHA Subchapter 4. Construction Safety Orders Article 24. Fall Protection. 1670 Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices.

Approved Personal Fall Arrest, Personal Fall Restraint or Positioning Systems shall be worn by those employees whose work exposes them to falling in excess of **7.5 feet** from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12 or other sloped surfaces steeper than 40 degrees not otherwise adequately protected under the provisions of these orders.

Cal/OSHA has several regulations related to Fall Protection in construction - found in Title 8 of the California Code of Regulations (T8CCR). **The specific Cal/OSHA safety requirements that apply depend on the types of construction activities actually being performed.** The complete set of Title 8 regulations can be found at:

www.dir.ca.gov/samples/search/query.htm

Working Heights and Trades - In the Cal/OSHA regulations there are many working heights that trigger the use of Fall Protection depending on the trade, the job being performed, the height at which the work is done and the dangers below the working surface. The Cal/OSHA regulations related to Fall Protection in construction can be found in Chapter 4. Division of Industrial Safety, Subchapter 4. Construction Safety Orders

The following is an overview of the regulations in Title 8 for Fall Protection in construction (**not all of the applicable Title 8 regulations are given below**)

- [Article 16](#). Standard Railings (T8CCR 1620 - 1621)
- [Article 19](#). Floor, Roof and Wall Openings (T8CCR 1632 - 1633)
- [Article 21](#). Scaffolds - General Requirements (T8CCR 1635.1 - 1637)
- [Article 22](#). Scaffolds - Various Types (T8CCR 1640 - 1655)
- [Article 24](#). Fall Protection (T8CCR 1669 - 1672)
- [Article 2](#). Standard Specifications (T8CCR 3209 - 3239) in Subchapter 7. General Industry Safety Orders

CHAPTER 15 – FALL PROTECTION PROGRAM

section b continued

Preventing Falls

- **Guard Rails and Toeboards** must be installed:
 - Where work is to be performed at **7.5 feet or higher above the ground**. (T8CCR [1620](#) and [1621](#)) and
 - On **all open sides of unenclosed elevated work locations** like roof openings, landings, balconies or porches on working levels more than 30 inches above the floor, ground or other working areas (T8CCR [3210](#)) and
 - **On floor, roof and wall openings** (only for wall openings from which there is a drop of more than 4 feet and the bottom of the opening is less than 3 feet above the working surface)(T8CCR [1632](#)). The requirements for guard rails with either a swinging gate or equivalent protection and floor or roof openings must be covered and painted **“OPENING: DO NOT REMOVE”**.

- **Scaffolds** (T8CCR [1635.1 - 1637](#) and [1640 - 1655](#))
 - Required when work cannot be done safely by employees standing on permanent or solid construction at least 20 inches wide except when work can be done safely from ladders (T8CCR [1637](#))
 - *Exception 1 - Work of limited nature and short duration when the permanent or solid construction is less than 20 inches in width and fall distance does not exceed 15 feet in height and provided adequate risk control is recognized and maintained under competent supervision.*
 - *Exception 2 - Work of short duration from joists or similar members at 2 feet or closer centers, planks resting on these members forming a plank platform 12 inches wide or equivalent protection.*

Stopping Falls

If guard rails, toeboards and scaffolds are not provided or impractical above 7.5 feet to stop falls one or more of the following Fall Protection Systems must be used:

- **Approved Personal Fall Arrest, Personal Fall Restraint or Positioning Systems** (T8CCR [1670](#)) shall be worn by those employees whose work exposes them to falling in excess of **7.5 feet** from the perimeter of a structure, unprotected sides and edges, leading edges, through shaft ways and openings, sloped roof surfaces steeper than 7:12 or other sloped surfaces steeper than 40 degrees not otherwise adequately protected under the provisions of these orders.

- **Safety Nets** (T8CCR [1671](#)) - requires safety nets where the elevation is **25 feet** or more above the ground, water surface, or continuous floor level below, **and when the use of personal fall arrest systems, personal fall restraint systems, positioning device systems or more conventional types of protection are clearly impractical**, the exterior and/or interior perimeter of the structure shall be provided with an approved safety net extending at least 8 feet horizontally from such perimeter and being positioned at a distance not to exceed 10 feet vertically below where such hazards exist, or equivalent protection provided safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net.	Minimum required horizontal distance of outer edge of net from the edge of working surface.
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet but not to exceed 30 feet.	13 feet

Fall Protection Plan

[T8CCR 1671.1](#) - requires that if conventional fall protection systems are not practical for the work being performed, then a written fall protection plan must be developed and implemented by a qualified person. The plan permits work to be carried on in a designated area, without conventional fall protection, and requires alternate measures to be used to reduce any fall hazard. There must be constant observation by a safety monitor. The area of the work is known as a "controlled access zone" and only trained workers can enter.

CHAPTER 15 – FALL PROTECTION PROGRAM

section c

FALL PROTECTION PLAN FORM

Prior to allowing employees to work in an area with a fall hazard, fall arrest and restraint systems will be provided. All exposed employees will receive training. A copy of this form will be available onsite during any work activity covered by this plan.

Job Name: _____ **Job #:** _____

Superintendent: _____ **Date Prepared:** _____

Identify the fall hazard and location	Precautions to ensure materials, tools, or debris will not fall into areas below
Hazard: _____ _____ _____	
Location: _____ _____	Methods to provide overhead protection for any workers or others from hazards of falling objects, materials, debris, or sparks
Identify Method of Fall Protection	
<input type="checkbox"/> Fall Arrest <input type="checkbox"/> Fall Restraint <input type="checkbox"/> Positioning System Describe specific method to be used and give an overview of the basic plan for employee protection: _____ _____ _____ _____	Method of Prompt, Safe, Removal of Injured Worker A first aid trained responder will be available during any fall exposure using fall arrest equipment. First Aid Trained Responder: _____
Describe the method used for the following (use sketches as needed)	Equipment necessary to perform a rescue or self-rescue will be available for lower level rescue. High level rescues will require the use of Local Emergency Response
Assembly: _____ _____	<input type="checkbox"/> Ladders <input type="checkbox"/> Aerial / Scissor Lifts Emergency Response <input type="checkbox"/> Administer first aid as indicated <input type="checkbox"/> Call 911 as indicated <input type="checkbox"/> Other
Maintenance & Inspection: _____ _____	Documentation of Training All workers covered by the Fall Protection Work Plan will be trained on the contents of this plan. A Competent Person must determine if any additional training is needed such as wearing a harness or use of a rope grab. Training must be provided as needed (use training form)
Disassembly: _____ _____	Manufacturer's Instructions for all fall protection systems (attach to this plan) <input type="checkbox"/> Harness <input type="checkbox"/> Lanyard <input type="checkbox"/> Rope Grab <input type="checkbox"/> Anchor <input type="checkbox"/> Retractable Lanyard <input type="checkbox"/> Others

CHAPTER 15 – FALL PROTECTION PROGRAM

section d

LADDER SAFETY

Ladder Policy

All ladders in stock will be maintained with their safety rating and safety instructions clearly installed on the ladder. If a ladder becomes damaged in any way during a project, it is to be immediately removed from service and tagged out to prevent its further use. Damaged ladders may not be assumed for personal use by anyone under any circumstances.

General Information

1. Inspect ladders before use for physical defects and broken or missing parts. Ladders are not to be painted, Repair, destroy or prevent the use of defective ladders immediately!
2. Do not use ladders for skids, braces, workbenches or scaffolds.
3. Do not carry objects that will prevent you from grasping ladder with both hands. Always face ladder when climbing or descending.
4. If ladder must be placed over doorway, barricade door and post a warning sign.
5. Only one person on a ladder at a time.
6. Keep both feet on ladder rungs. Do not step laterally to another object. Do not jump from ladder while descending.
7. Prevent ladder from sinking by using foot blocks or a mudsill. Secure ladders against movement by cleating or nailing to a floor.
8. Rungs should be free of grease and oil. Keep area around top and bottom of ladders free from materials or debris.
9. Do no work from a ladder above 25'.

Straight or Extension Ladders

1. All straight or extension ladders must extend at least three feet beyond the support at the top and must have safety (non-skid) feet.
2. Assure safety dogs or latches are engaged after extending and securing.
3. Ensure that the ladder being used is tied off both top and bottom.

Stepladders

1. Do not place tools or materials on the steps or platform of a stepladder.
2. Always level all four feet and assure spreaders are locked in place.
3. Ladder must be used as it was designed to be used.
4. Do not "walk" the ladder. Get down, move it, and climb back up.

Job Made Ladders

1. Must be constructed for their intended use. Double cleat ladders are not to exceed 24 feet and single cleat are not to exceed 30 feet in length.
2. Job made ladders must be solidly built with cleats, evenly spaced 12" on center.
3. Refer to code for specifics regarding spacing and materials to be used.

CHAPTER 15 – FALL PROTECTION PROGRAM

section e

SCAFFOLDING

1. Before starting work on a scaffold, inspect it for the following:
 - Are guardrails, toeboards and planking in place and secure?
 - Are locking pins at each joint in place and secure?
 - Are wheels on all moveable scaffolds locked?
2. Inspection must be documented on a tag attached to the scaffold.
3. Each contractor must inspect the scaffold for their company and sign their own inspection tag.
4. Do not attempt to gain access to a scaffold by climbing on it unless it was designed for climbing; always use a ladder.
5. Scaffolds and their components shall be capable of supporting four times the maximum intended load.
6. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, or ladders, which is damaged or weakened shall be immediately repaired or replaced.
7. Scaffold planks shall extend over their end supports not less than 6 inches and not more than 12 inches, unless otherwise specifically required.
8. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen (No. 18 gauge U.S. standard wire 1/2-inch mesh) between the toeboard and guardrail, extending along the entire opening.
9. Scaffold platforms shall not be less than 18 inches wide unless specifically required or exempted.
10. All scaffolds must be erected level, plumb and on a solid footing.
11. Do not change or remove scaffold members unless authorized and trained.
12. Do not ride or allow other workers to ride on a rolling scaffold while it is being moved. Remove or secure all materials and tools on deck before moving.
13. Do not alter any scaffold member by welding, burning, and cutting, drilling or bending.
14. Standard guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor.
15. The height of freestanding scaffold towers shall not exceed four times the minimum base dimension.
16. When a scaffold exceeds either 30 feet horizontally or 26 feet vertically, the entire scaffold shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.
17. The floor surface shall be within three degrees of level, smooth and free from pits, holes or obstructions.
18. Do not work on scaffolds during high winds or storms. Ice and snow-covered scaffolds must be scraped and sanded prior to use.
19. Unstable items such as barrels, boxes, loose brick, tools and debris shall not be allowed to accumulate on the work level. No debris shall be left on scaffolds overnight.
20. All planks and wooden components must be of scaffold grade material.

Ladder Jack Scaffolds

1. Ladder jack scaffolds are for light duty only. They are never to exceed 20 feet above the ground.
2. Ladders used must be heavy duty. Do not use cleated ladders.
3. Ladder jack must bear on the side rails in addition to the ladder rung unless the bearing area on the rung is at least 20 inches.

CHAPTER 15 – FALL PROTECTION PROGRAM

section e continued

4. No more than two employees may be on any 8 feet of the platform at any time.

Pump Jack Scaffolds

1. Assure working load is less than manufacturer's recommended load.
2. Each jack must have two positive gripping mechanisms to prevent slippage failure.
3. Platform bracket must be fully decked and planking secure.
4. Poles must not be more than 30 feet in height and must be secured to the building by rigid triangular bracing at the top, bottom and other points as needed. Maximum vertical spacing of braces must not exceed 10 feet.
5. To pump jack past an existing brace, an additional brace must be placed 4' above the one to be passed, until it is replaced.
6. No more than two persons are to be on platform between two supports.

Rolling Scaffolds

1. Do not ride rolling scaffolds.
2. Secure or remove all material from scaffold before moving.
3. Caster brakes must be applied at all times when workers are on the scaffolds.
4. Assure you have adequate help to move scaffolds. Be observant for holes in ground or overhead obstructions.

CHAPTER 15 – FALL PROTECTION PROGRAM

section f

FLOOR, WALL, & STAIRWAY OPENINGS STANDARD GUARDRAIL

Floor Opening

1. A floor opening is any opening measuring 2 inches or more in its least dimension in any floor, roof or platform through which a person may fall.
2. Standard guardrails must be used.
3. If a danger of falling through a skylight exists, the opening shall be guarded by standard railings on all exposed sides, or a hole cover capable of sustaining 200 pounds of force with a safety factor of 4 and secured against accidental displacement may be used.
4. Floor holes into which persons can accidentally walk must be guarded either by a standard railing or a hole cover capable of sustaining 200 pounds of force with a safety factor of 4 and secured against accidental displacement.

Wall Openings

1. A wall opening is any opening in a wall at least 30 inches high and 18 inches wide through which a person may fall.
2. Wall openings in which there are a drop of more than four feet and the bottom of the opening is less than 39 inches above the working surface shall be guarded. Toe boards should be used as needed.

Stairway

1. Every flight of stairs having four or more risers or rising more than 30 inches shall be equipped with standard stair railings. Open sides shall be guarded.
2. Standard railing shall be 42" (+ or - 3") from the upper surface of the top rail to the surface of the tread in line with face of the riser. A mid rail shall be provided at approximately 21" (+ or - 3").
3. On stairways less than 44 inches wide having both sides enclosed, at least one handrail shall be installed, preferably on the right. A handrail is intended to provide handhold protection and must support 200 pounds of force. It shall have a minimum of 3 inches clearance from the wall. It must be installed so that the top is no less than 30 inches and no more 37 inches from the top of the tread.

Guardrails

1. Guardrails shall be put up around all open holes, floor openings, wall openings, and stairways that expose workers to a four-foot or greater drop.
2. The standard guardrail shall consist of the top rail, intermediate rail, toe-board and posts. It must have a vertical height of 42" (+ or - 3") with mid-rails at half the distance to the ground from the guardrail. The top rail must be smooth surfaced, able to withstand 200 pounds of force. The intermediate rail must be at least 1 x 6 stock. A standard toe-board shall be 4 inches minimum in height. Guardrails must have post spaced not more than 8' on centers.
3. All guardrail systems are to remain intact until permanent protection can be provided.
4. Guardrails should never be used as a tie off point for fall protection.
5. If guardrails are removed to allow equipment or materials to be brought in, the fall hazard must be protected by other means.
6. Weakened, broken, cracked or missing guardrails should be repaired or replaced immediately.
7. When repairing or replacing guardrails proper fall protective equipment must be used.

CHAPTER 16 – CONFINED SPACE PROGRAM

section a

CONFINED SPACE POLICY

In an average year, many workers are killed in confined space incidents. An oxygen deficient atmosphere or toxic substance buildup in the space has the potential to overcome workers and "would be rescuers" who rush in to assist their downed co-workers can be overcome by the same substance. In almost every case the confined spaces are not identified as a hazard and no precautions are taken to prevent injury.

A confined space has limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work and is not designed for continuous occupancy. Examples include but are not limited to sewers, boilers, pipelines, storage bins, tanks, silos, process vessels, drainpipes, utility vaults, tunnels, and water tanks with open tops, trenches, caves, excavations, crawl spaces and pits. In a confined space, materials which are usually innocuous can become toxic, for example decaying leaves, sewage or chemicals used frequently without problems in the open.

A permit required confined space is one that meets the definition of a confined space and has one or more of these characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.
2. Contains material that has the potential for engulfing an entrant.
3. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section.
4. Contains any other recognized serious safety or health hazard.

Because of the type of construction we do, it is not unlikely that an employee will encounter a confined space. We recognize that confined spaces are a serious hazard and it is employees who rarely work in or around confined spaces, which are most at risk. Therefore, we have set the following policies to protect our employees from confined space hazards.

1. All confined spaces shall be considered a permit required space unless inspected by a competent person and designated, as a non-permit required confined space.
2. No workers at our jobsites are to enter a permit required confined space without the proper training. It is considered an entry if any part of the body breaks the plane of opening.
3. All confined spaces shall be secured and clearly posted - "Danger Permit Required Confined Space - No Entry Allowed".
4. If a confined space must be entered during a project, the site Superintendent must be contacted well in advance. If possible, the work will be subcontracted to a company which regularly works with permit required confined space entry and has all programs, supplies and training required. If this is not possible, the site Superintendent will arrange for a comprehensive confined space entry program, policies and a site specific Job Hazard Analysis. In depth employee training will be done and specialized monitoring and rescue equipment will be provided. No entry will be allowed for any reason until this training is accomplished, testing is done, and a permit is issued.
5. Two weekly safety meetings per year will review confined space hazards and company policy.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b

CONFINED SPACE PROGRAM

The following Confined Space Program will act as a guide for compliance and worker safety when exposed to confined spaces at Abbott Construction jobsites.

Descriptions of Confined Space Hazards

When work is performed in confined spaces, employees could be exposed to the following types of hazards:

Hazardous Atmospheres

Hazardous atmospheres may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

1. **Atmospheres Deficient in Oxygen**

If an atmosphere contains less than 19.5% oxygen it is considered to be oxygen deficient. Any oxygen deficient atmosphere should not be entered without an approved self-contained breathing apparatus. Welding, cutting, or brazing work can decrease the oxygen level in a confined space. This would require a Hot Work Permit.

Carbon dioxide, carbon monoxide, argon, or nitrogen can displace the oxygen in a confined space. Total displacement of oxygen by one of these gases could result in unconsciousness, followed by death.

In most cases, you would not be aware of your problem until you are incapable of saving yourself or calling for help.

2. **Explosive or Flammable Atmospheres**

An atmosphere can be a serious fire or explosion hazard if a flammable gas or vapor is present at a concentration greater than 10% of its lower flammable limit (LFL), or if combustible dust is present at a concentration greater than or equal to its LFL. A space may not be entered if it contains an oxygen enriched atmosphere above 23.5%. This type of atmosphere will cause flammable materials to burn violently when ignited. When ventilating a confined space, always use normal air, never pure oxygen.

3. **Toxic Atmospheres**

Toxic atmospheres refer to atmospheres containing gases, or vapors of fumes known to have poisonous physiological effects.

The toxic effect is independent of the oxygen concentration. The most commonly encountered toxic gases are carbon monoxide and hydrogen sulfide. Toxic substances can be produced from the following:

- a. The type of work being done in a confined space: Brazing, welding, cutting, painting, scraping, sanding, degreasing and cleaning are examples of activities which could create toxic atmospheres when performed in a confined space.
- b. The chemical or product when is kept in the space: When a product is stored in a space, it can be absorbed into the walls and give off toxic gases when removed. When residue from a stored product is cleaned out of a space, toxic gases can be emitted (example: repairing used or returned products).
- c. Areas adjoining the confined space: When work outside the confined space produces toxic contaminants, these contaminants can enter and collect within the confined space.

Physical / General Hazards

Physical or general hazards can be present within a confined space.

1. **Noise**

When in a confined space, noise can be elevated because of the acoustic attributes and layout of the space. Attendants and entrant's communication can be affected by excessive noise within the space. Hearing damage can also occur.

2. **Falling Objects**

Objects can fall into a confined space from a top opening. This can be a hazard to those working in these spaces.

3. **Temperature Extremes**

Both hot and cold temperatures when in extreme can be a hazard for workers.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b continued

4. **Chemical Residuals on the Surfaces**

When confined spaces contain chemicals, the space must be cleaned or purged, to remove any residual chemicals that may be on the surfaces of the confined space. If all residuals have not been removed, the necessary precautions must be taken to protect the employees that enter the confined space. These precautions might include wearing personal protective equipment to prevent contact with the skin and wearing breathing apparatus. (Example: Repair of used tanks)

5. **Engulfment Hazards**

A solid or liquid might flow into the confined space that could drown or suffocate an entrant.

6. **Surfaces that are Wet or Slick**

When a surface in a confined space is either slick or wet, an entrant could slip or fall causing death or injury. Wet or slick surfaces also raise the chance of electric shock if electrical tools or equipment are being used in the confined space.

7. **Mechanical Hazards**

Areas with moving parts such as agitators, fans, or other power driven moving part are a potential hazard to employees.

Hazard Identification

It is the employer's responsibility to evaluate the workplace and determine where confined spaces are located. It is also their responsibility to evaluate each confined space, and if it is to be entered, identify the possible hazards involved when entering the space.

All general / physical as well as atmospheric hazards must be identified, evaluated, and sufficiently controlled whenever possible for each entry. Any hazard must be either controlled or eliminated before entry is allowed. In cases where the hazard cannot be eliminated or controlled, special precautions must be noted on the permit and utilized before entry.

Testing is the process by which hazards that may be encountered in a permit space are identified and evaluated. Testing enables employers to devise and implement adequate control measures for the protection of authorized entrants, and to determine if acceptable entry conditions are present immediately prior to, and during entry.

Atmospheric Testing / Hazardous Atmospheres

Evaluations of the permit space conditions are necessary both at the time the space is initially identified, and at the time of each entry. Atmospheric testing is required for two distinct reasons. The first purpose is for the evaluation of the hazards of the permit space, and the second is to verify that acceptable conditions for entry exist.

1. **Procedures for Atmospheric Testing**

The procedures, which must be followed when testing the atmosphere within and around a confined space, are as follows:

- a. First, identify any hazardous atmosphere that may be present or may arise in and around the confined space. After the potential air contaminants are identified, the appropriate atmospheric testing equipment must be acquired. Proper calibration of the testing equipment, per the manufacturer's instructions, is necessary before it is used.
- b. Second, the atmosphere in and around a permit space must be tested for the presence of all air contaminants that have been identified as being able to exist in and around the confined space. The atmosphere shall be tested, with a calibrated direct-reading instrument, for the following conditions in this order:
 - i. Oxygen Content
 - ii. Flammable gases and vapors
 - iii. Potential toxic air contaminant

Oxygen must be tested first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere.

- c. Third, the atmosphere of a confined space which may be hazardous should be tested for residues of all contaminants identified by evaluation testing using equipment specifically designed to test that chemical or gas. The results of these tests and the time at which they were taken shall be placed on the entry permit.
- d. Finally, when an entrant will be descending into a confined space, testing shall be done every four feet in the direction of descent and to each side.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b continued

2. How to Test for Physical / General Hazards

To determine the physical and general hazards of a confined space, these techniques should be used:

- a. Noise – Before the work begins, most confined spaces are generally quiet. Depending on the work being performed in the confined space there could be a potential noise hazard. If a noise evaluation is necessary, a sound level meter could be used.
- b. Falling Objects – Barriers shall be used to protect the opening of a confined space. Even with barriers there is still a possible hazard of objects falling, especially if there is another entrant working above you. When possible, a barrier should be placed around an opening of a confined space to prevent objects from outside falling into the space. The area should also be surveyed and potential falling objects should be controlled within the space.
- c. Temperature Extremes – Using a thermometer, test the temperature in confined spaces that are either heated or cooled. The results of the air and surface temperatures in the confined space must be listed on the permit.
- d. Chemical Residuals – If the confined space had a corrosive or otherwise toxic chemical, the surfaces must be inspected and tested to ensure that it has been sufficiently purged of its hazardous substance. Litmus, pH paper, or other means should be used to test the residuals on the surfaces of the confined space to determine the extent of the hazard from contact with this residual chemical.
- e. Engulfment Hazards – The confined space must be visually inspected to determine if there are any materials present within the space, which could engulf entrants. Any substance contained within the space greater than four feet in depth constitutes an engulfment hazard. Also, the areas feeding the confined space must be blanked or blinded to prevent engulfment.
- f. Surfaces that are Wet or Slick – Visual inspection of the confined space is acceptable when checking for slick or wet surfaces. A large amount of water would increase the chance of a fall or slip. There is also an increased risk of electrical shock if tools, which require electricity, are being used in the confined space. Check the space for this hazard and use the appropriate control measures.
- g. Mechanical Hazards – Visually inspect the area to determine if there are any mechanical hazards present. Use lockout / tagout procedures.

Permit System

Before entry into a confined space, a permit must be issued. A permit serves as written authorization to enter the permit space. If welding, riveting, cutting, burning, or heating are to be done in the permit space, a Hot Work permit must be obtained as well as the entry permit. When work is complete in the permit space, the permit must be sent to the Supervisor.

Permit Procedures

1. All the procedures listed in the pre-entry procedures must be followed.
2. The entry Supervisor must check and sign the entry permit before entry into the space is allowed. Note that the Supervisor and the attendant can be one in the same.
3. The completed entry permit must be posted at all confined space entrances while work is being done in the permit space.
4. Only employees trained in confined space entry may enter the confined space.
5. All authorized entrants and attendants must read the actual permit and be aware of the potential hazards of the permit space and the personal protective equipment required.
6. If any changes in the permit space are detected during entry, entrants must exit immediately. The permit must then be cancelled, and the space evaluated to see why the change in atmosphere occurred.
7. If an atmospheric condition recognized as Immediately Dangerous to Life and Health (IDLH) is present in the permit space, no entry is allowed; except by trained rescue teams in the event of an emergency.
8. The written permits must be kept for a minimum of one year. These permits and the permit program must be reviewed annually, or when it seems necessary before the annual review date.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b continued

Employee Training

It is necessary to provide training to employees who work in confined spaces. This will ensure understanding of the skills and knowledge for the safe performance of the duties assigned to them.

Training

Training will be provided for each employee who has assigned duties in regard to confined space.

1. The training will establish employee proficiency in their specific duties and will introduce any new or revised procedures as necessary.
2. This training shall be done before the employee is first assigned duties to enter the confined space, and annually thereafter.
3. Training must be done before there is a change in assigned duties. The employee must be trained in the new duties to be performed.
4. Employees will be retrained whenever there is a change in permit space operations that presents a hazard, which has not been previously encountered.
5. Whenever there is a reason to believe that there are either deviations from the permit space procedures, or that there are inadequacies in the employee's knowledge or use of procedures, employees will be retrained.

Certification

1. When the training stated above has been completed, the employee will be certified to enter the confined space.
2. This record of certification will include the employee's name, signature and the initials of the trainer. The dates of trainings will also be included on the certification paper.
3. This certification will be available for inspection by employees and their authorized representatives.

Confined Space Entry Responsibilities

Entry Supervisor's Duties

Those who are permitted to authorize entry into a confined space or are in charge of entry will receive sufficient training so that they have the necessary knowledge, skills and abilities to perform the following duties:

1. The Entry Supervisor must know the hazards, including information of the mode of exposure, signs, or symptoms and consequences of exposure.
2. Before endorsing the permit, verification must be made by checking to see that all tests specified by the permit have been conducted as well as all procedures and equipment specified are in place.
3. If a new condition exists, or when entry operations are completed, the Supervisor cancels the permit.
4. The Entry Supervisor must take appropriate measures to remove unauthorized entrants.
5. It is the Entry Supervisor's responsibility to ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.
6. The regulation allows for more than one person to serve as Entry Supervisor. An example of this when the entry permit's stated duration exceeds one work shift. It is not necessary to repeat the permit authorization process when an Entry Supervisor is replaced, if there is continuous, direct responsibility for the entry with direct transfer from one Entry Supervisor to the next, and if the successor has the necessary training and performs the required duties.
7. The Entry Supervisor must verify that rescue services are available, and the means of contacting them are operable, (this is usually the telephone). It is recommended that the rescue services, usually the fire department, are informed of the entry taking place.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b continued

*Individuals allowed to be Entry Supervisors may also serve as authorized entrants or attendants for an entry if they have the proper training.

Attendant's Duties

1. The attendant must remain outside the permit space during entry operations unless relieved by another attendant. In addition, the attendant must always be in verbal / visual contact with entrant.
2. Perform non-entry rescues when specified by employer's rescue procedure.
3. Know the existing potential hazards, including information of the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects.
4. Maintain communication with and keep an accurate account of those workers entering the permit-required confined space.
5. Order evacuation of the permit space when any of the following conditions arise:
6. A prohibited condition exists when a worker shows signs of physiological effects of hazard exposure
 - a. An emergency outside of the confined space exists
 - b. Attendant cannot effectively and safely perform their required duties
7. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape the hazards of the space.
8. Ensure that unauthorized persons stay away from permit spaces or exit immediately if they have entered the permit space.
9. Inform authorized entrants and Entry Supervisor of entry by unauthorized persons.
 - a. Verbally warn unauthorized entrants that they must stay away from the permit space
 - b. Advise unauthorized persons that they must exit immediately if they have entered the permit space
 - c. Inform the authorized entrants and the Entry Supervisor if unauthorized persons have entered the permit space.
10. Perform no other duties that interfere with the attendant's primary duties.

Authorized Entrant's Duties

1. Be aware of the confined space hazards, including information on the type of exposure possible (e.g. inhalation or dermal [skin] absorption), signs or symptoms, and consequences of exposure.
2. Use the appropriate personal protective equipment properly such as face and eye protection, and other forms of barrier protection such as gloves, aprons, and coveralls as noted on the entry permit.
3. The entrant must maintain communication through voice, telephone, radio or visual observation, to enable the attendant to monitor the entrant's status as well as to alert the entrant to evacuate.
4. The entrant must alert the attendant when a prohibited condition exists or when warning signs or symptoms to exposure exist.
5. Entrants must exit the permit space as soon as possible when ordered by an authorized attendant or Supervisor, when the entrant recognizes that the warning signs or symptoms of exposure exist, when a prohibited condition exists, or when an automatic alarm is activated.

CHAPTER 16 – CONFINED SPACE PROGRAM

section b continued

Rescues / Emergencies

Rescue of Confined Space Entrants

If at any time there is any questionable action or non-movement by an authorized entrant, verbal check will be made. If there is no response, the worker will be removed immediately via the retrieval line. The exception to this would be if the entrant were disabled due to falling or impact. In this instance, the entrant should not be moved from the confined space unless there is immediate danger to his or her life. The onsite or offsite rescue team must be notified immediately. The attendant may not enter the confined space unless he or she has been trained in rescue and then only after another calling the rescue team and being relieved by another authorized attendant.

Onsite Rescue Services

Rescue services may be either onsite or offsite. If there will be an onsite rescue team, the rescue personnel must be provided with and trained in the proper use of personal protective and rescue equipment, including respirators. Rescuers must also be trained to perform the assigned rescue duties, as well as authorized entrants training. All rescuers need to be trained. At a minimum, one rescue team member must be currently certified in first aid and in CPR.

Practice rescue services are to be performed once every twelve months. This simulated rescue should include the removal of dummies, mannequins or actual persons from the actual permit spaces, or from representative permit spaces with respect to opening size, configuration, and accessibility, to simulate the types of permit spaces which rescue is to be performed. Notification of the hazards of the permit space must also be supplied to the rescue team.

OSHA states that rescue personnel perform their rescues from outside the permit space whenever possible, so that the rescuers are not exposed to the permit space hazards.

Offsite Rescue Services

Offsite rescue services must be made aware of the hazards and receive access to comparable permit spaces to develop rescue plans and practice rescues. Hospitals or treatment facilities must have a Safety Data Sheet (SDS), or other similar written information for substances, which injured entrants, are exposed.

Rescue Retrieval Lines

Where appropriate, authorized entrants who enter a permit space must wear a chest or full body harness with a retrieval line attached to the center of their backs near shoulder level, or above their heads. Wristlets may be used if the employer can demonstrate that the use of a chest or full body harness is not feasible or creates a greater hazard. Also, the employer must ensure that the other end of the retrieval line is attached to a mechanical device or to a fixed point outside the permit space. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than five feet deep.

Duty to Contractors / Employers

Employer Responsibilities

If Abbott Construction decides to hire contract employees to perform duties in a permit required confined space, we shall inform the contractor that the workplace contains a confined space and that entry into this space is allowed only through compliance with a permit space program. The contractor must be given any available information concerning permit space hazards and entry operations. (e.g. SDS's and physical information about the space)

Entry by More than One Group

The host employer must coordinate any entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space and be aware of the permit space program the contractors are using. After entry is complete, the host employer must debrief the contractor about the entry operations and any hazards confronted or created in permit spaces during entry operations.

CHAPTER 16 – CONFINED SPACE PROGRAM

section d

CONFINED SPACE LOCATIONS MAP

Job Name: _____ Job #: _____

Insert locations of confined space
specific to the jobsite

CHAPTER 16 – CONFINED SPACE PROGRAM

section g

CONFINED SPACE ENTRY SAFETY PLAN

Location & Description:	Dates	
	From:	To:

Supervisor:	Times	
	From:	To:

Work to be Done:

Pre Entry Testing

O2 _____ LEL _____ H2S _____ CO _____

I have investigated for the following conditions:

<input type="checkbox"/> Adequate Ventilation	<input type="checkbox"/> No Reactive or Corrosive Residues
<input type="checkbox"/> No Hazardous Chemicals Present	<input type="checkbox"/> No Electrical Hazards
<input type="checkbox"/> No Mechanical Hazards	<input type="checkbox"/> No Fumes from Welding, Burning or Grinding
<input type="checkbox"/> No Fire Hazards	<input type="checkbox"/> No Carbon Monoxide from Space Heaters, Generators or other Equipment
<input type="checkbox"/> No Toxic Fumes, Gases or Vapors	<input type="checkbox"/> No Nearby Hazardous Operations
<input type="checkbox"/> No Heat or Cold Extremes	<input type="checkbox"/> Adequate Lighting
<input type="checkbox"/> No Decaying Material	

Additional Comments:

I have reviewed the above work area and have determined the space to be free of any recognized hazards, which would define this space, as a permit required confined space. The work will proceed under my supervision

Supervisor Signature

Date

Names of authorized workers entering the Confined Space:

If any hazard is found in the confined space, proceed to using the Permit Required Program



CHAPTER 16 – CONFINED SPACE PROGRAM

section h

PERMIT REQUIRED CONFINED SPACE ENTRY SAFETY PLAN

Location & Description:	Dates	
	From:	To:

Supervisor:	Times	
	From:	To:

Work to be Done:

Pre-Entry Testing

Monitoring Equipment Used: _____ Calibration Date: _____
O2 _____ LEL _____ H2S _____ CO _____

The following precautions as checked are Required (add to list as needed):

- | | |
|---|--|
| <input type="checkbox"/> Continuous Ventilation | <input type="checkbox"/> Self-Rescue Equipment |
| <input type="checkbox"/> Confined Space Monitor | <input type="checkbox"/> Special Personal Protective Equipment |
| <input type="checkbox"/> Lifeline Retrieval System | <input type="checkbox"/> Electrical Hazard Protection |
| <input type="checkbox"/> Radio, Visual or Voice Communication | <input type="checkbox"/> Specific Training |
| <input type="checkbox"/> Lock Out / Tag Out Procedures | <input type="checkbox"/> Signs and Warnings Posted |
| <input type="checkbox"/> Fire Protection / Precautions | <input type="checkbox"/> Entry / Exit Log |
| <input type="checkbox"/> Hot Work Permit | <input type="checkbox"/> Additional Monitoring or Testing |

Additional Comments:

I have reviewed the above work area and have determined all precaution necessary to keep the employees protected from any recognized hazards have been provided. The work will proceed under my supervision.

Supervisor Signature

Date

CONFINED SPACE WARNING SIGN



PERMIT REQUIRED CONFINED SPACE WARNING SIGN



CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section a

ASEBESTOS POLICY & PROCEDURE

Policy

It is the policy of Abbott Construction to comply with applicable Federal, State and local laws and regulations regarding asbestos at each of our construction sites. This policy establishes general guidelines for our Construction Managers, site Superintendents and our Subcontractors to perform in compliance with regulations issued by the Occupational Safety and Health Administration (OSHA), OSHA State Plan States, the Environmental Protection Agency (EPA).

Reason for Policy / Purpose

Asbestos was incorporated into several widely used building construction products beginning in the late 1800s. The most common uses in buildings were in floor tiles and mastic glue, thermal insulation, acoustical decorative plaster, ceiling tiles, structural steel fireproofing, and drywall joint compound. Asbestos Containing Materials (ACMs) may not present any health hazards while intact. Disturbance of ACMs, however, may release fibers that may become airborne and be inhaled, thus potentially presenting health hazards. Although most products containing asbestos were removed from the market by the mid-1980s, many buildings built before the 1980's are assumed to contain ACM until examined and determined otherwise by a certified testing laboratory.

Suspected Asbestos Hazards

Abbott Construction employees who observe or suspect the presence of ACM in a building or facility should not disturb the material and should report the suspected ACM to the site Superintendent immediately. The site Superintendent and Construction Manager will coordinate an inspection of the suspected material and coordinate any necessary action with the building Owner.

Abbott Construction does not remove, abate, store, transport or in any manner expose any Abbott Construction workers or our Subcontractor's employees to the potential hazards from exposure to ACM.

Before undertaking any projects of repair, renovation, or construction that may impact ACM, the Project Manager is responsible for arranging for a survey through the building Owner to determine if ACM is present in the planned work area. This can be done by contacting the Project Manager. The Project Manager, or his or her designee, is responsible for informing all Contractors and Subcontractors of the location of suspected and known ACM. All Contractors are responsible for providing to their employees the appropriate amount of asbestos-awareness training required by OSHA or OSHA State Plan Regulation if any suspect material is encountered.

Subcontractors will immediately stop work and notify the Abbott Construction site Superintendent in the event ACM is discovered or suspected. All necessary precautions should be taken to minimize exposure to asbestos fibers or contamination. ACM can only be contained, removed or cleaned up by a Contractor that is licensed and insured to do this work. ACM must be disposed of in a secure landfill in a manner consistent with applicable State, Local and Federal regulations.

For Abbott Construction employees to work safe and be free of any exposure to ACM in their work area where Asbestos is known to be present or has the potential to be present, we must first train both Abbott Construction workers and our Subcontractor workers on the following:

- The hazards of Asbestos
- What types of Building Products may Contain Asbestos
- The History of ACM in this Workplace
- Where Asbestos is known to exist in the Workplace
- How to report any Suspected ACM

As part of the Site Specific Safety Plan, the project team of Project Manager, Project Engineer and the Superintendent must coordinate the materials to provide Asbestos Awareness Training for the project.

Materials Needed for Training:

- Copy of the building Owners Good Faith Survey
- A list of the potential building products that contain Asbestos
- A list of the known locations of ACM
- A copy of the provided worker Training Program for Asbestos Awareness
- An attendance sheet to document the training which will be maintained in the Site Specific Safety Manual

The Training Program for Asbestos Awareness is located on the CD accompanying this manual as well as on the network at the following path: <G:\Safety Information\Safety Training - APP Related\Asbestos Awareness>

CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section c

ENVIRONMENTAL TOBACCO SMOKE POLICY

Current health information concerning second hand smoke, and our company commitment to providing a healthy, safe, workplace for all employees require the following policies:

1. There is to be no smoking in any office, jobsite trailer, vehicle, hallway, restroom, stairwell, portable toilet, area of finished construction or any common work area.
2. Designated smoking areas will be provided outside the building, if needed. Safe receptacles for cigarette wastes must be used.
3. Smoking on construction sites is not allowed in areas where gasoline is stored or in use, in completed areas of construction, in areas posted no smoking or in material storage areas.
4. Subcontractor employees are to follow same requirements.

CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section d

LEAD POLICY

Lead has been poisoning construction workers for many years. Traditionally in the plumbing, welding and painting trades. In building construction, lead is frequently used for roofs, cornices, tank linings and electrical conduits. In plumbing, soft solder has been an alloy of tin and lead which has been banned from many uses. Lead containing paint in residential applications has been banned. However, lead containing paint inhibits rust formation and is still used on bridges, railways, ships and lighthouses. Significant lead exposures can result from the removal of paint from surfaces previously coated with lead containing paints. This can occur during bridge repair, residential renovation and demolition.

Operations that generate lead dust and fume include the following:

- Flame torch cutting, welding and grinding of lead painted surfaces
- Abrasive blasting of lead painted surfaces
- Using torches, heat guns and sanding during removal of lead-based paint
- Reconstruction, dismantling and demolition work where lead is involved

Lead is absorbed into the body by inhalation (breathing) and ingestion (eating). Even the very small amounts of lead that may be ingested by eating, smoking and drinking on a lead exposure job can be harmful.

Lead exposure is serious. It can affect the brain leading to seizures, coma and death. Lead poisoning can occur with exposures to small amounts of lead over long periods of time or from high concentrations during a short period of time. Lead is a cumulative poison and stays in the bones for decades. It begins as flu-like illness but can eventually lead to damage to the blood, kidneys, bones, heart and reproductive organs.

Potential exposure to lead is limited for our employees due to the nature of work we do. However, we do engage in the remodel, renovation and demolition of some structures prior to reconstruction. Because of the seriousness of employee lead exposure, the following policies have been adopted.

1. Owners of demolition or renovation projects built before 1980 shall be required to have a "good faith survey" for both lead and asbestos prior work beginning on the jobsite. The Owner will be held liable for all lead substances at the site and must contract for and assure the removal of all lead products prior to work beginning on site.
2. Abbott Construction does not perform any lead abatement work and do not work with any materials containing non-encapsulated lead. SDS will be reviewed and strictly followed.
3. Workers shall review lead hazards and policy in a safety meeting at least annually.
4. If suspected lead is found during the demolition project following a negative "good faith survey" work will be stopped in that area until it can be evaluated.
5. Any incident of accidental employee exposure to lead shall be followed up using the guidance of an industrial hygienist.

CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section e

MOLD POLICY

Where there is evidence that water, from any source, has come into contact with any organic or cellulose-based product or material, there is a likelihood of mold or mildew growth occurring. Because some molds are toxic, it is imperative that precautions be taken when mold or mildew growth is discovered. In health care facilities, more stringent precautions will be required, and work cannot start without the approval of the facility's Infectious Control Officer. In all other cases, it is mandatory that the following procedures be followed:

1. Where there is reason to suspect that water, past or present, has come into contact with any organic based material, proceed with caution and be alert for any signs of mold or mildew growth.
2. If you find mold or mildew growth, immediately stop work, clear the area where spores may be present, and prevent people from entering.
3. Immediately notify the site Superintendent, who will notify the Project Manager. The Project Manager and the Owner will arrange for testing and any necessary abatement.
4. Work is to remain stopped in the infected area and in any similar areas where there is reason to believe the same conditions may exist, until experts determine if there is a hazard and prepare a safe work plan by which to proceed.

When new water intrusion occurs, it is important that every effort be made to completely dry all wet areas immediately. Mold growth can begin within 48 hours of materials getting wet. Where it is not possible to assure that materials have been dried this quickly, carefully inspect for mold growth on a regular basis. Do not cover until you have demonstrated and documented that the leak is stopped, the water source is corrected, and that drying is absolutely complete. If there is any question as to whether mold growth may have occurred, contact the Project Manager.

CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section f

CONCRETE DUST AND SILICA

Many construction workers are exposed to concrete (silica) dust in their work. Long term exposure can result in silicosis, a lung disease that scars healthy lung tissue. Early stages of silicosis are marked by a dry cough and shortness of breath. Advance silicosis may cause death due to the inability to breathe or of heart failure from the added strain of poorly functioning lungs.

Silica dust is found in varying amounts in concrete products, sand, gravel, and mortar. Working with the dry ingredients (concrete or mortar powder) or using power equipment (grinders, sandblasting or sanders) on these materials can release clouds of dust containing silica. Silica dust is very fine and may not be visible, so the worker needs to be constantly aware of what they are doing and the potential for exposure. Infrequent exposure to concrete dust is of little concern but working regularly with a concrete grinder can place a worker at high risk.

Employees, including subcontractor employees, who work in proximity to silica-related operations must be aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

Types of Work with High Potential for Silica Hazard

The following are some examples of types of work that may emit airborne silica. This is not a comprehensive list, and anything involving the possibility of silica emission should follow the safety procedures written in this policy.

1. Use of stationary masonry saws used to cut concrete, tile, concrete masonry block, sheet rock, gypsum fiber roof board, or any other product containing quartz
2. Handheld power saws used to cut concrete, asphalt, concrete masonry block, sheetrock, gypsum fiber roof board, or any other product containing quartz
3. Walk-behind saws used to cut concrete or asphalt
4. Rig-mounted or free-standing core saws or drills (including impact and rotary hammer drills) used to penetrate concrete, concrete masonry block, sheetrock, gypsum fiber roof board, or any other structural component or product containing quartz
5. Jackhammers and handheld powered hipping tools used to demolish or modify concrete, concrete masonry block, or any other structural component or product containing quartz
6. Vehicle mounted hammers or chipping tools used to demolish concrete, concrete masonry block, or any other structural component or product containing quartz
7. Handheld grinders or cut-off wheels used for mortar removal or cutting / grinding of concrete, concrete masonry block, sheetrock, gypsum fiber roof board, or any other structural component or product containing quartz
8. Walk-behind milling machines or bead blasters used for surfacing activities on concrete, concrete masonry block, asphalt, or any other product containing quartz
9. Installation or demolition of sheetrock, including mudding, taping, texturizing activities with quartz containing materials
10. Hand or power tool sanding of painted surfaces. Current latex paint products contain quartz and the painted substrate (sheetrock, concrete masonry block, concrete) contains quartz
11. Drivable asphalt milling machines use dot mill asphalt roadways or walkways
12. Ball mills or crushing equipment used to size products containing quartz
13. All housekeeping operations associated with the activities described above.

Competent Person Requirements

A competent person shall be identified on jobsites to inspect and oversee all activities with potential airborne silica exposure. Subcontractors working on project within the scope of this program shall appoint a competent person as well. The competent person must have training in the inspection of the work areas and equipment and in the determination of safe working conditions. They shall have working knowledge of OSHA and OSHA State Plan regulations regarding silica exposure and shall be capable of the following:

- Identifying airborne silica hazards
- Determining the need for initial and additional exposure monitoring
- Recommending and implementing engineering and work practice controls
- Establishing levels of Personal Protective Equipment
- Having the authority to take action to eliminate hazards and correct incidences of noncompliance

CHAPTER 17 – ENVIRONMENTAL HAZARD PROTECTION

section f continued

Planning Activities

Exposure Assessment

Working with the site Superintendent, the Competent Person must determine if an exposure assessment is required for the activities that will take place onsite per OSHA and OSHA State Plan Regulations.

- An exposure assessment is required when employees may be exposed to airborne silica at or above the action level to determine the extent to which employees are exposed and the appropriate exposure controls required.
- An initial determination of exposure shall be made at the beginning of operations. The determination shall consist of the collection of personal air samples representative of a full shift including at least one sample for each job classification in each work area, either for each shift, or for the shift with the highest exposure level.
- During the initial determination, until such time that actual airborne concentrations are determined, personnel shall be protected by respiratory protection based on task-specific anticipated airborne concentrations of silica.
- During the initial determination, and in addition to the levels of respiratory protection required, personnel shall be provided with protective clothing and equipment, hygiene facilities, and training.
- Whenever a change in equipment, process, controls, or personnel occurs, or a new task has been initiated, an additional exposure assessment is required.
- When an assessment determines that exposure has occurred above the action level but below the Permissible Exposure Limit (PEL), additional monitoring shall be required at least every 6 months. Additional monitoring shall continue until such time that the monitoring results fall below the action level on two separate occasions at least 7 days apart.
- When monitoring yields results above the PEL, then quarterly monitoring is required. In addition, the quarterly monitoring may be suspended when additional monitoring results fall below the action level on two separate occasions at least 7 days apart.
- Where the competent person can clearly demonstrate, in the absence of air monitoring data, that a work activity will not create airborne silica concentrations in excess of the action level, then air monitoring may be unwarranted. Where a negative initial determination is reached without air monitoring, the competent person must develop a written explanation as to why exposures are not expected to exceed the action level.

Personal Protective Equipment

Respiratory protection must be used for the following conditions, following the guidelines set forth in Abbott Construction's Respirator Policy:

1. During periods when employee exposure to airborne silica exceeds the PEL
2. For work operations where engineering and work-practice controls are not sufficient to reduce employee exposure to or below the PEL
3. During periods when an employee requests a respirator
4. During periods when respirators are required to provide interim protection while conducting initial exposure assessments
5. Powered air-purifying respirators (PAPR) shall be provided to employees who request such a respirator to use where it will provide adequate protection
6. Employees shall be provided, at no cost, protective clothing and equipment including cotton overalls or similar full-body clothing, gloves, hats, shoes or disposable shoe coverlets, face shields, vented goggles, or other appropriate PPE.

Training & Communication

1. The site Superintendent, along with the designated competent person, will be responsible to generate a Job Hazard Analysis (JHA) for any work that has the potential to generate airborne silica
2. All employees are to be trained, with training documented, on that JHA to ensure the health hazards that are applicable as well as the measures being taken to protect the employees
3. All owners, contractors and other personnel working in the area shall be made aware and trained appropriately

General Silica Safety Guidelines

1. Maintain all surfaces as free as possible from accumulations of silica. Select methods for cleaning surfaces and floors that minimize the likelihood of silica becoming airborne (such as using a HEPA vacuum)
2. Never use compressed air to remove silica from any surface unless it is used in conjunction with a ventilation system designed to capture the airborne dust created while using the compressed air
3. Employees shall not eat, drink, smoke, chew tobacco or gum or apply cosmetics in any areas where exposure to silica is above the PEL
4. Provide an adequate supply of cleaning agents and clean towels in regulated areas

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section a

COMPANY VEHICLE SAFETY PROGRAM

As part of their day-to-day responsibilities, many employees operate company-owned, leased, rented, or personal vehicles. Employees who operate said vehicles are expected to operate them safely in order to prevent accidents that may result in injuries, and / or property loss. It is the policy of Abbott Construction to provide and maintain a safe working environment to protect our employees and the citizens of the communities where we conduct business. Abbott Construction is committed to promoting a heightened level of safety awareness and responsible driving behavior when it comes to vehicles that are operated for company business. The company vehicle program requires the full cooperation of each driver to operate their vehicle safely and to adhere to the responsibilities outlined in the company vehicle safety program while obeying all Federal, State, and Local laws applying to the operation of motor vehicles.

Vehicle Use

Company Owned or Leased Vehicles

Only employees authorized by the company will be permitted to operate a company owned or leased vehicle. The following criteria will be utilized in selecting authorized drivers for company owned or leased vehicles. Employees who will be authorized to operate a company owned or leased vehicle must abide by the following:

1. Must be 21 years of age or older
2. Maintain a current State Driver's License
3. Submit authorization to the company to run a Motor Vehicle Records check upon initiation of request for authorized driver status and on an annual basis thereafter, unless deemed necessary to be more frequent

Personal Vehicles on Company Business

Employees who drive their personal vehicles on company business are also subject to the requirements of this program and are expected to maintain their own vehicle in a safe operating condition when driving on company business.

Employees who drive their own personal vehicles on company business will maintain and / or submit to the following:

1. Must be 21 years of age or older
2. Maintain a current State Driver's License
3. Maintain and provide proof of personal auto liability insurance
 - a. Insurance must provide a minimum limit of \$300,000 for bodily injury and \$300,000 for property damage with a combined single limit of \$300,000
4. Maintain and provide proof of State Registration for the vehicle
5. Submit authorization to the company to run a Motor Vehicle Records check upon initiation of request for authorized driver status and on an annual basis thereafter, unless deemed necessary to be more frequent

Rental Vehicles

Under certain circumstances, vehicles may be rented for business related travel. In these instances, while renting a vehicle for business purposes, all requirements of this vehicle safety program shall apply. Vehicles shall be rented via an approved rental agency and optional insurance coverage offered by the rental car company shall be declined. Employees who rent vehicles for business related travel will maintain and / or submit to the following:

1. Must be 26 years of age or older
2. Maintain a current State Driver's License
3. Submit authorization to the company to run a Motor Vehicle Records check at the discretion of the company on an as needed basis

Personal Use

Personal use of company owned, or leased vehicles is strictly prohibited. Vehicles shall be used for going to and from work and during work hours on company business only. No spouse or family member is authorized to utilize company owned or leased vehicles at any time. Personal use of company owned, or leased vehicles may only be admitted in the event of an emergency where life is at risk.

Unauthorized Use of Company Owned or Leased Vehicles

Employees who are authorized to operate a company owned or leased vehicle shall not allow an unauthorized individual to operate said vehicle. Disciplinary action up to and including termination may be taken for being in violation of this policy. Additionally, if unauthorized use results in incident, the responsible employee will be required to make restitution for the damages.

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section a continued

Driver Selection

Abbott Construction will utilize results from the individuals' motor vehicle record along with the table below to determine eligibility to operate a company owned or leased vehicle and may utilize them to determine eligibility to operate personal vehicles for company business and / or rental cars on company business. Motor vehicle records utilized to determine eligibility will be confidential and will remain in the employees' personnel file. Eligibility will be determined based upon the amount of accidents, minor infractions and major infractions within the last three years of driving. As indicated on the chart below, applicants will be placed into one of four classifications regarding their last three years of driving history. The four classifications are as follows:

Clear or Acceptable

A classification of "Clear" or "Acceptable" will indicate that the employee is authorized to operate company owned or leased vehicles.

Borderline

A classification of "Borderline" will indicate that the employee will be authorized to drive a company owned or leased vehicle after retaking the certified defensive driving program and their motor vehicle record will be monitored on a more frequent basis.

Prohibited

A classification of "Prohibited" will indicate that the employee cannot be authorized at this time to drive a company owned or leased vehicle or a personal vehicle for work purposes (pending management discretion). Should an employee fall into the "Prohibited" status, the employee will need to work with the corresponding State / Government agency to remove violations from the record. The employee will not be authorized until the driving record qualifies for "Borderline" status.

Number of Moving Violations Within Past Three Years	Number of Accidents Within Past Three Years				Number of Major Violations Within Past Three Years	
	0	1	2	3		1 or More
	0	Clear	Acceptable	Borderline		Prohibited
1	Acceptable	Acceptable	Borderline	Prohibited	Prohibited	
2	Acceptable	Borderline	Prohibited	Prohibited	Prohibited	
3	Borderline	Prohibited	Prohibited	Prohibited	Prohibited	
4	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	

Minor (Moving) Violations

The following examples include, but are not limited to, examples of minor or moving violations:

- Speeding
- U-Turn
- Motor vehicle equipment, load or size requirement
- Improper / failure to display license plates
- Failure to sign or display registration
- Failure to have driver's license in possession
- Any other violation other than major
- Distracted driving

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section a continued

Major Violations

The following examples include, but are not limited to, examples of major violations:

- Driving Under the Influence (DUI)
- Driving While Impaired (DWI)
- Failure to stop / report an accident
- Reckless driving / speed contest
- Making a false accident report
- Homicide, manslaughter, or assault arising from the use of a vehicle
- Careless driving
- Attempting to elude a police officer
- Deferred prosecution

Company Vehicle Policy & Safe Driving Rules

Company Vehicle Policy

- All company owned, or leased vehicles are assigned a Company Vehicle Handbook. The assigned handbook will contain any tools that are necessary to complete the required inspections of vehicles as well as a method of payment for all repairs, roadside assistance charges, and fuel purchase. Authorized drivers are responsible for the contents of their vehicle's handbook and to immediately report any deficiencies thereof to the program manager
- All company owned, or leased vehicles must have current Safety Data Sheets (SDS) for any and all chemicals being transported. Authorized drivers are responsible for updating and maintaining the SDS section of their vehicle's handbook
- All company owned, or leased vehicles are to be inspected on a weekly basis by their authorized driver using the Weekly Vehicle Inspection Log located in their vehicle's handbook. Inspection logs are to be submitted to the program manager on a monthly basis for each vehicle
- Authorized drivers are responsible for the ongoing and needed maintenance of their assigned vehicle. Factory recommended vehicle maintenance schedules are to be followed and needed repairs are to be initiated immediately upon discover. All repair purchases are to be funded by the fleet program credit card located in the vehicle's company vehicle handbook
- All company vehicles shall be equipped with the following safety items which are to be inspected and maintained by the vehicle's authorized driver:
 - First Aid Kit
 - Fire Extinguisher
 - Vehicle Safety Kit
 - Litter Receptacle, per applicable State Law
- An authorized driver who is involved in a work-related vehicle accident, regardless of fault, may need to become re-authorized to drive a company vehicle. In order to do so, the driver may be asked to complete and approved defensive driving course prior to being re-authorized to operate any company vehicle after the accident
- All company vehicles are to be in a secure state prior to being left unattended. The authorized driver is to ensure the following prior to leaving a company vehicle unattended:
 - Motor is off
 - Parking brake has been set
 - Wheels are turned into the curb if parked on an incline
 - Vehicle is locked, and alarm is armed if applicable

Safe Driving Rules

Abbott Construction has adopted some key driver safety rules that all employees are expected to comply with when operating a company owned, or leased vehicle. All applicable State law supersedes Abbott Policy for safe driving rules.

Seat Belts

- The driver and all occupants are required to wear seat belts when the vehicle is in operation or while riding in a vehicle
- The driver is responsible for ensuring that all passengers are wearing their seat belts

Impaired Driving

- The driver must not operate a vehicle at ANY TIME when he or she's ability to do so is impaired, affected, influenced by alcohol, recreational drugs, illegal drugs, prescribed or over-the-counter medications, illness, fatigue or injury

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section a continued

Traffic Laws

- Drivers must abide by all Federal, State, and Local motor vehicle regulations, laws and ordinances
- Employees will be financially responsible for any fees resulting from violation of any traffic laws

Vehicle Condition

- Drivers are responsible for ensuring the vehicle is maintained in a safe driving condition

Distracted Driving

- The use of handheld gadgets such as phones, tablets, laptop computers and gaming devices while driving is strictly prohibited
- Cell phones are permitted for use only if mounted in a dashboard cradle and enabled to be operated via Bluetooth

Smoking

- Smoking in a company owned, or leased vehicle is strictly prohibited

Aggressive Driving

- Aggressive driving includes speeding, tailgating, failure to signal a lane change, running red lights and stop signs, weaving in traffic, yelling, making obscene gestures and excessive use of the horn and will not be tolerated. These behaviors can escalate to road rage, which can increase the frequency and severity of auto incidents

General Safety Rules

- Employees are not permitted to:
 - Pickup hitchhikers
 - Accept payment for carrying passengers or materials
 - Use any radar detector, laser detector or similar devices
 - Push or pull another vehicle or tow a trailer (without prior approval)
 - Transport flammable liquids or gases

Unstable / Unsecure Loads

- Company vehicles are not to be operated with an unstable or unsecure load under any circumstance. Authorized driver is responsible to ensure that the vehicle's load is stable and secure, regardless of who loaded the vehicle. Authorized driver is responsible to be aware of and adhere to the vehicles weight and load limitations at all times.

Company Flex Car Procedure

Purpose & Authorized Use

The intention of the Flex Car is to promote the use of mass transit and minimize the cost of employee transportation costs. The flex car may be operated by authorized company drivers for the following purposes:

- Client Meetings
- Business Related Appointments
- Jobsite Visits
- Out of State employees in lieu of rental car

Process

The flex car use and availability is managed by a shared company calendar in outlook. To utilize the flex car, the user must take the following steps:

- a. Create (or request a creation via reception) a reservation in the shared calendar for your trip. Indicate start and end times appropriately as well as the purpose of your travel in the subject line
- b. Upon arrival of your reservation, check out the keys from the reception desk and log your excursion in the Flex Car Check Out section of the trip log
- c. Upon return from your excursion, note the number of miles traveled and inspect the interior of the vehicle removing any debris
- d. Complete the Flex Car Check In section of the trip log and turn the keys in to reception

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section a continued

User Responsibilities & General Rules

- a. All rules and regulations set forth in the Company Vehicle Policy are to be adhered to at all times while operating the flex car
- b. It is the sole responsibility for the authorized driver utilizing the flex car to maintain the following items for every trip:
 - i. Follow all policies within the company vehicle policy while operating the flex car
 - ii. Follow the proper reservation / check out procedure
 - iii. Complete the trip log, in its entirety, for every trip
 - iv. Maintain the interior and exterior cleanliness of the vehicle
 - v. Car washes will be reimbursed by Abbott Construction, see trip log for cost code
 - vi. Secure the vehicle properly when left unattended using the door locks and alarm
 - vii. Leave the vehicle with no less than ¼ tank of gas
- c. No smoking is allowed inside the flex car
- d. Fuel for personal trips will be reimbursed to Abbott by the employee via an A/R deduction at the current stated rate per mile
- e. Business related trips must be cost coded
- f. In the event the user will be returning the flex car later than anticipated, it is required that the user call the office to inform them of the late return

Vehicle Accident Investigation Policy & Procedure

Accidents involving a motor vehicle on company time are considered to be work related and must be reported and investigated as such. Any work related accident must be reported to the involved driver's direct Supervisor immediately upon safely securing the scene. Once safety permits, the accident must be investigated using the guidelines in this Company Vehicle Safety Program including, but not limited to, witness statements, diagrams of accident, photos of accident, etc.

Authorized drivers are to engage in the following in the event of a work related motor vehicle accident:

1. Stop your vehicle immediately and evaluate your condition as well as the condition of the scene of the accident and notify police. If the safety of you or others is in jeopardy, move your vehicle to a safe location.
2. Determine if there are injuries or safety concerns that will require the attention of authorities. If life or health is threatened in any way, to any party, immediately call 911 for help.
3. Once determination has been made that the scene is secure, notify your direct Supervisor of the situation
4. Using the accident investigation kit in your vehicle, complete the following:
 - a. Accident Report Form
 - b. Obtain witness statement(s) from any and all witnesses at the scene
 - c. Exchange insurance and vehicle information with all parties involved
 - d. Complete a diagram of the accident
 - e. Take photos of the accident

During the accident investigation process, employees of Abbott Construction are not to make a statement of any kind or discuss the accident with anyone other than the police officer present at the scene or the Company

5. Submit all documentation related to the accident, including diagrams and photos to your immediate Supervisor and the HR Department as soon as safety and health permits
6. Your safety, as well as the safety of others takes priority in the event of a motor vehicle accident. Take any precautions deemed necessary to protect the safety of yourself and others involved.

CHAPTER 18 – COMPANY VEHICLE PROGRAM

section b

WEEKLY VEHICLE INSPECTION LOG

Vehicle ID #: _____

Week Of: _____

Week Of: _____

Week Of: _____

Week Of: _____

Exterior Inspection	✓ / *	Notes	✓ / *	Notes	✓ / *	Notes	✓ / *	Notes
Tail Lights								
Brake Lights								
License Plate Light								
Windshield								
Windshield Wipers								
Headlights								
Turn Signals								
Tire Pressure & Tread								
Exterior Clean – dents, etc.								
Oil Change / Maintenance Due?								
Backup Alarm / Camera If Applicable								
Interior Inspection								
Horn								
Seat Belts								
First Aid Kit								
Fire Extinguisher – check monthly								
Safety Kit (batteries are good?)								
Insurance Card & Registration								
Litter Receptacle								
SDS Up to Date								
Voyager Card								
Interior Clean								

Inspected By: _____

✓=ok * =repair needed

Any item needing repair is to be reported and repaired immediately



CHAPTER 19 – CRANE SAFETY

section a

CRANE SAFETY POLICY

Abbott Construction's current policy is that we do not own or operate any Crane or Crane Standard Covered Equipment. As the Controlling Contractor it is important that project management be familiar with the regulations that provide for the safety of all workers on site during the erection, use and dismantling of this equipment. This section is to be used on our projects as an overview of those regulations. This section offers information to our project management to address with our subcontractors the requirements for safe crane use and information to be used in our process to discover hazards in the workplace. Be certain to supplement this section with knowledge of the regulations provided by OSHA and OSHA State Plan Regulations.

Employer Responsibilities

Employers who operate cranes on a construction site are responsible for complying with all aspects of the standard, but other employers whose personnel work at the site have responsibilities as well. These employer duties are consistent with OSHA's and OSHA State Plan multi-employer policy, which recognizes that the Regulations imposes compliance duties on (1) employers who create or control hazards, (2) employers whose employees are exposed to hazards, and (3) employers with general supervisory authority over a worksite.

Regulations

Washington State: Chapter 296-155 WAC Construction Work Part L-Cranes, Rigging, and Personnel Lifting

Oregon: OR/OSHA SUBDIVISION CC, Cranes and Derricks In Construction

California: CAL/OSHA General Industry Safety Orders Group 13 –Cranes and Other Hoisting Equipment

Federal OSHA: Cranes and Derricks in Construction 1926-1400 Sub Part CC

Codes used as a reference in this policy are from Federal OSHA Standards for General Industry and Construction.

The following applies to all construction operations. Exceptions would include any conflict with OSHA or OSHA State Plan Regulations. The OSHA or OSHA State Plan Rules would have priority over this policy.

COVERED EQUIPMENT

The rule applies to power-operated equipment used in construction work that can hoist, lower and horizontally move a suspended load, unless such equipment is specifically excluded from coverage.

The types of cranes and derricks that are most commonly used in construction are covered, including:

- Mobile cranes, including crawler mounted, wheel-mounted, rough terrain, all-terrain, commercial truck-mounted, and boom truck cranes.
- Tower cranes, including those with a fixed jib (i.e., "hammerhead boom") those with a luffing boom and self-erecting tower cranes.
- Articulating cranes, such as knuckle-boom cranes. (See below for rules that apply when such cranes are used to deliver material to a construction site).
- All derricks, except for gin poles used for the erection of communication towers. (Note that, despite their name, "digger derricks" are not "derricks" under the standard. As noted below, the standard applies to "digger derricks" unless they are used for certain work).

The rule also applies to the following more specialized types of equipment when used in construction:

- Floating cranes
- Cranes on barges
- Locomotive cranes
- Multi-purpose machines when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load
- Industrial cranes (such as carry-deck cranes)
- Dedicated pile drivers
- Service/mechanic trucks with a hoisting device
- Monorail mounted cranes
- Pedestal cranes
- Portal cranes

CHAPTER 19 – CRANE SAFETY

section a continued

- Overhead and gantry cranes (except that such cranes that are permanently installed in a facility are subject to OSHA's general industry standard, 29 CFR 1910.179, even when used for construction work.)
- Straddle cranes
- Side boom cranes
- Digger derricks (except when used for auguring holes for poles carrying electric and telecommunication lines, placing and removing the poles, and for handling associated materials to be installed on or removed from the poles)

ATTACHMENTS

Equipment that is covered under the standard continues to be covered when used with crane-attached or crane-suspended attachments. Such attachments include, but are not limited to: hooks, magnets, grapples, clamshell buckets, orange peel buckets, concrete buckets, drag lines, personnel platforms, augurs or drills, and pile driving equipment.

EXCLUDED EQUIPMENT

The following types of equipment are specifically excluded from coverage:

- Equipment that would otherwise be covered while it has been converted or adapted for a non-hoisting/lifting use. Such conversions/adaptations include, but are not limited to, power shovels, excavators, and concrete pumps.
- Power shovels, excavators, wheel loaders, backhoes, loader backhoes, and track loaders. This machinery is also excluded when used with chains, slings, or other rigging to lift suspended loads.
- Automotive wreckers and tow trucks when used to clear wrecks and haul vehicles.
- Digger derricks when used for auguring holes for poles carrying electric and telecommunication lines, placing and removing the poles, and for handling associated materials to be installed on or removed from the poles. Digger derricks used in such pole work must comply with either 29 CFR 1910.269 (electric lines) or 29 CFR 1910.268 (telecommunication lines).
- Machinery originally designed as vehicle-mounted aerial devices (for lifting personnel) and self-propelled elevating work platforms.
- Telescopic/hydraulic gantry systems.
- Stacker cranes.
- Powered industrial trucks (forklifts), except when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load.
- Mechanic's truck with a hoisting device when used in activities related to equipment maintenance and repair.
- Machinery that hoists by using a come-a-long or chainfall.
- Dedicated drilling rigs.
- Gin poles when used for the erection of communication towers.
- Tree trimming and tree removal work.
- Anchor handling or dredge-related operations with a vessel or barge using an affixed A-frame.
- Roustabouts
- Helicopter cranes

SPECIAL RULES FOR ARTICULATING/KNUCKLE BOOM CRANES USED TO DELIVER MATERIAL TO A CONSTRUCTION SITE

It is common for material to be delivered to and unloaded on a construction site using a truck on which is mounted an articulating/knuckle-boom crane. Such equipment is covered by the standard when used in construction work. When such equipment delivers materials by placing them on the ground without arranging them in a particular sequence for hoisting, the activity is not considered construction work and is not covered under the standard. This exclusion applies regardless of the type of material being delivered.

However, when the delivery equipment is used to transfer the materials onto a structure, the activity is considered construction work. Nevertheless, the activity is excluded from the standard if **all** of the following conditions are met:

- The materials are sheet goods (such as sheet rock, plywood, or sheets of roofing shingles) or packaged goods (such as roofing shingles, bags of cement, or rolls of roofing felt).
- The equipment uses a fork/cradle at the end of the boom to deliver the materials.
- The equipment is not used to hold, support, or stabilize the material to facilitate a construction activity, such as holding material in place while it is attached to the structure.
- The equipment is equipped with a properly functioning automatic overload prevention device.

This exception, as noted, is limited to delivery of sheet goods and packaged goods. It does **not** apply to delivery of prefabricated components or building sections, such as roof trusses and wall panels. It also does **not** apply to delivery of structural steel members or components of a systems-engineered metal building.

CHAPTER 19 – CRANE SAFETY

section a continued

DEFINITIONS

The following are some of the numerous terms that are used in the standard. The terms discussed below are of general interest and deserve particular attention. The definitions are in bold, and following each definition is an explanation of its significance.

A/D director (Assembly/Disassembly director) means an individual who meets this subpart's requirements for an A/D director, irrespective of the person's formal job title or whether the person is non-management or management personnel.

All assembly and disassembly operations must be carried out under the direction of an A/D director. The A/D director must be both a "competent person" and a "qualified person," or must be a "competent person" assisted by one or more "qualified persons." "Competent person" and "qualified person" are defined below.

Assembly/Disassembly means the assembly and/or disassembly of equipment covered under this standard. With regard to tower cranes, "erecting and climbing" replaces the term "assembly," and "dismantling" replaces the term "disassembly." Regardless of whether the crane is initially erected to its full height or is climbed in stages, the process of increasing the height of the crane is an erection process.

All assembly and disassembly operations must comply with either the procedures specified by the manufacturer or procedures developed by the employer that meet the criteria listed in Section 1406. Under either alternative, procedures must comply with all manufacturer prohibitions.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

A competent person must conduct shift and monthly inspections of all equipment. The A/D director must meet the test for a competent person (as well as a qualified person – see below). In addition, duties under the sections of this standard governing Operations, Hoisting Personnel, Multiple Crane/Derrick Lifts,

Derricks, and Floating Cranes must be carried out by competent persons. In general, a qualified crane operator who has the authority to take corrective measures will be a competent person under this definition.

Controlling entity means an employer that is a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project – its planning, quality and completion.

The controlling entity is responsible for seeing that the ground conditions are adequate to support the equipment. The controlling entity must also inform the user and the operator of the equipment of the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, and soil analyses) in the possession of the controlling entity (whether at the site or off-site) or of any other hazards known to the controlling entity. See section 1402(c). The controlling entity must also establish a system to coordinate the operations of two cranes that operate within each other's working radius. See Section 1424(b).

Dedicated spotter (power lines): To be considered a dedicated spotter, the requirements of Signal person qualifications must be met and his/her sole responsibility is to watch the separation between the power line and the equipment, load line and load (including rigging and lifting accessories), and ensure through communication with the operator that the applicable minimum approach distance is not breached.

The use of a dedicated spotter is one of the safeguards used to prevent a crane, as well as its load and load line, from breaching the applicable minimum distance from a power line, and thereby prevent death by electrocution and electric shock and burn injuries. The minimum distances that must be maintained, and the safeguards that must be used, are addressed in this program.

Electrical contact occurs when a person, object, or equipment makes contact or comes in close proximity with an energized conductor or equipment that allows the passage of current.

Equipment (including the load and load line) coming into electrical contact with power lines is the leading cause of crane-related fatalities. Note that the equipment does not need to actually touch the power line to make electrical contact, as electricity can arc from a power line to nearby equipment. It is therefore critical to maintain a safe minimum distance and not merely prevent physical contact.

Fall protection equipment means guardrail systems, safety net systems, and personal fall arrest systems, positioning device systems or fall restraint systems.

This standard contains fall protection requirements for cranes. The only provisions of general fall protection requirements for construction that apply to cranes are specifically referenced in this standard. The listed types of fall protection equipment are further defined in the standard.

CHAPTER 19 – CRANE SAFETY

section a continued

Qualified person means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

Numerous duties under the standard must be carried out by a person who meets this definition. These include conducting annual/comprehensive inspections of all equipment as well as inspections of modified equipment. The A/D director (see definition above) must be a qualified person as well as a competent person. A qualified person also is responsible for duties under various provisions of the standard, including those dealing with developing assembly/disassembly procedures, wire rope safety, fall protection, maintenance and repair, hoisting personnel, multiple crane/derrick lifts, equipment modifications, tower cranes, derricks, and floating cranes/derricks.

Rated capacity means the maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.

Workers have been killed and injured when cranes have collapsed because their rated capacity was exceeded. Compliance with the rated capacity is therefore one of the most critical protective measures required by the standard.

GROUND CONDITIONS

IMPORTANCE OF GROUND CONDITIONS: Adequate ground conditions are essential for safe crane operations because the crane's capacity and stability depend on such conditions being present. If, for example, the ground is muddy or otherwise unstable, a crane could overturn even if operated with the load limits specified by the manufacturer.

BASIC RULE: You must not assemble or use a crane unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials (such as blocking, mats, cribbing, or marsh buggies (in marshes/wetlands)), the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met. The requirement for the ground to be drained does not apply to marshes/wetlands.

RESPONSIBILITIES OF CONTROLLING ENTITY: A contractor operating a crane on a construction site may not have the ability or authority to provide for adequate ground conditions at the site. The standard therefore places the responsibility for ensuring that the ground conditions are adequate on the "controlling entity" at the site, that is the prime contractor, general contractor, construction manager, or other legal entity with overall responsibility for the project's planning, quality, and completion.

The controlling entity must also inform the user and operator of the equipment of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, and soil analyses) in the possession of the controlling entity (whether at the site or off-site) and of any other hazards known to the controlling entity.

If there is no controlling entity for the project, the responsibility for providing adequate ground conditions rests on the employer that has authority at the site to make or arrange for ground preparations (locates, compaction tests, etc.).

RESPONSIBILITY OF COMPANY OPERATING CRANE: Although the controlling entity is responsible for providing adequate ground conditions, the company operating the crane will often be better able than the controlling entity to determine whether those conditions are adequate. If you are operating a crane and decide that ground conditions are inadequate, you must discuss the problem with the controlling entity and see that the problem is corrected before beginning or continuing operations.

ASSEMBLY AND DISASSEMBLY

Accidents during assembly and disassembly of lattice boom and tower cranes are one of the major causes of crane-related fatalities. These sections are designed to prevent such accidents by requiring safe assembly/disassembly procedures for lattice boom and tower cranes. Hydraulic-boom cranes are not generally assembled on-site, but these sections contain some provisions, such as the requirement for proper setting of outriggers and stabilizers, that apply to cranes with hydraulic booms.

REQUIRED PROCEDURES: When assembling or disassembling a crane, you must comply with either:

- Manufacturer procedures, or
- A site Specific procedures, which must be developed by a qualified person. Such procedures must, at a minimum (1) prevent unintended dangerous movement or collapse of any part of the equipment; (2) provide adequate support and stability of all parts of the equipment; and (3) position employees involved in the assembly/disassembly operation so that their exposure to unintended movement or collapse of part or all the equipment is minimized.

Regardless of which of these options you choose, you must follow any manufacturer prohibitions that apply to the assembly/disassembly operation.

CHAPTER 19 – CRANE SAFETY

section a continued

THE A/D DIRECTOR: All assembly/disassembly operations must be directed by an individual who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons. The A/D director must understand the applicable assembly/disassembly procedures. The A/D director must take the following precautions to protect against potential hazards associated with the operation, including:

- Site and ground conditions must be able to support the equipment during assembly/disassembly.
- Blocking material must be the correct size, amount, and condition. The blocking must be stacked so as to sustain the loads and maintain stability.
- When used to support lattice booms or components, blocking must be placed appropriately to protect the structural integrity of the equipment and prevent dangerous movement and collapse.
- When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be verified as being within its rated capacity.
- The point(s) of attachment of rigging to a boom (or boom sections, jib, or jib sections) must be suitable for preventing structural damage and facilitating safe handling of these components.
- The center of gravity of the load must be identified if necessary for the method used for maintaining stability. Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used.
- The boom sections, boom suspension systems (such as gantry A-frames and jib struts), and components must be rigged or supported to maintain stability upon the removal of the pins.
- Suspension ropes and pendants must not be allowed to catch on the boom or jib connection pins or cotter pins (including keepers and locking pins).
- Steps must be taken to prevent unintended movement from counterweights that are inadequately supported or are being hoisted.
- Each time reliance is to be placed on the boom hoist brake to prevent boom movement during assembly/disassembly, the brake must be tested prior to such reliance to determine if it is sufficient to prevent boom movement. If it is not sufficient, a boom hoist pawl, other locking device/back-up braking device, or another method of preventing dangerous movement of the boom (such as blocking or using an assist crane) from a boom hoist brake failure must be used.
- Backward stability must be assured before swinging the upperworks, travel, and when attaching or removing equipment components.
- The effect of wind speed and weather on the equipment must be considered.

THE CREW: Before the operation begins, the A/D director must ensure that the crew members understand all the following:

- Their tasks.
- The hazards associated with their tasks.
- The hazardous positions/locations that they need to avoid.

Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment (or load) where the crew member could be injured by movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location. Whenever the operator knows that a crew member is in such a potentially dangerous position, the operator must not move any part of the equipment (or load) until the operator is informed in accord with a pre-arranged system of communication that the crew member is in a safe position.

THE RIGGER: When rigging is used for assembly/disassembly, the employer must ensure that the rigging work is done by a qualified rigger, i.e., a rigger who meets the definition of a qualified person.

WORKING UNDER THE BOOM, JIB OR OTHER COMPONENTS: When pins (or similar devices) are being removed, employees must not be under the boom, jib, or other components, unless site constraints require one or more employees to be in such a position. In such a case, the A/D director must implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom.

SYNTHETIC SLINGS: When using synthetic slings during assembly or disassembly, you must follow the synthetic sling manufacturer's instructions, limitations, specifications and recommendations. Synthetic slings must be protected from abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression.

OUTRIGGERS AND STABILIZERS. When the load to be handled and the operating radius require the use of outriggers or stabilizers, or at any time when outriggers or stabilizers are used:

- The outriggers or stabilizers must be either fully extended or, if manufacturer procedures permit, deployed as specified in the load chart.
- The outriggers must be set to remove the equipment weight from the wheels, except for locomotive cranes. This provision does not apply to stabilizers.

CHAPTER 19 – CRANE SAFETY

section a continued

- When outrigger floats are used, they must be attached to the outriggers. When stabilizer floats are used, they must be attached to the stabilizers.
- Each outrigger or stabilizer must be visible to the operator or to a signal person during extension and setting.
- Outrigger and stabilizer blocking must be the correct size, amount, and condition. The blocking must be placed only under the outrigger or stabilizer float/pad of the jack or, where the outrigger or stabilizer is designed without a jack, under the outer bearing surface of the extended outrigger or stabilizer beam.

DISMANTLING BOOMS AND JIBS: The following precautions must be taken to prevent dangerous movement of boom and jib sections that are being dismantled.

- None of the pins in the pendants are to be removed (partly or completely) when the pendants are in tension.
- None of the pins (top or bottom) on boom sections located between the pendant attachment points and the crane/derrick body are to be removed (partly or completely) when the pendants are in tension.
- None of the pins (top or bottom) on boom sections located between the uppermost boom section and the crane/derrick body are to be removed (partly or completely) when the boom is being supported by the uppermost boom section resting on the ground (or other support).
- None of the top pins on boom sections located on the cantilevered portion of the boom being removed (the portion being removed ahead of the pendant attachment points) are to be removed (partly or completely) until the cantilevered section to be removed is fully supported.

POWER LINES

DANGER – HIGH VOLTAGE: Electrocutions caused by a crane, load, or load line contacting a power line have caused numerous fatalities. To prevent such accidents in the future, the standard contains detailed, systematic procedures that employers must follow when operating cranes near power lines. These procedures are designed to 1) prevent equipment from making electrical contact with power lines; and 2) protect workers in the event that such contact occurs.

NOTE: Special rules apply to work covered by Regulations for Power Transmission and Distribution. This Guide does not cover this work.

THE FIRST STEP – COULD THE CRANE GET CLOSER THAN 20 FEET TO A POWER LINE? Keeping a safe distance from power lines is the key to preventing power line accidents. Therefore, the first step you must take when planning to operate a crane on a site where a power line is present is to identify the crane's work zone and use that work zone to determine how close it could come to the power line. If you determine that no part of the crane, load, or load line could get closer than 20 feet to a power line, no further precautions are required. If the initial plan for the crane's use changes during the project, you must reevaluate whether the equipment could get closer than 20 feet to the power line. [Note: If the line's voltage is over 350,000 volts, a 50-foot, rather than 20-foot, minimum clearance must be maintained. This Guide assumes that the voltage is less than 350,000 volts and uses the 20-foot clearance distance.]

There are two ways to identify the work zone and use it to determine whether the equipment could get closer than 20 feet to the power line. First, if the equipment (crane, load, load line, or rigging) could not get closer than 20 feet to the line even if the crane is operated at its maximum working radius, the 20-foot requirement is satisfied. Alternatively, you may establish a work zone by establishing boundaries (using flags or a device such as a range limit device or range control warning device) that are more than 20 feet from the power line and prohibiting the operator from operating the equipment past those boundaries.

ALTERNATIVE TO 20-FOOT CLEARANCE (TABLE A): If you know the line's voltage, you may use the minimum clearance distance in Table A in lieu of 20 feet. Table A provides:

Table A - Minimum Clearance Distances	
Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/ operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)
Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.	

CHAPTER 19 – CRANE SAFETY

section a continued

One way to determine the line's voltage is to ask the line's owner or operator. The utility must respond to such a voltage inquiry within two working days.

If you use Table A to determine the minimum clearance distance, you must determine whether any part of the crane, load, or load line could get closer than the Table "A" distance to a power line if the equipment is operated up to its maximum working radius in the work zone.

If you determine that part of the crane, load, or load line could come closer to the power line than the required minimum clearance distance (either 20 feet or the Table A clearance), you must either **de-energize and ground** the line or take specified steps to **maintain the required minimum clearance distance**. These options will now be discussed.

DEENERGIZE AND GROUND: De-energizing and visibly grounding the line will protect against electrocution and avoid the need for additional precautions. However, the employer must rely on the power line's owner or operator to take these steps, and utilities are generally unwilling to de-energize their lines because doing so will cut off service to their customers. As a result, this precaution will usually not be available. **You must assume that all power lines are energized unless the utility owner/operator confirms that the power line has been and continues to be de-energized and the line is visibly grounded at the worksite.**

STEPS YOU MUST TAKE TO MAINTAIN THE REQUIRED MINIMUM CLEARANCE DISTANCE: You must take **all of the** following steps.

- Conduct a planning meeting with the crane operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution.
- If tag lines are used, they must be non-conductive.
- Erect and maintain an elevated warning line, barricade, or line of signs equipped with flags or similar high-visibility markings at the minimum clearance distance. If the operator cannot see the elevated warning line, a dedicated spotter must be used to signal the operator that the crane is passing the marked line.

In addition, you must use at least **one** of the following precautions:

- A dedicated spotter (a worker whose only duty is to observe the clearance between the equipment and the line) who is in continuous contact with the operator.
- A proximity alarm set to give the operator sufficient warning to prevent encroachment.
- A device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment.
- A device that automatically limits the crane's range of movement, set to prevent encroachment.
- An insulating link/device installed between the end of the load line and the load.

If you use a dedicated spotter, the dedicated spotter must be able to judge the distance between the equipment and the line and inform the operator if the equipment is getting too close to the line. Therefore, the spotter must:

- Be equipped with a visual aid (such as a clearly visible line painted on the ground or a clearly visible line of stanchions) to assist in identifying the minimum clearance distance.
- Be positioned to effectively gauge the clearance distance.
- Where necessary, use equipment that enables the spotter to communicate directly with the operator.
- Give timely information to the operator so that the required clearance distance can be maintained.
- Be trained to be able to perform his/her duties effectively.

OPERATION BELOW POWER LINES GENERALLY PROHIBITED: No part of the equipment, load line, or load (including rigging and lifting accessories) is allowed below a power line unless:

- the employer has confirmed that the utility owner/operator has de energized and visibly grounded the power line at the worksite, **or**
- the highest point of the equipment's boom, even if completely extended and vertical, will be more than the required minimum distance from the power line.

CHAPTER 19 – CRANE SAFETY

section a continued

EMPLOYEE TRAINING: If the equipment contacts a power line, death or injury may be avoided if the workers in and on the crane know and understand the steps they can take to protect themselves. In general, the crane operator and any other person on the crane will be safe as long as they remain on the crane. The greatest danger is faced by a person who simultaneously touches both the crane and the ground, but a person who is near, but not touching, the crane can also suffer electric shock. To ensure that employees have the information they need to protect themselves, you must train each operator and crew member assigned to work with the equipment on how to avoid electrocution in the event the equipment contacts a power line. Such training must include:

- Information regarding the danger of electrocution if a person simultaneously touches the equipment and the ground.
- The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.
- The safest means of evacuating from equipment that may be energized.
- The danger of the potentially energized zone around the equipment (step potential).
- The need for crew in the area to avoid approaching or touching the equipment and the load.
- Safe clearance distance from power lines.
- The limitations of an insulating link/device, proximity alarm, and range control (and similar) device, if used.
- How to properly ground equipment and the limitations of grounding.

ASSEMBLING A CRANE NEAR A POWER LINE: The precautions described above for crane operations must also be taken when assembling or disassembling a crane near a power line. Under no circumstances may a crane be assembled or disassembled beneath an energized power line.

PRECAUTIONS FOR MOVING EQUIPMENT: A crane traveling with a load must comply with the minimum clearance distance and associated precautions listed above. If the crane is traveling with no load, the following clearance distances must be maintained.

Table T – Minimum Clearance Distances While Traveling With No Load	
Voltage (nominal, kV, alternating current)	While Traveling – Minimum clearance distance (feet)
up to 0.75	4
over .75 to 50	6
over 50 to 345	10
over 345 to 750	16
over 750 to 1,000	20
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)

In determining whether the equipment will maintain the required clearance distance, you must take into account the effects of speed and terrain on the equipment's movement (including movement of the boom/mast). In addition, if any part of the equipment can get closer than 20 feet to the line, you must use a dedicated spotter to observe the clearance and signal the operator in order to keep the required minimum clearance.

CHAPTER 19 – CRANE SAFETY

section a continued

LIMITED EXCEPTION TO MANDATORY MINIMUM CLEARANCE

In some circumstances, it is impossible to perform a required lift while staying the required minimum distance from a power line. The standard provides a limited exception for such circumstances that allows operations closer than the minimum distance. However, it requires additional precautions due to the extreme danger of operating so close to a power line. Before using this exception, you must determine that specific work required to complete the project cannot be performed while maintaining the Table “A” clearance. In making this determination, you must consider whether an alternative method of performing the lift, such as repositioning the crane or the load, will enable you to maintain the required minimum distance. If you have decided that it is absolutely necessary to operate closer than the required minimum distance, you must consult the utility that owns or operates the line to determine whether it is feasible to de-energize and ground or relocate the line. Only if de-energizing/grounding or relocation is not feasible may you operate closer than the Table A distance to an energized line. In such a case, you must take the following precautions to protect workers:

FIRST: DETERMINE AN ABSOLUTE MINIMUM CLEARANCE. You must have the power line owner/operator or a registered professional engineer who is a qualified person with respect to electrical power transmission and distribution determine the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include but are not limited to: conditions affecting atmospheric conductivity; time necessary to bring the equipment, load line, and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions; and other conditions affecting the ability to prevent electrical contact.

SECOND: HOLD A PLANNING MEETING. You must hold a planning meeting with the utility owner/operator (or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution) to determine the procedures that will be followed to prevent electrical contact and electrocution.

THIRD: USE PROTECTIVE PROCEDURES. The procedures required by the standard and any additional procedures developed at the planning meeting must be followed. The following procedures are required by the standard and **must be followed without exception:**

- If the power line is equipped with a device that automatically reenergizes the circuit in the event of a power line contact, before the work begins, the automatic reclosing feature of the circuit interrupting device must be made inoperative if the design of the device permits.
- A dedicated spotter who is in continuous contact with the operator must be used to ensure that the equipment does not breach the minimum clearance. The requirements for a dedicated spotter are discussed above.
- An elevated warning line, or barricade (not attached to the crane), in view of the operator (either directly or through video equipment), equipped with flags or similar high-visibility markings, must be erected.
- An insulating link/device must be installed at a point between the end of the load line (or below) and the load. (NOTE: certain safety procedures or devices may be substituted for a Nationally Recognized Testing Laboratory-approved insulating link during an interim time period. Refer to the standards for details)
- All employees who may come in contact with the equipment, the load line, or the load (except operators located on the equipment) must be insulated or guarded from the equipment, the load line, and the load by wearing insulating gloves rated for the voltage involved or using another effective means of insulating them from the equipment.
- Nonconductive rigging must be used.
- If the equipment is equipped with a device that automatically limits range of movement, it must be used and set to prevent any part of the equipment, load line, or load (including rigging and lifting accessories) from breaching the minimum approach distance.
- Any tag line that is used must be of the nonconductive type.
- Barricades forming a perimeter at least 10 feet away from the equipment must be erected to prevent unauthorized personnel from entering the work area. In areas where obstacles prevent the barricade from being at least 10 feet away, the barricade must be as far from the equipment as feasible.
- Workers other than the operator must be prohibited from touching the load line above the insulating link/device and crane. The operator is excluded from this requirement because, while on the equipment, the operator is, in effect, touching the load line above the insulating link/device. However, if the operator is remotely operating the equipment from the ground, he/she must use either wireless controls that isolate the operator from the equipment or insulating mats that insulate the operator from the ground.
- Only personnel essential to the operation are permitted in the area of the crane and load.
- The equipment must be properly grounded.
- Insulating line hose or cover-up must be installed by the utility owner/operator except where such devices are unavailable for the line voltages involved.
- Each operator and crew member assigned to work with the equipment must be trained in the topics listed earlier in this section.

CHAPTER 19 – CRANE SAFETY

section a continued

FOURTH: APPOINT A PROJECT DIRECTOR. You, along with the utility owner/operator (or registered professional engineer) and all other employers involved in the work, must identify one person who will direct the implementation of the procedures. That person must have the authority to stop work at any time to ensure safety.

FIFTH: RECONSIDER YOUR PLAN IF A PROBLEM ARISES. The danger of operating a crane close to a power line cannot be overemphasized. Procedures that may appear adequate at the beginning of a job may not be adequate in practice. For example, if electricity arcs from the line to the equipment, whatever precautions are being taken are not sufficient. Therefore, if there is any indication that the procedures being followed are inadequate to protect workers, you must safely stop operations and either develop new, more protective procedures or have the utility owner/operator de energize and visibly ground or relocate the power line before resuming work.

For reference, a sample power line safety program can be found here on the network: <G:\Safety Information\Safety Training - APP Related\Power Line Crane Safety\Power Line Crane Safety Sample Program.pdf>

INSPECTIONS:

To ensure that equipment is in a safe condition, the standard requires a variety of inspections. The following inspections are required of all equipment:

- Shift inspections
- Monthly inspections
- Annual inspections
- Shift, monthly, and annual wire rope inspections (if the equipment uses wire rope)

In addition, the following special inspections are required in particular circumstances:

- Post-assembly inspections
- Pre- and post-erection inspections of tower cranes (section 1435(f))
- Equipment used in severe service
- Equipment not in regular use
- Inspections of certain modified equipment
- Inspections of certain repaired/adjusted equipment

As described below, certain inspections must be conducted by a competent person and others by a qualified person. See Definitions for an explanation of these terms.

SHIFT INSPECTIONS: A competent person must visually inspect the equipment each shift the equipment is used. Taking apart equipment components and booming down is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating taking apart equipment components or booming down is needed. At a minimum the inspection must include all of the following:

- Control mechanisms for maladjustments interfering with proper operation.
- Control and drive mechanisms for apparent excessive wear of components and contamination by lubricants, water or other foreign matter.
- Air, hydraulic, and other pressurized lines for deterioration or leakage, particularly those which flex in normal operation.
- Hydraulic system for proper fluid level.
- Hooks and latches for deformation, cracks, excessive wear, or damage such as from chemicals or heat.
- Wire rope reeving for compliance with the manufacturer's specifications.
- Wire rope (see the included section for the rules for wire rope inspections).
- Electrical apparatus for malfunctioning, signs of apparent excessive deterioration, or dirt or moisture accumulation.
- Tires (when in use) for proper inflation and condition.
- Ground conditions around the equipment for proper support, including ground settling under and around outriggers/stabilizers and supporting foundations, ground water accumulation, or similar conditions.
- The equipment for level position within the tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each move and setup.
- Operator cab windows for significant cracks, breaks, or other deficiencies that would hamper the operator's view.
- Rails, rail stops, rail clamps and supporting surfaces when the equipment travels on rails.
- Safety devices and operational aids for proper operation.
- For derricks, guys for proper tension see the section included in this program
- Deficiencies identified during the most recent annual inspection that the inspector determined must be monitored in the monthly inspections.

CHAPTER 19 – CRANE SAFETY

section a continued

If the inspection shows that a safety device is not working properly, the equipment must not be used. If it shows that an operational aid is not working properly, the equipment may be used for a limited period of time (7 or 30 calendar days depending on the type of operational aid) as long as specified temporary alternative precautions are taken. For the other items covered by the inspection, if the inspector finds any deficiency in an item, he/she must determine if the deficiency is serious enough to be a safety hazard. If so, the equipment must not be used until the deficiency is corrected. Shift inspections need not be documented.

MONTHLY INSPECTIONS: The monthly inspection is the same as a shift inspection for most equipment. For tower cranes, the following additional items must be included:

- Tower (mast) bolts and other structural bolts (for loose or dislodged condition) from the base of the tower crane up or, if the crane is tied to or braced by the structure, those above the uppermost brace support.
- The uppermost tie-in, braces, floor supports and floor wedges where the tower crane is supported by the structure, for loose or dislodged components.

Documentation of monthly inspection: The following information must be documented and maintained for a minimum of three months by the employer that conducts the inspection:

- The items checked and the results of the inspection.
- The name and signature of the person who conducted the inspection and the date.

ANNUAL/COMPREHENSIVE INSPECTIONS: The annual inspection must be conducted by a qualified person and is far more thorough than a shift or monthly inspection. In addition to those items that must be checked during a shift inspection, the annual inspection must include:

- Equipment structure (including the boom and, if equipped, the jib) as follows:
 - Structural members: deformed, cracked, or significantly corroded.
 - Bolts, rivets and other fasteners: loose, failed, or significantly corroded.
 - Welds for cracks.
- Sheaves and drums for cracks or significant wear.
- Parts such as pins, bearings, shafts, gears, rollers and locking devices for distortion, cracks, or significant wear.
- Brake and clutch system parts, linings, pawls, and ratchets for excessive wear.
- Safety devices and operational aids for proper operation (including significant inaccuracies).
- Gasoline, diesel, electric, or other power plants for safety-related problems (such as leaking exhaust and emergency shutdown feature) and conditions, and proper operation.
- Chains and chain drive sprockets for excessive wear of sprockets and excessive chain stretch.
- Travel steering, brakes, and locking devices, for proper operation.
- Tires for damage or excessive wear.
- Hydraulic, pneumatic and other pressurized hoses, fittings, and tubing, as follows:
 - Flexible hose or its junction with the fittings for indications of leaks.
 - Threaded or clamped joints for leaks.
 - Outer covering of the hose for blistering, abnormal deformation, or other signs of failure/impending failure.
 - Outer surface of a hose, rigid tube, or fitting for indications of excessive abrasion or scrubbing.
- Hydraulic and pneumatic pumps and motors, as follows:
 - Performance indicators: unusual noises or vibration, low operating speed, excessive heating of the fluid, low pressure.
 - Loose bolts or fasteners.
 - Shaft seals and joints between pump sections for leaks.
- Hydraulic and pneumatic valves, as follows:
 - Spools: sticking, improper return to neutral, and leaks.
 - Leaks.
 - Valve housing cracks.
 - Relief valves: failure to reach correct pressure (if there is a manufacturer procedure for checking pressure, it must be followed).
- Hydraulic and pneumatic cylinders, as follows:
 - Drifting caused by fluid leaking across the piston.
 - Rod seals and welded joints for leaks.
 - Cylinder rods for scores, nicks, or dents.
 - Case (barrel) for significant dents.
 - Rod eyes and connecting joints: loose or deformed.
- Outrigger or stabilizer pads/floats for excessive wear or cracks.
- Slider pads for excessive wear or cracks.
- Electrical components and wiring for cracked or split insulation and loose or corroded terminations.

CHAPTER 19 – CRANE SAFETY

section a continued

- Warning labels and decals originally supplied with the equipment by the manufacturer or otherwise required under this standard: missing or unreadable.
 - Originally equipped operator seat (or equivalent): missing.
 - Operator seat: unserviceable.
 - Originally equipped steps, ladders, handrails, or guards: missing.
 - Steps, ladders, handrails, or guards: in unusable/unsafe condition.
 - For tower cranes, all turntable and tower bolts must be inspected for proper condition and torque.
 - For derricks, gudgeon pins for cracks, wear, and distortion, and foundation supports for continued ability to sustain the imposed loads.

If necessary, disassembly is required to complete the annual inspection. Also, the inspection must include functional testing to determine that the equipment as configured in the inspection is functioning properly.

Corrective action: If the qualified person who conducts the inspection identifies any deficiency in any of the items inspected and determines that the deficiency constitutes a safety hazard, the equipment must be taken out of service until the deficiency is corrected. (See the discussion above under shift inspections for the corrective action required if an operational aid is not working properly). If the qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, the employer must ensure that the deficiency is checked in the monthly inspections.

Documentation of annual/comprehensive inspection. The following information must be documented, maintained, and retained for a minimum of 12 months, by the employer that conducts the inspection:

- The items checked and the results of the inspection.
- The name and signature of the person who conducted the inspection and the date.

POST-ASSEMBLY INSPECTIONS: Before the equipment can be used, it must be inspected by a qualified person to ensure that it is configured in accord with manufacturer equipment criteria. This qualified person may be the A/D director. Where manufacturer equipment criteria are unavailable, a qualified person must:

- Determine if a registered professional engineer (RPE) familiar with the type of equipment involved is needed to develop criteria for the equipment configuration. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that they are developed by an RPE.
- Determine if the equipment meets these criteria before the equipment is used.

PRE- AND POST-ERECTION INSPECTION OF TOWER CRANES: Tower crane components must be inspected by a qualified person before being erected for damage or excessive wear. The qualified person must pay particular attention to components that will be difficult to inspect thoroughly during shift inspections.

If the qualified person determines that a component is damaged or worn to the extent that it would create a safety hazard if used on the crane, that component must not be erected on the crane unless it is repaired and, upon re inspection by the qualified person, found to no longer create a safety hazard. If the qualified person determines that, though not presently a safety hazard, the component needs to be monitored, the employer must ensure that the component is checked in the monthly inspections. Any such determination must be documented, and the documentation must be available to any individual who conducts a monthly inspection.

In addition to the other requirements listed above for post-assembly inspections, the following requirements must be met:

- A load test using certified weights, or scaled weights using a certified scale with a current certificate of calibration, must be conducted after each erection.
- The load test must be conducted in accord with the manufacturer's instructions when available. Where these instructions are unavailable, the test must be conducted in accord with written load test procedures developed by a registered professional engineer familiar with the type of equipment involved.

SEVERE SERVICE INSPECTIONS: Where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, or prolonged exposure to a corrosive atmosphere), the employer must stop using the equipment and a qualified person must:

- Inspect the equipment for structural damage to determine if the equipment can continue to be used safely.
- In light of the use/conditions determine whether any items/conditions that must be inspected during an annual inspection need to be inspected; if so, the qualified person must inspect those items/conditions.

CHAPTER 19 – CRANE SAFETY

section a continued

INSPECTION OF EQUIPMENT NOT IN REGULAR USE: Equipment that has been idle for 3 months or more must be inspected by a qualified person in accord with the requirements for monthly inspections before being used.

INSPECTION OF MODIFIED EQUIPMENT: Equipment that has had modifications or additions which affect the safe operation of the equipment (such as modifications or additions involving a safety device or operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) or capacity must be inspected by a qualified person after such modifications/additions have been completed, prior to initial use. Note that, under section 1434, any such modification/addition must be approved by either the manufacturer or a registered professional engineer. The inspection must assure that the modifications or additions have been made in accord with that approval and must include functional testing of the equipment.

INSPECTION OF REPAIRED/ADJUSTED EQUIPMENT: Equipment that has had a repair or adjustment that relates to safe operation (such as a repair or adjustment to a safety device or operator aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) must be inspected by a qualified person after such a repair or adjustment has been completed, prior to initial use. The qualified person must determine if the repair/adjustment meets manufacturer equipment criteria (where applicable and available). Where manufacturer equipment criteria are unavailable or inapplicable, the qualified person must determine if a registered professional engineer (RPE) is needed to develop criteria for the repair/adjustment. If an RPE is not needed, the employer must ensure that the criteria are developed by the qualified person. If an RPE is needed, the employer must ensure that the criteria are developed by the RPE. The inspection must determine if the repair/adjustment meets the criteria developed by the RPE or qualified person and must include functional testing.

WIRE ROPE INSPECTION

Wire rope must be inspected as part of the shift, monthly, and annual inspections required. The shift and monthly inspections must evaluate all rope that is visible during the shift in which the inspection is conducted. The annual inspection must include the entire length of the rope.

The shift and monthly inspections must pay particular attention to the following:

- Rotation resistant wire rope in use.
- Wire rope being used for boom hoists and luffing hoists, particularly at reverse bends.
- Wire rope at flange points, crossover points, and repetitive pickup points on drums.
- Wire rope at or near terminal ends.
- Wire rope in contact with saddles, equalizer sheaves, or other sheaves where rope travel is limited.

In addition to these items, the annual inspection must include:

- Those sections that are normally hidden during shift and monthly inspections.
- Wire rope subject to reverse bends.
- Wire rope passing over sheaves.

You must take certain action if an inspection reveals a defect in the rope. Some defects require either that the rope be removed from service or the damaged section be severed. For others, the inspector must evaluate whether the defect constitutes a safety hazard, with the corrective action depending on the outcome of the evaluation. Note that, if a wire rope must be repaired or replaced, either the equipment (as a whole) or the hoist with that wire rope must be tagged-out during the repair/replacement process.

SEVERING WIRE ROPE: Where severing the rope is permitted, the section that is damaged must be discarded. Two undamaged sections may not be spliced to make a longer rope. If the undamaged part that remains is too short for the drum to have two full wraps of rope when the load and/or boom is in its lowest position, the rope cannot be used and must be replaced.

ELECTRICAL CONTACT WITH POWER LINE: Wire rope that has made electrical contact with a power line (either by the rope, the equipment, or the load contacting the line) must be immediately removed from service even if no damage is visible. The rope may have suffered internal damage that cannot be repaired.

DEFECTS THAT REQUIRE REMOVAL FROM SERVICE OR SEVERING: The following defects require that the rope either be removed from service or the defective part severed.

- Visible broken wires, as follows:
 - In running wire ropes: six randomly distributed broken wires in one rope lay, or three broken wires in one strand in one rope lay, where a rope lay is the length along the rope in which one strand makes a complete revolution around the rope.

CHAPTER 19 – CRANE SAFETY

section a continued

- In rotation resistant ropes: two randomly distributed broken wires in six rope diameters, or four randomly distributed broken wires in 30 rope diameters.

In pendants or standing wire ropes: more than two broken wires in one rope lay located in rope beyond end connections, or more than one broken wire in a rope lay located at an end connection.

- A diameter reduction of more than 5% from nominal diameter.
- In rotation resistant wire rope, core protrusion or other distortion indicating core failure.
- A broken strand.

Exception: If the wire rope manufacturer has approved different criteria for visible broken wires or diameter reduction, you may follow those criteria instead of those above.

DEFECTS THAT REQUIRE EVALUATION: The following defects must be evaluated by the inspector to determine whether they constitute a safety hazard:

- Significant distortion of the wire rope structure such as kinking, crushing, unstranding, birdcaging, signs of core failure, or steel core protrusion between the outer strands.
- Significant corrosion.
- Electric arc damage (from a source other than power lines) or heat damage.
- Improperly applied end connections.
- Significantly corroded, cracked, bent, or worn end connections (such as from severe service).

If these defects are found to be hazardous: The rope must be removed from service or the defective part severed.

If they are not found to be an immediate hazard: You may continue to use the rope. However, if such a defect is identified during an annual inspection, you must check it during each monthly inspection. Note that this may require a more complete monthly inspection than would otherwise be required because the annual inspection must cover the entire rope and may reveal a defect in a part of the rope that would not normally be visible during a shift or monthly inspection.

WIRE ROPE – SELECTION AND INSTALLATION CRITERIA

This section requires that wire rope be used in accord with the recommendations of the wire rope manufacturer, the equipment manufacturer, or a qualified person. It establishes a classification system for rotation resistant rope and specifies design factors for the different classes of such rope.

ROPE CLASSIFICATION: Wire rope is classified as either "standard rope" or "rotation resistant rope." Rotation resistant rope, in turn, can be constructed in various ways, and the standard lists three different "Types" that vary in their construction. For all three types, rotation resistant rope's internal design resists twisting better than standard rope. Rotation resistant rope therefore enables better control of the load because it tends to keep the load from rotating while it is being hoisted or suspended. However, the design of rotation resistant rope makes it more susceptible to internal damage than standard rope and such internal damage can be hard to detect. Because of the chance of hidden damage, this section restricts the use of rotation resistant rope for boom hoist reeving and duty cycle/repetitive lifts.

Boom Hoist Reeving: Rotation resistant rope may only be used for boom hoist reeving when load hoists are used as boom hoists for attachments such as luffing attachments or boom and mast attachment systems. When you use rotation resistant rope for such a purpose, you must comply with six conditions specified by regulations.

Duty cycle/repetitive lifts: You must meet certain criteria when using rotation resistant rope for duty cycle and repetitive lifts. These are defined as follows:

Duty Cycle: A type of crane service in which bulk material is transferred from one point to another by rapidly lifting, swinging, booming, and placing the material. Typical types of duty cycle service are dragline, clamshell, grapple, and magnet. This type of service is differentiated from standard crane "lift service" in that cycle times are very short and continuous, often less than 1 minute per load, and loads are lifted and placed in general areas rather than precise positions to permit such rapid cycles.

Repetitive Lifts: A continuous operation with loads that may vary in size and weight.

The requirements for using rotation resistant rope for duty cycle and repetitive lifts vary with the type of rotation resistant rope being used and the operating design factor of the rope. If you are using rotation resistant rope for one of these purposes, check the standard for the criteria that apply to the type of rope you are using.

- Wire rope clips used in conjunction with wedge sockets must be attached to the unloaded dead end of the rope only, except that the use of devices specifically designed for dead-ending rope in a wedge socket is permitted.
- Socketing must be done in the manner specified by the manufacturer of the wire rope or fitting.

CHAPTER 19 – CRANE SAFETY

section a continued

- Prior to cutting a wire rope, seizings must be placed on each side of the point to be cut. The length and number of seizings must be in accord with the wire rope manufacturer's instructions.

SAFETY DEVICES and OPERATIONAL AIDS

These sections require that cranes/derricks be equipped with certain types of safety equipment. Some types are called safety devices, while others are called operational aids. Safety devices must be in proper working order for the equipment to be permitted to operate. If an operational aid is not working properly, the equipment may still be operated for a limited time as long as certain alternative precautions are taken.

Safety devices and operational aids must not be used as a substitute for the exercise of professional judgment by the operator.

SAFETY DEVICES: The following safety devices are required on all equipment unless otherwise specified:

- **Crane level indicator** (except on portal cranes, derricks, floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation).
- **Boom stops** (except for derricks and hydraulic booms).
- **Jib stops** (if a jib is attached), except for derricks.
- **Locks** on foot pedal brakes.
- **Integral holding device/check valve** on hydraulic outrigger jacks and hydraulic stabilizer jacks.
- **Rail clamps and rail stops** for equipment on rails (except portal cranes).
- **Horn** (both built into the equipment or on the equipment and immediately available to the operator).

OPERATIONAL AIDS: These are divided into two categories that differ in the amount of time the equipment may operate before they are repaired. **While an operational aid is not working properly, the temporary alternative measures specified in the standard must be taken.** Category I aids must be repaired within 7 calendar days after a deficiency occurs, while equipment may operate for 30 calendar days before a Category II aid is repaired. In both cases, additional time is permitted if a necessary part is ordered in a timely manner but is not received within the 7- or 30-day period.

Certain operational aids are only required on equipment manufactured after a specified date. In some cases, these are past dates that reflect when these devices began to be installed on equipment. In other cases, they are future dates that are intended to give manufacturers time to install the devices on new equipment.

CATEGORY I OPERATIONAL AIDS:

- **Boom hoist limiting device** (required on equipment manufactured after December 16, 1969).
- **Luffing jib limiting device.**
- **Automatic anti two-blocking device** (required on telescopic boom cranes manufactured after February 28, 1992; lattice boom cranes manufactured after November 8, 2011; derricks manufactured after November 8, 2011; articulating cranes equipped with a load hoist manufactured after December 31, 1999; digger derricks manufactured after November 8, 2011).
- **Automatic or warning-type anti two-blocking device** (required on lattice boom cranes manufactured after February 28, 1992 and before November 8, 2011).

Note: Two-block protection is not required for lattice boom equipment used for dragline, clamshell (grapple), magnet, drop ball, container handling, concrete bucket, marine operations that do not involve hoisting personnel, and pile driving work.

CATEGORY II OPERATIONAL AIDS:

- **Boom angle or radius indicator** (required on all equipment, except digger derricks manufactured before November 9, 2010).
- **Jib angle indicator if the equipment has a luffing jib.**
- **Boom length indicator if the equipment has a telescopic boom** (unless the rated capacity is independent of the boom length).
- **Load weighing and similar devices** (required on equipment (other than derricks, articulating cranes, and digger derricks manufactured before November 8, 2011) manufactured after March 29, 2003 with a rated capacity over 6,000 pounds).
- **Automatic overload prevention device, load weighing device, load moment (or rated capacity) indicator, or load moment (rated capacity) limiter** (required on articulating cranes manufactured after November 8, 2011).
- **Outrigger/stabilizer position (horizontal beam extension) sensor/monitor if the equipment has outriggers or stabilizers** (required on equipment manufactured after November 8, 2011).
- **Hoist drum rotation indicator if the equipment has a hoist drum not visible from the operator's station** (required on equipment manufactured after November 8, 2011).

CHAPTER 19 – CRANE SAFETY

section a continued

NOTE: Articulating cranes need not be equipped with boom angle or radius indicators, jib angle indicators, or boom length indicators.

SECTION – OPERATION

This section contains a number of requirements that are designed to prevent dangerous conditions during crane operations.

COMPLIANCE WITH RATED CAPACITY: One of the most serious hazards that cranes present is collapse of the equipment caused by exceeding the crane's rated capacity. The term "rated capacity" is defined in section 1401, and that definition reads:

Rated capacity means the maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.

The combination of factors that enter into rated capacity is set forth in a load chart that must be on the equipment. In general, the load chart states the weight of the load that the crane can lift at different boom radii. The longer the radius at which the lift occurs, the smaller amount of weight the crane can lift.

You must not operate a crane in excess of its rated capacity. Some crane users believe they can safely exceed the rated capacity because the manufacturer includes a safety factor in the load chart. However, any safety factor included by the manufacturer is not intended to be treated as excess capacity. It is included because a variety of variable worksite conditions, such as swinging of the load caused by wind or other factors, can reduce the capacity of the crane from that which exists under ideal conditions.

To comply with the rated capacity, the weight of the load must be known. Before beginning a lift, you must determine the load weight by a reliable means.

OTHER MANUFACTURER PROCEDURES: In addition to complying with the rated capacity, you must comply with all other manufacturer procedures applicable to the operation of the equipment. If the manufacturer's procedures are unavailable, you must comply with procedures that you develop. Procedures for the operational controls must be developed by a qualified person. Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment.

All procedures applicable to the operation of the equipment, including rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, and operator's manual, must be readily available in the cab at all times for use by the operator.

OPERATOR ATTENTION: The operator must not engage in any practice or activity that diverts his/her attention while actually engaged in operating the equipment, such as the use of a cell phone (except when used for signal communications).

OPERATOR USUALLY MUST REMAIN AT CONTROLS WHILE THE LOAD IS SUSPENDED: An exception is provided for working gear (such as slings, spreader bars, ladders, and welding machines) when the weight of the working gear is negligible compared to the capacity of the equipment and the working gear is not over an entrance or exit. Another exception applies when the load is to be held suspended for a period of time exceeding that of normal lifting operations.

TAGGING OUT OF SERVICE EQUIPMENT AND FUNCTIONS. When the equipment is out of service, a tag must be placed in the cab stating that the equipment is out of service and is not to be used. Where a function is out of service, a tag must be placed in a conspicuous position stating that the function is out of service and is not to be used. The equipment or function may not be used until the tag is removed by an authorized person.

PRECAUTIONS DURING STARTUP: Before starting the engine, the operator must verify that all controls are in the proper starting position and that all personnel are in the clear.

BAD WEATHER PRECAUTIONS: When a local storm warning has been issued, the competent person must determine whether it is necessary to implement manufacturer recommendations for securing the equipment. The competent person must adjust the equipment and/or operations to address the effect of wind, ice, and snow on equipment stability and rated capacity.

SIDELOADING PROHIBITED: The equipment must not be used to drag or pull loads sideways.

BRAKE TEST: The operator must test the brakes each time a load that is 90% or more of the maximum line pull is handled by lifting the load a few inches and applying the brakes. In duty cycle and repetitive lifts where each lift is 90% or more of the maximum line pull, this requirement applies to the first lift but not to successive lifts.

CHAPTER 19 – CRANE SAFETY

section a continued

PROTECTION AGAINST ROPE DETACHMENT: To prevent rope from becoming detached from a drum, neither the load nor the boom must be lowered below the point where less than two full wraps of rope remain on their respective drums.

TRAVELING WITH A LOAD: Traveling with a load is prohibited if the practice is prohibited by the manufacturer. Where it is not prohibited, you must take precautions to prevent hazardous movement of the load and avoid excessive movement of the load that could overload the crane.

AUTHORITY TO STOP OPERATION

This section provides that, whenever there is a concern about safety, the operator must have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.

SIGNALS

A crane operator often needs a second set of eyes, in the form of a signal person, to be able to operate safely. These sections state when a signal person must be provided and the types of signals that are allowed. The qualifications the signal person must possess are specified in Signal person qualifications.

WHEN A SIGNAL PERSON IS NEEDED: In each of the following situations, a signal person must be provided:

- When the point of operation, meaning the path the load travels or the area where the load is placed, is not in full view of the operator.
- When the equipment is traveling and the operator's view in the direction of travel is obstructed.
- When, due to site-specific safety concerns, either the operator or the person handling the load determines that it is necessary.

During operations requiring signals, the ability to transmit signals between the operator and signal person must be maintained. If that ability is interrupted at any time, the operator must safely stop operations until signal transmission is reestablished and a proper signal is given and understood.

Only one person may give signals to a crane/derrick at a time, except that any person may give an emergency stop signal.

TYPES OF SIGNALS: Hand, voice, audible, or new signals are allowed. The type of signals used and means of transmitting the signals to the operator (such as direct line of sight, video, radio, etc.), must be appropriate for the site conditions. All directions given to the operator by the signal person must be given from the operator's perspective.

HAND SIGNALS: When using hand signals, the Standard Method must be used. **Exception:** Where an operation or use of an attachment is not covered in the Standard Method or the use of the Standard Method is otherwise infeasible, non-standard hand signals may be used. When using non-standard hand signals, the signal person, operator, and lift director (where there is one) must contact each other prior to the operation and agree on the non-standard hand signals that will be used. Hand signal charts must be either posted on the equipment or conspicuously posted in the vicinity of the hoisting operation.

VOICE SIGNALS: These are signals given by oral communication, with or without amplification or electronic transmission. If this type of signal is used, the operator, signal person, and lift director (if there is one) must, before beginning operations, contact each other and agree on the voice signals that will be used. In most cases where voice signals are given, some type of electronic transmission and reception will be used. When this is the case:

- The device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.
- Signal transmission must be through a dedicated channel, except:
 - Multiple cranes/derricks and one or more signal persons may share a dedicated channel for the purpose of coordinating operations.
 - Where a crane is being operated on or adjacent to railroad tracks, and the actions of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks.
- The operator's reception of signals must be by a hands-free system.

AUDIBLE SIGNALS: These are signals made by a distinct sound or series of sounds, such as sounds made by a bell, horn, or whistle. As with other types of signals, the signal person and operator must clearly understand the meaning of the signals being used.

CHAPTER 19 – CRANE SAFETY

section a continued

NEW SIGNALS: The standard allows room for development of new signal technology by permitting signals other than hand, voice, or audible signals to be used where the employer demonstrates that:

- The new signals provide at least equally effective communication as voice, audible, or Standard Method hand signals, or
- The new signals comply with a national consensus standard that provides at least equally effective communication as voice, audible, or Standard Method hand signals.

FALL PROTECTION

Falls from dangerous heights can occur when employees work on boom sections during assembly/disassembly, when employees are gaining access to and from their work stations, or at other times when employees are working at elevations, as on tower crane walkways. The provisions of this section are designed to protect employees who work on elevated parts of equipment from falling. Regulations of the general fall protection standard for construction work, only applies to work on cranes when this section explicitly refers to a provision in that general fall protection regulation.

BOOM WALKWAYS: When lattice boom cranes are assembled and disassembled, it is sometimes necessary for employees to walk and work on the boom sections to install and remove pins or for other purposes. To provide them with a safer surface on which to walk and work, certain booms manufactured after November 8, 2011 must have built-in walkways. The booms that must be equipped with walkways are those more than six feet from cord centerline to cord centerline. The walkways must be at least 12 inches wide and need not be protected by guardrails, railings, or other permanent fall protection attachments.

STEPS, HANDHOLDS, LADDERS, GRABRAILS, GUARDRAILS AND RAILINGS: If the equipment was originally equipped with these devices, you must maintain them in good condition. However, the standard does not require existing equipment to be retrofitted with these devices.

Equipment manufactured after November 8, 2011 must be equipped to provide safe access and egress between the ground and the operator work station(s), including the forward and rear positions, by the provision of these types of devices. Walking/stepping surfaces, except for crawler treads, must have slip-resistant features/properties (such as diamond plate metal, strategically placed grip tape, expanded metal, or slip-resistant paint).

FALL PROTECTION DURING NON-ASSEMBLY/DISASSEMBLY WORK: As the employer, you must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge of:

more than 6 feet in OSHA States
more than 4 feet in Washington
more than 7.5 feet in California
above a lower level as follows:

- When moving point-to-point:
 - On non-lattice booms (whether horizontal or not horizontal).
 - On lattice booms that are not horizontal.
 - On horizontal lattice booms where the fall distances is 15 feet or more.
- While at a work station on any part of the equipment (including any type of boom), except when the employee is at or near draw-works when the equipment is running, in the cab, or on the deck.

FALL PROTECTION DURING ASSEMBLY/DISASSEMBLY WORK: You must provide and ensure the use of fall protection equipment for employees who are on a walking/working surface with an unprotected side or edge more than 15 feet above a lower level, except when the employee is at or near draw-works when the equipment is running, in the cab, or on the deck.

ANCHORAGE: Fall protection must be anchored to an apparently substantial part of the equipment that would meet the criteria in OSHA or OSHA State Plan Regulations. A personal fall arrest system may be anchored to the crane/derrick's hook (or other part of the load line) where all the following requirements are met:

- A qualified person has determined that the set-up and rated capacity of the crane/derrick (including the hook, load line, and rigging) meets or exceeds the requirements in OSHA or OSHA State Plan Regulations.
- The equipment operator must be at the work site and informed that the equipment is being used for this purpose.
- No load is suspended from the load line when the personal fall arrest system is anchored to the crane/derrick's hook (or any other part of the load line).

WORK AREA CONTROL

This section is designed to protect employees who work near a crane from being struck or crushed by the crane's rotating superstructure. To prevent employees from entering an area where they could be struck/crushed, you must:

CHAPTER 19 – CRANE SAFETY

section a continued

- Train each employee assigned to work on or near the equipment in how to recognize struck-by and pinch/crush hazard areas posed by the rotating superstructure.
- Erect and maintain control lines, warning lines, railings, or similar barriers to mark the boundaries of the hazard areas.

Exception: When you can demonstrate that it is neither feasible to erect such barriers on the ground nor on the equipment, the hazard areas must be clearly marked by a combination of warning signs (such as "Danger – Swing/Crush Zone") and high visibility markings on the equipment that identify the hazard areas. In addition, you must train each employee to understand what these markings signify.

Before an employee goes to a location in the hazard area that is out of view of the operator, the employee (or someone instructed by the employee) must ensure that the operator is informed that he/she is going to that location. Where the operator knows that an employee went to such a location, the operator must not rotate the superstructure until the operator is informed in accord with a pre-arranged system of communication that the employee is in a safe position.

KEEPING CLEAR OF THE LOAD

This section seeks to protect employees against being struck by a moving or falling load.

SAFE HOISTING ROUTES: Where available, hoisting routes that minimize the exposure of employees to hoisted loads must be used, to the extent consistent with public safety.

STATIONARY SUSPENDED LOADS: While the operator is not moving a suspended load, no employee may be within the fall zone, except for employees:

- Engaged in hooking, unhooking, or guiding the load;
- Engaged in the initial attachment of the load to a component or structure; or
- Operating a concrete hopper or concrete bucket.

HOOKING, UNHOOKING, OR GUIDING THE LOAD: When employees in the fall zone are engaged in hooking, unhooking, or guiding the load, or are connecting a load to a component or structure, all of the following criteria must be met:

- The materials being hoisted must be rigged to prevent unintentional displacement.
- Hooks with self-closing latches or their equivalent must be used. **Exception:** "J" hooks may be used for setting wooden trusses so that a worker need not go onto the truss to open the hook.
- The materials must be rigged by a qualified rigger.

RECEIVING A LOAD: Only employees needed to receive a load are permitted to be within the fall zone when a load is being landed.

TILT-UP OR TILT-DOWN OPERATION: During a tilt-up or tilt-down operation:

- No employee may be directly under the load.
- Only employees essential to the operation are permitted in the fall zone (but not directly under the load. Such employees include those who must be in the fall zone to guide the load, monitor the load's movement, or attach and/or detach the load.

FREE FALL AND CONTROLLED LOAD LOWERING

FREE FALL GENERALLY PROHIBITED: Some older cranes are designed with a "live boom," where the rate of lowering the boom can only be controlled by a brake. Failure of the brake can lead to free fall of the boom and a risk of death or serious injury to workers near the crane. This standard prohibits the use of equipment with a live boom unless:

- The equipment was manufactured before October 31, 1984, or
- The equipment is a floating crane/derrick or a land crane/derrick on a vessel/flotation device.

CHAPTER 19 – CRANE SAFETY

section a continued

FREE FALL SPECIFICALLY PROHIBITED: Even in the two situations where the equipment may have a live boom, the equipment may not be used in the following circumstances:

- An employee is in the fall zone of the boom or load.
- An employee is being hoisted.
- The load or boom is directly over a power line, or over any part of the area extending the Table A of § 1926.1408 clearance distance to each side of the power line; or any part of the area extending the Table A clearance distance to each side of the power line is within the radius of vertical travel of the boom or the load.
- The load is over a shaft, except where there are no employees in the shaft.
- The load is over a cofferdam, except where there are no employees in the fall zone of the boom or the load.
- Lifting operations are taking place in a refinery or tank farm.

BACKUP PROTECTION: In the situations listed above where the use of equipment with a live boom is prohibited, the boom hoist must have a secondary mechanism or device designed to prevent the boom from falling in the event the primary system used to hold or regulate the boom hoist fails, as follows:

- Friction drums must have:
 - A friction clutch and, in addition, a braking device, to allow for controlled boom lowering.
 - A secondary braking or locking device, which is manually or automatically engaged, to backup the primary brake while the boom is held (such as a secondary friction brake or a ratchet and pawl device).
- Hydraulic drums must have an integrally mounted holding device or internal static brake to prevent boom hoist movement in the event of hydraulic failure.
- Neither clutches nor hydraulic motors may be considered brake or locking devices for purposes of this subpart.
- Hydraulic boom cylinders must have an integrally mounted holding device.

PREVENTING UNCONTROLLED RETRACTION: Hydraulic telescoping booms must have an integrally mounted holding device to prevent the boom from retracting in the event of hydraulic failure.

LOAD LINE FREE FALL PROHIBITED. In each of the following circumstances, controlled load lowering is required and free fall of the load line hoist is prohibited:

- An employee is directly under the load.
- An employee is being hoisted.
- The load is directly over a power line, or over any part of the area extending the Table A clearance distance to each side of the power line; or any part of the area extending the Table A of clearance distance to each side of the power line is within the radius of vertical travel of the load.
- The load is over a shaft.
- The load is over a cofferdam, except where there are no employees in the fall zone of the load.

OPERATOR QUALIFICATION AND CERTIFICATION

This section contains new requirements designed to ensure that crane operators have the knowledge and skills they need to operate safely. **After November 10, 2014, operators of most equipment covered by the standard must be qualified or certified by, or under the scrutiny of, a third party other than the operator's employer.** An exception is provided for operators-in-training, who may operate equipment with certain limitations until they can become qualified or certified.

A few types of equipment are **not** covered by this requirement. They are:

- Derricks
- Sideboom cranes
- Equipment with a rated hoisting/lifting capacity of 2,000 pounds or less.

The rule uses the word "**certification**" to describe a process whereby an operator passes both written and practical tests administered by an accredited testing organization. The rule uses the term "**qualification**" in describing three other options: (1) qualification by an audited employer program; (2) qualification by the U.S. Military (limited to employees of the Department of Defense or members of the Armed Forces); and (3) licensing by a government entity. If you are working in a jurisdiction that requires a state or local crane license and the licensing process meets the requirements of this standard, your operator must obtain such a license.

The following questions and answers contain additional information you need to know to comply with the qualification/certification requirement:

CHAPTER 19 – CRANE SAFETY

section a continued

QUESTION 1: Is there anything I must do before November 10, 2014?

ANSWER 1: Yes. As in the past, you must ensure that equipment operators are competent to operate the equipment safely. If an employee assigned to operate machinery does not have the required knowledge or ability to operate the equipment safely, you must train that employee prior to allowing him or her to operate the equipment and must evaluate the operator to confirm that he/she understands the information provided in the training. In addition, both before and after November 10, 2014, you must ensure that operators of derricks, sideboom cranes, and equipment rated at 2,000 pounds or less are competent to operate the equipment safely.

In addition, if you are working in a jurisdiction that has a state or local certification or licensing requirement that is effective before November 10, 2014, you must comply with that requirement if the certification or licensing process meets the requirements of this standard.

QUESTION 2: Who can certify a crane operator?

ANSWER 2: A valid certification can only be issued by an "accredited crane operator testing organization." To qualify for this title, the testing organization must be accredited by a "nationally recognized accrediting agency." During the rulemaking, OSHA identified two organizations qualified as "nationally recognized accrediting agencies:" the National Commission for Certifying Agencies (NCCA) and the American National Standards Institute (ANSI). These had accredited several testing organizations, and their websites identify the organizations they have accredited. Note that a testing organization's accreditation must be reviewed at least every three years.

QUESTION 3: How long is a certification valid?

ANSWER 3: A certification is valid for 5 years. After 5 years, it must be renewed to make sure that the operator's knowledge and skills are up-to-date.

QUESTION 4: Does an operator's certification mean that the operator is qualified to operate any type of equipment covered by the standard?

ANSWER 4: No. An operator is qualified to operate a particular piece of equipment if the operator is certified for that type and capacity of equipment or for higher-capacity equipment of that type. For example, an operator certified for a 100-ton hydraulic crane may operate a 50-ton hydraulic crane but not a 200-ton hydraulic crane. If no accredited testing agency offers certification examinations for a particular type and/or capacity of equipment, an operator is considered to be qualified to operate that equipment if the operator has been certified for the type/capacity that is most similar to that equipment and for which a certification examination is available. The operator's certificate must state the type/capacity of equipment for which the operator is certified.

QUESTION 5: I am planning to lease a crane with an operator. The lease provides that the operator will be certified in accord with OSHA or OSHA state plan requirements. Can I rely on the leasing company, or do I need to check the operator's certification card?

ANSWER 5: You are responsible for ensuring that the operator is certified. The rule does not specify how you must do that. Personally examining the operator's certificate may be advisable. If there is any question as to whether the operator's certification is valid, you should contact the testing organization that issued the certification.

QUESTION 6: I plan to hire a new crane operator. An applicant for the job was certified for the equipment by an accredited testing organization while working for another employer. May I rely on that individual's certification?

ANSWER 6: Yes, such a certification is portable. However, as stated above, the certification is valid for only 5 years, after which it must be renewed. A qualification by an audited employer program or by the U.S. military, on the other hand, is not portable.

QUESTION 7: Must a candidate for operator certification take a training course before taking the exam?

ANSWER 7: No. The standard requires that the certification exam cover certain topics relevant to safe crane operation but does not require any particular type of training. An experienced operator may have the necessary knowledge and skills without further training. However, a number of organizations offer courses that are designed to prepare an individual to take the exam. Even for experienced crane operators, such a course can help update the individual's knowledge and alleviate test-taking anxiety.

QUESTION 8: Does OSHA or OSHA state plan have a list of approved training providers?

ANSWER 8: No. OSHA or OSHA state plan does not evaluate or approve crane operator training courses.

QUESTION 9: I am a crane operator who is preparing to take the certification exam. What is the exam like?

ANSWER 9: The exam consists of both a written and a practical test. The written test covers, among other topics, (1) the controls and operational/performance characteristics of the equipment; (2) use of, and the ability to calculate (manually or with a calculator), load/capacity information on a variety of configurations of the equipment; (3) procedures for preventing and responding to power line contact; (4) the ground conditions needed to support the equipment and load.

The practical test is conducted with the operator at the controls of the equipment. It requires the operator to demonstrate, among other things, operational and maneuvering skills, the ability to apply load chart information, and the ability to safely shut down and secure the equipment.

CHAPTER 19 – CRANE SAFETY

section a continued

QUESTION 10: I am fluent in Spanish but not English. Does OSHA or OSHA state plan require an operator to speak English in order to become certified?

ANSWER 10: No. The examination may be administered in any language the operator candidate understands. It may be administered verbally as long as the operator can demonstrate that he/she is literate in the language of the exam and demonstrates the ability to use the type of written manufacturer procedures applicable to the class/type of equipment for which the candidate is seeking certification. The operator's certificate must note the language in which the exam was given, and the employee may only operate a crane that is furnished with materials required by the standard that are written in the language of the certification.

QUESTION 11: After November 10, 2014, I plan to train a new employee to be a crane operator. May that employee operate a crane as part of his/her training before becoming certified?

ANSWER 11: Yes, an operator-in-training may operate a crane as long as the following conditions are satisfied.

- The employer must provide each operator-in-training with sufficient training prior to operating the equipment to enable the operator-in-training to operate the equipment safely.
- The tasks performed by the operator-in-training while operating the equipment must be within the operator-in-training's ability.
- While operating the equipment, the operator-in-training must be continuously monitored by an individual ("operator's trainer") who meets all of the following requirements:
 - The operator's trainer is an employee or agent of the operator-in-training's employer.
 - The operator's trainer is either a certified operator under this section or has passed the written portion of a certification test and is familiar with the proper use of the equipment's controls.
 - While monitoring the operator-in-training, the operator's trainer performs no tasks that detract from the trainer's ability to monitor the operator-in-training.
 - For equipment other than tower cranes: the operator's trainer and the operator-in-training must be in direct line of sight of each other. In addition, they must communicate verbally or by hand signals. For tower cranes: the operator's trainer and the operator-in-training must be in direct communication with each other
- The operator-in-training must be monitored by the operator's trainer at all times, except for short breaks where all of the following are met:
 - The break lasts no longer than 15 minutes and there is no more than one break per hour.
 - Immediately prior to the break the operator's trainer informs the operator-in-training of the specific tasks that the operator-in-training is to perform and limitations to which he/she must adhere during the operator trainer's break.
 - The specific tasks that the operator-in-training will perform during the operator trainer's break are within the operator-in-training's abilities.
- The operator-in-training must not operate the equipment in any of the following circumstances:
 - If any part of the equipment, load line, or load (including rigging and lifting accessories), if operated up to the equipment's maximum working radius in the work zone, could get within 20 feet of a power line that is up to 350 kV, or within 50 feet of a power line that is over 350 kV.
 - If the equipment is used to hoist personnel.
 - In multiple-equipment lifts.
 - If the equipment is used over a shaft, cofferdam, or in a tank farm.
 - In multiple-lift rigging operations, except where the operator's trainer determines that the operator-in-training's skills are sufficient for this high-skill work.

SIGNAL PERSON QUALIFICATIONS

Each signal person must meet the following qualification requirements:

- Know and understand the type of signals used. If hand signals are used, the signal person must know and understand the Standard Method for hand signals.
- Be competent in the application of the type of signals used.
- Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads.
- Know and understand the relevant requirements of the sections of the standard dealing with signals.
- Demonstrate that he/she meets these requirements through an oral or written test, and through a practical test.

The employer of the signal person must ensure that the signal person meets these Qualification Requirements through one of the following qualification options:

Option (1) – Third party qualified evaluator. The signal person has documentation from a third party qualified evaluator (see section 1401 for definition of "Qualified Evaluator (third party)") showing that the signal person meets the qualification requirements.

CHAPTER 19 – CRANE SAFETY

section a continued

Option (2) – Employer's qualified evaluator. The employer's qualified evaluator (see section 1401 for definition of "Qualified Evaluator (not a third party)") and determines that the individual meets the qualification requirements.

The employer must make the documentation for whichever option is used available at the site while the signal person is employed by the employer. Such documentation is considered "available" when it is physically present on the site or retrievable via an on-site computer. The documentation must specify each type of signaling (e.g., hand signals, radio signals, etc.) for which the signal person meets the requirements of paragraph (c) of this section.

If subsequent actions by the signal person indicate that the individual does not meet the qualification requirements, the employer must not allow the individual to continue working as a signal person until retraining is provided and a reassessment is made under one of the two options that confirms that the individual meets the qualification requirements.

QUALIFICATIONS OF MAINTENANCE & REPAIR EMPLOYEES

Improper crane maintenance and repair can lead to dangerous equipment failure. To ensure that maintenance and repair employees are qualified to perform their assigned tasks, this section requires maintenance and repair personnel to meet the definition of a qualified person with respect to the equipment and maintenance/repair tasks they perform. The definition of "qualified person" is found in the Definitions Section.

Some maintenance and repair tasks may require the maintenance and repair personnel to operate the equipment to diagnose a problem or check its operation. Such personnel need not be qualified or certified to operate the equipment as long as the following requirements are met:

- The operation is limited to those functions necessary to perform maintenance, inspect the equipment, or verify its performance, and
- The personnel either:
 - Operate the equipment under the direct supervision of an operator who meets the qualification/certification requirements, **or**
 - Are familiar with the operation, limitations, characteristics, and hazards associated with the type of equipment.

TRAINING

Other sections of this standard require training in specific topics. This section lists the training requirements found in other sections and includes additional training requirements not found elsewhere.

TRAINING REQUIREMENTS SPECIFIED ELSEWHERE:

- **Overhead powerlines.**
- **Signal persons.**
- **Operators.** (See section for the training required for operators during the four-year transitional period for operator qualification/certification, for operators of equipment that does not require qualification/certification, and for operators-in-training).

ADDITIONAL TRAINING REQUIREMENTS:

- **Operators.** You must train each equipment operator in the manufacturer's emergency procedures for halting unintended equipment movement and in the following practice: whenever moving a boom off a support, first raise the boom a short distance (sufficient to take the load of the boom) to determine if the boom hoist brake needs to be adjusted or repaired.
- **Competent persons and qualified persons.** You must train each competent person and each qualified person in the requirements of this standard that apply to them.
- **Crush/pinch points.** You must train each employee who works with the equipment to keep clear of holes, crush/pinch points, and the hazards addressed in Work area control.
- **Tag-out.** You must train each operator and each additional employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees) in the tag-out and start-up procedures.

TRAINING ADMINISTRATION: You have the following responsibilities with respect to each employee who must be trained under the standards of OSHA or OSHA state plan:

- Evaluate each employee to confirm that the employee understands the information provided in the training.
- Provide refresher training in relevant topics for each employee when, based on the conduct of the employee or an evaluation of the employee's knowledge, there is an indication that retraining is necessary.
- Provide the training at no cost to the employee.

CHAPTER 19 – CRANE SAFETY

section a continued

SECTION – HOISTING PERSONNEL

HOISTING PERSONNEL IS GENERALLY PROHIBITED: Cranes and derricks may not be used to hoist employees except where the employer demonstrates that the erection, use, and dismantling of conventional means of reaching the work area, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold, would be more hazardous, or is not possible because of the project's structural design or worksite conditions.

This section contains stringent criteria to assure the safety of personnel who must be hoisted by a crane or derrick. These criteria are fundamentally the same as those in the prior standard.

USE OF PERSONNEL PLATFORM: A personnel platform must be used when hoisting employees except when hoisting them:

- Into and out of drill shafts that are 8 feet in diameter or smaller.
- In pile driving operations.
- Solely for transfer to or from a marine worksite in a marine-hoisted personnel transfer device.
- In storage tank (steel or concrete), shaft, and chimney operations.

Where these exceptions apply, the employee may be hoisted in either a personnel platform or a boatswain's chair. See the standard for rules applicable to these special types of lifts.

PERSONNEL PLATFORM CRITERIA: The personnel platform must conform to the following:

- A qualified person familiar with structural design must design the personnel platform and attachment/suspension system used for hoisting personnel.
- The system used to connect the personnel platform to the equipment must allow the platform to remain within 10 degrees of level, regardless of boom angle.
- The suspension system must be designed to minimize tipping of the platform due to movement of employees occupying the platform.
- The personnel platform itself (excluding the guardrail system and personal fall arrest system anchorages) must be able to support, without failure, its own weight and at least five times the maximum intended load.
- All welding of the personnel platform and its components must be performed by a certified welder familiar with the weld grades, types and material specified in the platform design.
- The personnel platform must be equipped with a guardrail system which meets OSHA or OSHA state plan criteria and must be enclosed at least from the toeboard to mid-rail with either solid construction material or expanded metal having openings no greater than ½ inch. Points to which personal fall arrest systems are attached must meet OSHA or OSHA state plan anchorage requirements.
- A grab rail must be installed inside the entire perimeter of the personnel platform except for access gates/doors.
- If installed, access gates/doors of all types (including swinging, sliding, folding, or other types) must:
 - Not swing outward. However, if due to the size of the personnel platform, such as a 1-person platform, it is infeasible for the door to swing inward and allow safe entry for the platform occupant, then the access gate/door may swing outward.
 - Be equipped with a device that prevents accidental opening.
- Headroom must be sufficient to allow employees to stand upright in the platform.
- In addition to the use of hard hats, employees must be protected by overhead protection on the personnel platform when employees are exposed to falling objects. The platform overhead protection must not obscure the view of the operator or platform occupants (such as wire mesh that has up to ½ inch openings) unless full protection is necessary.
- All edges exposed to employee contact must be smooth enough to prevent injury.
- The weight of the platform and its rated capacity must be conspicuously posted on the platform with a plate or other permanent marking.
- The personnel platform must not be loaded in excess of its rated capacity.
- Personnel platforms must be used only for employees, their tools, and the materials necessary to do their work.
- Materials and tools must be secured to prevent displacement and evenly distributed within the platform.
- The number of employees occupying the personnel platform must not exceed the maximum number the platform was designed to hold, or the number required to perform the work, whichever is less.

HOISTING EQUIPMENT: The hoisting equipment must meet the following criteria when hoisting personnel:

- The equipment must be uniformly level, within one percent of level grade, and located on footing that a qualified person has determined to be sufficiently firm and stable.
- Equipment with outriggers or stabilizers must have them all extended and locked. The amount of extension must be the same for all outriggers and stabilizers and in accord with manufacturer procedures and load charts.
- The total load (including the hook, load line and rigging) must not exceed 50 percent of the rated capacity for the radius and configuration of the equipment, except during proof testing.

CHAPTER 19 – CRANE SAFETY

section a continued

- When the occupied personnel platform is in a stationary working position, the load and boom hoist brakes, swing brakes, and operator actuated secondary braking and locking features (such as pawls or dogs) or automatic secondary brakes must be engaged.
- Attachments and rigging hardware must meet the criteria specified for Rigging.

TRIAL LIFT AND INSPECTION: A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift weight must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. Where there is more than one location to be reached from a single set-up position, either individual trial lifts for each location, or a single trial lift, in which the platform is moved sequentially to each location, must be performed; the method selected must be the same as the method that will be used to hoist the personnel.

Immediately after the trial lift, a competent person must visually inspect the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect. Any condition found during the trial lift and subsequent inspection that fails to meet a requirement of this standard or otherwise creates a safety hazard must be corrected before hoisting personnel.

PROOF TESTING: Prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform's rated capacity. The proof test may be done concurrently with the trial lift. Personnel hoisting must not be conducted until a competent person determines that the platform and rigging have successfully passed the proof test.

WORK PRACTICES: The following practices must be used:

- Hoisting of the personnel platform must be performed in a slow, controlled, cautious manner, with no sudden movements of the equipment or the platform.
- Platform occupants must keep all parts of the body inside the platform during raising, lowering, and horizontal movement, and must not stand, sit on, or work from the top or intermediate rail or toeboard, or use any other means/device to raise their working height.
- Before employees exit or enter a hoisted personnel platform that is not landed, the platform must be secured to the structure where the work is to be performed, unless the employer can demonstrate that securing the platform to the structure would create a greater hazard.
- If the platform is tied to the structure, the operator must not move the platform until the operator receives confirmation that it is freely suspended.
- Tag lines must be used when necessary to control the platform.
- Where the platform is not equipped with controls, the equipment operator must remain at the equipment controls, on site, and in view of the equipment, at all times while the platform is occupied.
- Where the platform is equipped with controls, all of the following must be met at all times while the platform is occupied:
 - The occupant using the controls in the platform must be a qualified person with respect to their use, including the safe limitations of the equipment and hazards associated with its operation.
 - The equipment operator must be at a set of equipment controls that include boom and swing functions of the equipment and must be on site and in view of the equipment.
 - The platform operating manual must be in the platform or on the equipment.
- When wind speed (sustained or gusts) exceeds 20 mph at the personnel platform, or other potentially dangerous weather conditions are present, a qualified person must determine if, in light of the wind conditions, it is not safe to lift personnel. If it is not, the lifting operation must not begin (or, if already in progress, must be terminated).
- Employees being hoisted must remain in direct communication with the signal person (where used) or the operator.
- Except over water, employees occupying the personnel platform must be provided and use a personal fall arrest system attached to a structural member within the personnel platform. When working over or near water, the requirements of OSHA or OSHA state plan apply.
- No lifts may be made on any other of the equipment's load lines while personnel are being hoisted, except in pile driving operations.
- Hoisting of employees while the equipment (other than derricks) is traveling is prohibited except in certain circumstances. Derricks are prohibited from traveling while personnel are hoisted.

PRE-LIFT MEETING: A pre-lift meeting must be held before the trial lift to review the applicable requirements of this section and the procedures that will be followed. The meeting must be attended by the equipment operator, signal person (if used for the lift), employees to be hoisted, and the person responsible for the task to be performed.

HOISTING PERSONNEL NEAR POWER LINES: Hoisting personnel within 20 feet of a power line that is up to 350 kV, and hoisting personnel within 50 feet of a power line that is over 350 kV, is prohibited (except for power transmission and distribution work).

CHAPTER 19 – CRANE SAFETY

section a continued

MULTIPLE-CRANE/DERRICK LIFTS

Lifts in which more than one crane or derrick is used require careful planning and precise coordination. It is particularly important to determine how the weight of the load will be distributed among the multiple pieces of equipment during all phases of the operation to ensure that all are operated within their rated capacities. Accordingly, when more than one crane/derrick is used to support the load, a plan must be developed and implemented. The plan must be developed by a qualified person and be designed to ensure that all requirements of this standard are met. Where the qualified person determines that engineering expertise is needed for the planning, the employer must ensure that it is provided.

The multiple-crane/derrick lift must be directed by a lift director who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons. The lift director must review the plan in a meeting with all workers who will be involved with the operation.

DESIGN, CONSTRUCTION AND TESTING

For equipment to be used safely, it must be built with appropriate safety features and maintained in a safe condition. Although manufacturers are not directly subject to this standard, crane users rely on manufacturers to see that the equipment is built and tested so that it is safe when it leaves the manufacturer. Therefore, with the exceptions discussed below, the crane user's obligations under this section are met where the employer can refer to documentation from the manufacturer showing that the equipment has been designed, constructed and tested in accord with this section and the equipment has not changed since it was manufactured except in accord with the Section on Equipment Modifications.

You **cannot** rely on manufacturer documentation to comply with the following requirements:

RATED CAPACITY AND RELATED INFORMATION: The following information must be available in the cab:

- A complete range of the manufacturer's equipment rated capacities.
- A work area chart for which capacities are listed in the load chart. (The work area figure and load chart must clearly indicate the areas where no load is to be handled).
- Recommended reeving for the hoist lines.
- Recommended parts of hoist reeving, size, and type of wire rope for various equipment loads.
- Recommended boom hoist reeving diagram, where applicable; size, type and length of wire rope.
- Tire pressure (where applicable).
- Caution or warnings relative to limitations on equipment and operating procedures, including an indication of the least stable direction.
- Position of the gantry and requirements for intermediate boom suspension (where applicable).
- Instructions for boom erection and conditions under which the boom, or boom and jib combinations, may be raised or lowered.
- Whether the hoist holding mechanism is automatically or manually controlled, whether free fall is available, or any combination of these.
- The maximum telescopic travel length of each boom telescopic section.
- Whether sections are telescoped manually or with power.
- The sequence and procedure for extending and retracting the telescopic boom section.
- Maximum loads permitted during the boom extending operation, and any limiting conditions or cautions.
- Hydraulic relief valve settings specified by the manufacturer.

MISCELLANEOUS REQUIREMENTS:

- Load hooks (including latched and unlatched types), ball assemblies and load blocks must be of sufficient weight to overhaul the line from the highest hook position for boom or boom and jib lengths and the number of parts of the line in use.
- Hook and ball assemblies and load blocks must be marked with their rated capacity and weight.
- Hooks must be equipped with latches, except where a qualified person has determined that it is safer to hoist and place the load without latches (or with the latches removed/tied-back), and routes for the loads are pre-planned to ensure that no employee is required to work in the fall zone except for employees necessary for the hooking or unhooking of the load.
- Posted warnings required by this standard as well as those originally supplied with the equipment by the manufacturer must be maintained in legible condition.
- An accessible fire extinguisher must be on the equipment.

EQUIPMENT MODIFICATIONS

This section applies to modifications that affect the capacity or safe operation of the equipment. Its provisions safeguard against unsafe equipment modifications and provide that the modifications are reflected in the equipment's instructions and specifications so that the modified equipment can be used safely.

CHAPTER 19 – CRANE SAFETY

section a continued

MANUFACTURER REVIEW AND APPROVAL: The equipment's manufacturer is uniquely qualified to evaluate any proposed modifications to the equipment. If the manufacturer is available and is willing to evaluate the proposed modifications, any modifications or additions that affect the capacity or safe operation of the equipment are only permitted where:

- The manufacturer approves the modifications/additions in writing, and
- The load charts, procedures, instruction manuals, and instruction plates/tags/decals are modified as necessary to accord with the modification/addition

MANUFACTURER REVIEW UNAVAILABLE: In the event the manufacturer is unavailable, is unwilling to review the proposed modification/addition or to reject it in writing, fails to initiate the review or acknowledge the request within 30 days, or fails to complete the review within 120 days, the modification/addition may be made if a registered professional engineer who is a qualified person with respect to the equipment involved:

Approves the modification/addition and specifies the equipment configurations to which that approval applies, and

- Modifies load charts, procedures, instruction manuals, and instruction plates/tags/decals as necessary to accord with the modification/addition.

Under this option as well as that involving manufacturer approval, the original safety factor of the equipment may not be reduced.

TOWER CRANES

Tower cranes present unique issues that are addressed in this section. In general, all provisions of the standard apply to tower cranes unless this section specifies different or additional requirements.

ADDITIONAL REQUIREMENTS FOR ERECTING, CLIMBING, AND DISMANTLING: To reflect industry terminology, "erecting, climbing, and dismantling" are used instead of "assembly/disassembly" when referring to tower cranes. The following requirements apply:

Tower crane foundations and structural supports (including both the portions of the structure used for support and the means of attachment) must be designed by the manufacturer or a registered professional engineer.

- The Assembly/Disassembly (A/D) director must determine that tower crane foundations and structural supports are installed in accord with their design.
- The A/D Director must address the backward stability of self-erecting cranes or cranes on traveling or static undercarriages.
- Wind must not exceed the speed recommended by the manufacturer or, where the manufacturer does not specify this information, the speed determined by a qualified person.
- Towers must be erected plumb to the manufacturer's tolerance and verified by a qualified person. Where the manufacturer does not specify plumb tolerance, the crane tower must be plumb to a tolerance of at least 1:500 (approximately 1 inch in 40 feet).
- On jobsites where more than one fixed jib (hammerhead) tower crane is installed, the cranes must be located such that no crane can come in contact with the structure of another crane. Cranes are permitted to pass over one another.
- Prior to, and during, all climbing procedures (including inside climbing and top climbing), the employer must comply with all manufacturer prohibitions and have a registered professional engineer verify that the host structure is strong enough to sustain the forces imposed through the braces, brace anchorages, and supporting floors.
- Equipment must not be erected, dismantled or operated without the amount and position of counterweight and/or ballast in place as specified by the manufacturer or a registered professional engineer familiar with the equipment. The maximum counterweight and/or ballast specified by the manufacturer or registered professional engineer must not be exceeded
- The size and location of signs installed on tower cranes must be in accord with manufacturer specifications. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve in writing the size and location of any signs.

PARTICULAR CAUTION REQUIRED WHEN USING SYNTHETIC SLINGS: This requirement has been covered, but bears repeating here: when using synthetic slings during erecting, climbing, and dismantling, you must follow the synthetic sling manufacturer's instructions, limitations, specifications and recommendations. Synthetic slings must be protected from abrasive, sharp or acute edges, and configurations that could cause a reduction of the sling's rated capacity, such as distortion or localized compression.

CHAPTER 19 – CRANE SAFETY

section a continued

SAFETY DEVICES: Different safety devices than those specified are required on tower cranes. Those required on tower cranes are:

- **Boom stops** on luffing boom type tower cranes.
- **Jib stops** on luffing boom type tower cranes if equipped with a jib attachment.
- **Travel rail end stops** at both ends of travel rail.
- **Travel rail clamps** on all travel bogies.
- **Integrally mounted check valves** on all load-supporting hydraulic cylinders.
- **Hydraulic system pressure limiting device.**
- The following **brakes**, which must automatically set in the event of pressure loss or power failure, are required:
 - A **hoist brake** on all hoists.
 - **Swing brake.**
 - **Trolley brake.**
 - **Rail travel brake.**
- **Deadman control** or forced neutral return control (hand) levers.
- **Emergency stop switch** at the operator's station.
- **Trolley end stops** must be provided at both ends of travel of the trolley.

Proper operation of these safety devices is required before operations can begin.

OPERATIONAL AIDS: Different operational aids than those specified are required for tower cranes. Those required on tower cranes are:

- **Trolley travel limiting device** at both trolley end stops.
- **Boom hoist limiting device** that limits the range of the boom at the minimum and maximum radius.
- **Anti two-blocking device.**
- **Hoist drum lower limiting device** on tower cranes manufactured after November 8, 2011.
- **Load moment limiting device.**
- **Hoist line pull limiting device.**
- **Rail travel limiting device.**
- **Boom hoist drum positive locking device and control.**
- **Boom angle or hook radius indicator** readable from the operator's station. (Required on all luffing boom tower cranes and on hammerhead tower cranes manufactured after November 8, 2011).
- **Trolley travel deceleration device.**
- **Boom hoist deceleration device.**
- **Load hoist deceleration device.**
- **Wind speed indicator.**
- **Load indicating device** on tower cranes manufactured after November 8, 2011.

As with operational aids on other equipment, tower cranes may be operated for limited amounts of time with malfunctioning aids as long as the temporary alternative measures specified in the standard are taken.

- **INSPECTIONS:** Additional inspection requirements for tower cranes are discussed under **Inspections**

DERRICKS

OPERATOR QUALIFICATIONS: Derrick operators need not meet the operator qualification/certification requirement. However, you must train each derrick operator on how to operate the equipment safely.

LOAD CHARTS: For permanently installed derricks with fixed lengths of boom, guy, and mast, a load chart must be posted where it is visible to personnel responsible for the operation of the equipment. For derricks that are not permanently installed, the load chart must be readily available at the job site to personnel responsible for operating the equipment. Load charts must contain at least the following information:

- Rated capacity at corresponding ranges of boom angle or operating radii.
- Specific lengths of components to which the rated capacities apply.
- Required parts for hoist reeving.
- Size and construction of rope must be included on the load chart or in the operating manual.

CHAPTER 19 – CRANE SAFETY

section a continued

CONSTRUCTION: Derricks must be constructed to meet all stresses imposed on members and components when installed and operated in accord with the manufacturer's/ builder's procedures and within its rated capacity. Load anchoring data developed by the manufacturer or a qualified person must be used.

Specific additional construction requirements are specified for:

- Guy derricks
- Stiffleg derricks
- Gin pole derricks
- Chicago boom derricks

SWINGERS AND HOISTS: The boom, swinger mechanisms, and hoists must be suitable for the derrick work intended and must be anchored to prevent displacement from the imposed loads.

Hoists must meet the following requirements:

- Base mounted drum hoists must meet certain specified requirements of ASME B30.7-2001 ("Base-Mounted Drum Hoists").
- New hoists must be load tested to a minimum of 110% of rated capacity, but not more than 125% of rated capacity, unless otherwise recommended by the manufacturer. This requirement is met where the manufacturer has conducted the testing.
- Hoists that have had repairs, modifications, or additions affecting their capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted in the manner specified in the standard.

OPERATIONAL AIDS: The operational aids requirements listed in section 1416 apply to derricks except 1) a boom hoist limiting device (required by section 1416 for other equipment) is not required for derricks, and 2) alternative requirements to those in section 1416 are specified for the following two operational aids:

Boom angle or radius indicator: Such a device is not required, but if the derrick is not equipped with a functioning one, the employer must ensure that either:

- The boom hoist cable is marked with caution and stop marks. The stop marks must correspond to maximum and minimum allowable boom angles. The caution and stop marks must be in view of the operator or a spotter who is in direct communication with the operator; or
- An electronic or other device that signals the operator in time to prevent the boom from moving past its maximum and minimum angles, or automatically prevents such movement, is used.

Load weight/capacity device. Derricks manufactured after November 8, 2011 with a maximum rated capacity over 6,000 pounds must have at least one of the following: load weighing device, load moment indicator, rated capacity indicator, or rated capacity limiter.

POST-ASSEMBLY APPROVAL AND TESTING: The following requirements apply to new or reinstalled derricks:

- **Anchorage.** Anchorages, including the structure to which the derrick is attached (if applicable), must be approved by a qualified person.
- **Functional test.** Prior to initial use, new or reinstalled derricks must be tested by a competent person with no hook load to verify proper operation. This test must include:
 - Lifting and lowering the hook(s) through the full range of hook travel.
 - Raising and lowering the boom through the full range of boom travel.
 - Swinging in each direction through the full range of swing.
 - Actuating the anti two-block and boom hoist limit devices (if provided).
 - Actuating locking, limiting, and indicating devices (if provided).
- **Load test.** Prior to initial use, new or reinstalled derricks must pass a load test conducted by a competent person. Test loads must be at least 100% and no more than 110% of the rated capacity, unless otherwise recommended by the manufacturer or qualified person, but in no event must the test load be less than the maximum anticipated load. The test must consist of:
 - Hoisting the test load a few inches and holding to verify that the load is supported by the derrick and held by the hoist brake(s).
 - Swinging the derrick, if applicable, the full range of its swing, at the maximum allowable working radius for the test load.
 - Booming the derrick up and down within the allowable working radius for the test load.
 - Lowering, stopping, and holding the load with the brake(s).

CHAPTER 19 – CRANE SAFETY

section a continued

- **Test documentation.** The functional and load tests must be documented. The document must contain the date, test results, and name of the tester. The document must be retained until the derrick is retested or dismantled, whichever occurs first. All such documents must be available during the applicable document retention period to all persons who conduct required inspections.

LOAD TESTING REPAIRED OR MODIFIED DERRICKS: Derricks that have had repairs, modifications, or additions affecting the derrick's capacity or safe operation must be evaluated by a qualified person to determine if a load test is necessary. If it is, load testing must be conducted and documented.

POWER FAILURE PROCEDURES: If power fails during operations, the derrick operator must safely stop operations. This must include setting all brakes or locking devices and moving all clutch and other power controls to the off position.

JUMPING: The process of jumping a derrick must be supervised by the Assembly/Disassembly (A/D) director.

FLOATING CRANES/DERRICKS AND LAND CRANES/DERRICKS ON BARGES

This section contains requirements for floating cranes and derricks that supplement the other requirements of the standard. Because this equipment is highly specialized and is not used by most construction employers, this Guide will only address a few of the areas where additional or different requirements are specified for this type of equipment.

INSPECTIONS: Additional items must be inspected during the shift, monthly, and annual inspections. In addition, every four years, a marine engineer, marine architect, licensed surveyor, or other qualified person who has expertise with respect to vessels/flotation devices must survey the internal portion of the barge, pontoons, vessel, or other means of flotation.

SAFETY DEVICES: The following additional safety devices are required: barge, pontoon, vessel, or other means of flotation list and trim device; positive equipment house lock; wind speed and direction indicator (if a competent person determines that wind is a factor that needs to be considered).

WORKING WITH A DIVER: When a crane/derrick is used to lift a diver or divers into and out of the water, it must not be used for any other purpose until all the divers are back on board.

LAND CRANES/DERRICKS ON FLOTATION DEVICES: The rated capacity must be reduced to take into account the additional sources of instability (list, trim, wave action, and wind) resulting from operating on water. Alternative means of physical attachment and an exception to the requirement for physical attachment are specified.

EQUIPMENT DESIGNED FOR USE ON FLOTATION DEVICES: Requirements for maximum list, trim, and wind speed are specified. Additional rules to ensure the structural integrity and stability of the equipment apply to employer-made (as opposed to manufacturer-made) equipment.

OVERHEAD & GANTRY CRANES

Most overhead and gantry cranes are used in general industry rather than construction work. In some cases, overhead and gantry cranes that are usually used in general industry may engage in construction work when they are used to renovate the facility in which they are installed. To prevent the same crane from being subject to general industry and construction standards at different times, this section provides that OSHA or OSHA state plan General Industry code applies to an overhead or gantry crane that is **permanently installed in a facility**.

In addition, certain provisions of ASME B30.2-2005 (Overhead and Gantry Cranes) apply to overhead and gantry cranes not permanently installed in a facility.

DEDICATED PILE DRIVERS

Most provisions of this standard apply to dedicated pile drivers. The only exceptions are:

- The requirement for an anti two-blocking device.
- Certain requirements of that apply to design, construction, and testing of mobile cranes.
- The requirement for load weighing and similar devices applies only to dedicated pile drivers manufactured after November 8, 2011.

CHAPTER 19 – CRANE SAFETY

section a continued

SECTION – SIDEBOOM CRANES

Most provisions of the Crane standards apply to sideboom cranes. The exceptions are:

- Ground conditions,
- Safety devices,
- Operational aids, and
- Operator qualification and certification).

In addition, instead of the provision on boom free fall, sideboom cranes in which the boom is designed to free fall (live boom) are permitted only if manufactured prior to November 8, 2010. This section also specifies that sideboom cranes mounted on wheel or crawler tractors must meet certain listed requirements of ASME B30.14-2004 ("Side Boom Tractors").

SECTION – EQUIPMENT WITH A RATED HOISTING/LIFTING CAPACITY OF 2,000 POUNDS OR LESS

Although equipment with a capacity of 2,000 pounds or less does not require all of the precautions required for heavier equipment, its operation still presents significant hazards that can cause death or injury. For example, operation near energized power lines requires the same precautions as heavier equipment because the potential for electrocution is the same.

This section lists the provisions of the standard that apply to equipment with a capacity of 2,000 pounds or less and those for which modified requirements apply. The most significant differences are:

- The requirement for operator qualification/certification does not apply. Instead, the employer must train each operator on the safe operation of the equipment before the operator may operate the equipment.
- The requirements for shift, monthly, and annual inspections do not apply. However, post-assembly inspections and the wire rope inspections must be conducted.
- More limited assembly/disassembly requirements apply.
- The safety devices and operational aids need not be used, except for two-block protection. However, safety devices and operational aids that are part of the original equipment must be maintained in accord with manufacturer procedures.
- Signal persons must be adequately trained but need not meet the qualification requirements.
- Equipment covered by this section must not be used to hoist personnel.

The following Questions and Answers explain the compliance duties of different employers under various common situations.

Question 1: I own and operate a crane on a construction site. The crane operator is my employee. What are my responsibilities under the standard?

Answer 1: You must comply with all requirements of the standard, as you control all hazards the crane may create.

Question 2: I operate a leased crane on a construction site. The crane's lessor has informed me that the crane meets OSHA or OSHA state plan standard. Can I rely on the lessor's word and assume that the crane complies with the standard?

Answer 2: No. As the employer operating the crane you are responsible for complying with all requirements of the standard. Even if the lessor states that the crane meets the standard, you must take steps to verify that claim. One way to verify their claim is to ask the lessor for the most recent monthly and annual inspections reports, which will identify any problems found by the inspectors that either needed to be fixed or that need to be checked in future inspections. These documents must be made available to all persons who conduct inspections under the standard, including the shift inspections you must conduct while operating the crane. If the lessor cannot produce the required inspection documents, you will need to conduct an annual inspection and document the results of that inspection before operating the crane. See the section on Inspections for a description of the inspections required by the standard.

Question 3: I lease a crane to a construction contractor and provide an operator for the crane. While on the site, the operator is supervised exclusively by the lessee's foreman. Do I have any responsibilities under the standard?

Answer 3: Yes. You must comply with all requirements of the standard because your employee, the operator, would be exposed to any hazards resulting from the crane's operation. Moreover, you are responsible for any violations caused by the crane operator because you are the operator's employer and the lessee is relying on the operator's knowledge and skills to ensure that operations are conducted safely. See Operator qualification and certification.

Question 4: I lease a crane to a construction contractor. I do not provide an operator with the crane. However, when the lessee tells me that the crane requires maintenance or repair, I send my mechanic to do the necessary work. Do I have any responsibilities under the standard?

Answer 4: Yes. Because the mechanic is your employee, you must comply with Qualifications of maintenance and repair workers, and you are responsible for any hazards that result from the actions of your mechanic that expose other workers on the site to hazards. In addition, you are responsible for any violations to which your mechanic is exposed while he/she is working on the crane.

CHAPTER 19 – CRANE SAFETY

section a continued

Question 5: I lease a crane to a construction contractor. I do not provide an operator for the crane, nor do I have anyone inspect or repair the crane while it is on the site. Do I have any responsibilities under the standard?

Answer 5: No. An employer who leases (or sells) a crane but does not send any employees to the worksite where the crane is used is not subject to the standard. However, as noted in Answer 2, the lessee is responsible for the condition of the crane and may ask you to produce written records of past crane inspections or to provide other information about the crane.

Question 6: I am a contractor on a construction site. Another contractor is using a crane on the site. None of my work involves the crane. Do I have any responsibilities under the standard?

Answer 6: Yes, because your employees may be exposed to hazards caused by the crane's operation. For example, if a crane collapses due to being overloaded, employees working elsewhere on the site can be killed or injured. And if, for example, a crane makes electrical contact with a power line, any employee touching or even near the crane can be electrocuted. Even though you are not operating the crane, you must be aware of potential crane hazards and are responsible for protecting your employees against hazards you can reasonably foresee. You must take reasonable steps to protect your employees. For example, if you are concerned with a crane's stability due to potential overloading, unstable ground conditions, or high winds, you must satisfy yourself that the crane is stable before allowing your employees to work where they would be in danger if the crane collapses. One way is to ask the company operating the crane or the controlling contractor on the site whether all necessary precautions are being taken to ensure the crane's stability. Also, you have a duty to train your employees in the hazards associated with their work, including those that might arise from working near a crane.

Question 7: What training must I provide to my employees?

Answer 7: Training that must be provided under the standard to equipment operators, signal persons, competent and qualified persons, maintenance and repair workers, and workers who work near the equipment is referenced in this policy. Additional training requirements are specified in other provisions of the standard. In addition, the standards require employers to train construction workers how to recognize and avoid the hazards associated with their work and, depending on the circumstances, may require training in topics not listed in the cranes and derricks standard.

Question 8: I operate a lumberyard and deliver sheet goods (such as drywall or plywood) or packaged goods (such as roofing shingles, bags of cement, or rolls of roofing felt) to a construction site using a flatbed truck equipped with an articulating crane. At the site, I use the crane to place the material either onto the ground or onto the structure being erected. Must I comply with the standard?

Answer 8: If you only place materials on the ground without arranging the materials in a particular order for hoisting, you are not engaged in construction work and have no duties under the standard. If you place materials onto the structure, you are engaged in construction work, and the standard applies to your work. However, if you deliver only building supply sheet goods or building supply packaged materials onto the structure and your articulating/knuckleboom truck crane is equipped with a properly functioning automatic overload prevention device, you have no further duties under the standard. Otherwise, you must comply with the entire standard when using the crane to place material onto the structure.

Question 9: I deliver prefabricated roof trusses and wall panels to a construction site using a flatbed truck equipped with an articulating crane. At the site, I use the crane to place the material either onto the ground or onto the structure being erected. Must I comply with the standard?

Answer 9: You must comply with the standard if you unload the material onto the structure. You need not comply with the standard if you unload the material onto the ground without arranging the materials in a particular order for hoisting because that activity is not construction work.

Question 10: I am the general contractor on a homebuilding project. The framing subcontractor informs me that he will be bringing a crane onto the site to lift roof trusses onto the structure. Do I have any responsibilities under the standard?

Answer 10: You are responsible for seeing that the ground on which the crane will operate is sufficiently firm and level to enable the crane to operate safely. See Section 1402 (Ground conditions). In addition, you must inform the framing contractor of the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, or soil analyses) that are in your possession or the hazards are otherwise known to you. If there is more than one crane on the site and the working radii of the cranes overlap, you must establish a system to control their operations. See Section 1424(b). In addition to these specific duties under the standard, as the controlling contractor on the site you have the same responsibility under this standard as you have under other OSHA or OSHA state plan standards: you must exercise reasonable care to prevent and detect violations on the site.

Question 11: I notice that certain provisions of the standard direct my employees, such as my crane operator, to take certain steps. Do I have any responsibilities under such provisions?

Answer 11: Yes. Where provisions of this standard direct an operator, crewmember, or other employee to take certain actions, you are required to establish and effectively communicate to the relevant persons and enforce work rules to ensure compliance with such provisions.

CHAPTER 19 – CRANE SAFETY

section a continued

Crane Operations Planning

For all crane operations the project shall prepare a basic JHA using the standard JHA format

For all critical lifts a Mobile Crane set up checklist must be prepared

Critical Lift = Public Exposure, Large heavy objects, Heavy Roof Top Installations, Awkward Shapes, Multiple crane lifts.

For all operations that involve proximity to High Voltage Lines

CHAPTER 19 – CRANE SAFETY

section c

MOBILE CRANE SET-UP CHECKLIST

Contractor in charge of crane operations: _____

Person in charge of crane operations: _____

Name of Crane Operator: _____ *collect copy of operator's license

Date crane was last certified: _____

Weight of load: _____

Minimum boom length needed: _____

Maximum boom length needed: _____

Length of radius for the lift: _____

Boom Angle: _____

Name of Signal Person: _____ *collect copy of signal certification

Location of posted crane, hand, & radio signals: _____

Name of Rigger Person: _____ *collect copy of rigger certification

Rigging for load inspected by: _____

Location of load set: _____

Please indicate which load chart is being used to determine safe load:

Front Rear 360 Other:

Please indicate what lift weight reductions are needed:

Hook-Block _____ lbs Headache Ball _____ lbs Misc. Rigging _____ lbs

Boom Extensions, Extended or Stored _____ lbs Other _____ lbs

Capacity of the Crane for this lift has determined to be: _____ lbs

Total weight of the load has been determined to be: _____ lbs

The capacity of the crane is greater than the weight of the load YES NO

Ground conditions have been inspected & considered safe YES NO

The crane is level & the outriggers fully extended YES NO

Crane has been inspected in accordance with the Daily Operator's Checklist YES NO

A copy of the Daily Operator's Checklist is attached YES NO

Crane swing radius has been roped off as needed YES NO

Boom angle indicator is visible to the Operator YES NO

All utilities, both underground & overhead have been located YES NO

This crane safety checklist has been reviewed and found to be Satisfactory Not Satisfactory

Reviewed By

Title

Company

Signature

Date



CHAPTER 20 – ELECTRICAL POLICIES & PROCEDURES

section a

JOBSITE ELECTRICAL POLICIES

1. All electrical circuits are to be treated with respect and treated as though live and potentially dangerous. All Federal, State and Local electrical codes are to be followed.
2. All equipment, wiring systems and appliances are to be grounded. They must be certified, listed, labeled or otherwise deemed safe by a nationally recognized authority. Equipment must be used for the purpose and under the conditions for which it was designed.
3. Contact the appropriate public utility, whether the exact location of underground utility lines is known, and prior to beginning any excavation or construction.
4. No work is to be done near overhead power lines. Special care must be taken with ladders, scaffolds, cranes or work taking place on the roof.
5. All extension cords used shall have a grounding prong and be of industrial quality. Extension cords shall be inspected daily prior to use to assure they are not frayed or worn. Damaged cords must be discarded immediately. Route cords so they do not cross pathways and suspend them over doorways. Never jerk a cord in an effort to unplug it from the outlet or use it to lift or pull a tool. Protect cords from trash, traffic from vehicles and lifts, flammables, sharp edges such as metal framing track, excessive bending and water. Do not use conductive materials to suspend electrical cords. Use non-conductive materials such as zip ties, jet line, or insulated electrical wire.
6. Do not attempt to repair any electrical cord, wiring, machine or appliance for which you have not received complete and specific training and authorization from a Supervisor. Ensure Lock out/ Tag out procedures are followed, and circuit is grounded and de-energized.
7. Report any malfunctioning of equipment, minor shocks, or overheating to your Supervisor immediately. Clearly label any defective equipment "Out of Order - Do Not Use".
8. Shut off machines with switch prior to unplugging them.
9. All electrical boxes and switches are to be clearly labeled, safely located and posted with warning signs. No makeshift outlet boxes are permitted.
10. Do not use metal ladders, steel rulers, or measuring tapes when working on or near energized equipment.
11. Electrical safety will be reviewed weekly at the jobsite safety meetings and walk arounds.
12. During demolition projects power to the entire building is to be disconnected or an electrician is to certify the working area as de-energized.
13. Assured grounding program is to be followed. Reference Chapter 20, Section b of the Accident Prevention Program
14. Lockout Tagout procedures are to be followed. Reference Chapter 23 of the Accident Prevention Program.
15. Lights must be covered with cage guards.
16. Any extension cords or power cord ends that are checked to be found deficient shall be taken out of service immediately, tagged and discarded or repaired.
17. Electrical Panel Protection: All electrical equipment, including panels, switches, fuse boxes, junction boxes, and the like, containing exposed conductors, shall be protected from accidental entry in one of three ways:
 - The proper permanent cover must be installed and secured with at least two screws.
 - A temporary cover made of impact resistant corrugated plastic, or of a stronger non-conductive material, must be installed in such a way that it covers and extends substantially beyond all four edges of the electrical panel or box. Temporary covers shall be marked to clearly indicate that they cover an electrical hazard and are to be removed only by an electrician, while work is being performed. Covers must be put in place when the electrician is no longer working next to the panel(s).

CHAPTER 20 – ELECTRICAL POLICIES & PROCEDURES

section a continued

- If the electrical panel or box is in a room or closet that contains no other type of equipment and if there is no need for anyone but electricians to enter, the door(s) to such room or closet clearly indicate the electrical hazard as described in above. The doors need not lock, but they must function fully and latch. The doors must be closed when the electrician is no longer working in or just outside of the closet.
18. Abbott Construction employees are not to perform any electrical work.

CHAPTER 20 – ELECTRICAL POLICIES & PROCEDURES

section b

ASSURED GROUNDING PROGRAM

1. The Assured Grounding Program is only to be used as an alternate method for protection when no GFCI receptacles in the form of a spider box or a GFCI cord are available. If these aren't available, it is necessary to follow the guidelines below to ensure proper protection for the workers.
2. Site Superintendents along with the Jobsite Safety Officer are responsible to maintain assured grounding policies at their individual sites.
3. All cord sets and receptacles not a part of the permanent wiring of buildings or structures, and tools used in connection with the processes of construction or alterations must be tested for continuous circuitry.
4. All equipment used on the construction site shall be tested, identified and coded using the following procedures, with the exception of the "double insulated" system which need not be tested.
 - All equipment shall be tested before first use for grounding and continuity of the circuit.
 - Equipment returned to service following repairs shall be tested for continuity before being used.
 - These tests shall be done quarterly, at intervals not exceeding once every three months. Completed testing is logged into the Assured Grounding Log.
 - Tested equipment shall be identified by use of color coding. Two colors shall be used, the first color identifies the quarter and the second identifies the month within the quarter.

Month	Quarter Color	Month Color
January	White	White
February	White	Yellow
March	White	Blue
April	Green	Green
May	Green	Yellow
June	Green	Blue
July	Red	Red
August	Red	Yellow
September	Red	Blue
October	Orange	Orange
November	Orange	Yellow
December	Orange	Blue

5. Equipment shall be visually inspected each day before use for external defect, including deformed or missing pins, insulation damage and indications of possible internal damage. Equipment shall not be used until repaired, re-tested and results recorded.
6. All employees are to be trained in the assured grounding program and are not to use equipment, which has not been tested or does not meet the requirements of the assured grounding program.

CHAPTER 21 – INFECTION CONTROL PROCEDURES

section a

INFECTION CONTROL POLICY

Infection control policies are in place to provide a way to limit the exposure of patients and staff to potentially hazardous materials during the construction process in sensitive environments. The infection control barriers are designed to isolate at-risk patients and staff from dust and debris (i.e. mold & bacteria containing materials) that are uncovered and removed from the building during the renovation process.

The infection control measures are not a guarantee and only work as designed when properly installed, monitored and maintained by onsite construction personnel. It is up to each employee and Subcontractor to be aware of how infection control works and how to spot potential problems.

Linked with Abbott Construction safety policies and procedures, it is our goal to create a safe and healthy working environment for both workers and the Healthcare staff and patients.

It is the responsibility of the site Superintendent to contact the facility in which the work will take place to obtain and utilize their infection control policies in tandem with Abbott Construction Safety Policies and Procedures.

The forms in this section may be utilized to aid in following those policies.

CHAPTER 21 – INFECTION CONTROL PROCEDURES

section b

DAILY AREA WORK NOTICE

Date: _____

Description of Work: _____

Shutdown Notice Required? Yes No If yes, attach signed shutdown notice and identify the items below:

Date of shutdown: _____ Duration of shutdown: _____

Work will require the interruption or shutdown of the following:

- | | | | |
|--|--|---|------------------------------|
| <input type="checkbox"/> Power Interruption | <input type="checkbox"/> Core Drilling | <input type="checkbox"/> Medical Equipment Disruption | <input type="checkbox"/> N/A |
| <input type="checkbox"/> Fire Alarm Shutdown | <input type="checkbox"/> HVAC Shutdown | <input type="checkbox"/> Fire System Shutdown | |

Hospital Construction Manager Signature: _____ Date: _____

Infection control to be performed specific to this work:

Dust Control

- Seal Tight Barrier
- Vented Negative Pressure
- Double Barrier
- Double Barrier with Step off Pad
- Double Barrier with Shower Station
- N/A explain:

Vapor & Odor Control

- Seal Tight Barrier
- Vented Negative Pressure
- Double Barrier
- Off-Shift Work
- Other:
- N/A explain:

Barricading

- Moving Cone Barricades
- Rope Barricade
- Solid Barricade
- Alternate Routes Established (Required)
- N/A explain:

Personal Protective Equipment

- Eye Protection (Required)
- Hard Hat
- Hearing Protection (Required on Person)
- Respiratory Protection
- Foot Protection

Housekeeping

- Mobile Trash Cans in Work Area with Dust Pan & Broom

CHAPTER 21 – INFECTION CONTROL PROCEDURES

section c

NOTICE OF REQUESTED SHUTDOWN

Date: _____

Date of shutdown: _____ Duration of shutdown: _____

Type of shutdown requested:

<input type="checkbox"/> Power Interruption	<input type="checkbox"/> Core Drilling	<input type="checkbox"/> Medical Equipment Disruption	<input type="checkbox"/> N/A
<input type="checkbox"/> Fire Alarm Shutdown	<input type="checkbox"/> HVAC Shutdown	<input type="checkbox"/> Fire System Shutdown	

Communication devices to be used during shutdown:

<input type="checkbox"/> Phones	<input type="checkbox"/> Radios	<input type="checkbox"/> Pagers
---------------------------------	---------------------------------	---------------------------------

Emergency numbers for contact during shutdown:

Hospital Construction Manager Signature: _____ Date: _____

Emergency Service / Department Assessment Required?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, what additional requirements? _____		

Emergency Services / Department Signature: _____ Date: _____

Hospital Construction Manager Signature: _____ Date: _____

Signed Disruption Notice attached in lieu of signature above

Abbott Construction Signature: _____ Date: _____

For daily continuation, initials and date required:

Initials: _____ Date: _____ Initials: _____ Date: _____

Initials: _____ Date: _____ Initials: _____ Date: _____

Initials: _____ Date: _____ Initials: _____ Date: _____

Initials: _____ Date: _____ Initials: _____ Date: _____

Abbott Construction field verification of Shutdown notice, all requirements are in place and are acceptable.

Abbott Construction Signature: _____ Date: _____



CHAPTER 21 – INFECTION CONTROL PROCEDURES

section d continued

Sketch of area depicting plan and measures to be implemented



APIC GUIDELINES FOR CONSTRUCTION IN MEDICAL FACILITIES

APIC State-of-the-Art Report: The role of infection control during construction in health care facilities

Judene Mueller Bartley, MS, MPH, CIC
The 1997, 1998, and 1999 APIC Guidelines Committees

The Association for Professionals in Infection Control and Epidemiology, Inc (APIC), is a multidisciplinary organization of more than 12,000 health care professionals who practice infection control and epidemiology within a variety of health care settings.

This report reviews issues the infection control professional should consider related to construction and renovation projects in health care facilities. Preventing transmission of infectious agents to vulnerable patient populations, health care workers, and visitors remains an important component of infection control programs. Environmental dispersal of microorganisms during construction, resulting in nosocomial infections, has been described previously, and select examples are provided in Table I as a reminder that there is a solid, scientific basis for these concerns. Environmental airborne contaminants and infectious agents are closely related to water and moisture-related conditions and figure prominently in construction activity. Weems et al have established construction activity as an independent variable for infectious risks in such circumstances. Construction-related outbreak literature will not be revisited in detail; however, pertinent citations will identify resources as appropriate. (AJIC Am J Infect Control 2000;28:156-69)

Section I outlines the broad semiregulatory foundation for direct infection control participation in strategic planning for construction. Section II describes initial steps of planning through policy development, and suggests initial, basic elements for inclusion. Section III examines the infection control implications of the process in detail and is structured on the typical stages of construction. Section IV addresses common questions related to remediation after environmental emergencies or special structural design issues that remain somewhat controversial or unresolved. Recommendations are provided from a variety of reasonable and practical sources not always available as published controlled studies. Section V identifies a number of future research areas that remain important challenges. Terms and abbreviations used frequently throughout the text are highlighted in Table II.

I. CURRENT BASIS OF STRATEGIC PLANNING AND THE ROLE OF INFECTION CONTROL

AIA Guidelines

The current authority for construction design for federal and state health care providers is the 1996-1997

edition of the *Guidelines for Design and Construction of Hospitals and Health Care Facilities*. The American Institute of Architects (AIA) Academy of Architecture for Health publishes this consensus document with concurrence from the US Department of Health and Human Services. Many states adopt the Guidelines in their entirety as minimum standards for design and construction.¹⁹ Prior editions of the Guidelines required construction and renovation assessments during project planning related to specific risks. The new AIA Guidelines strongly support infection control input at the initial stages of planning and design by requiring a new element termed an Infection Control Risk Assessment (ICRA) for broad and long-range involvement of infection control/epidemiology leadership.¹⁹

The AIA Guidelines state that "Design and planning for such [renovation and new construction] projects shall require consultation from infection control and safety personnel. Early involvement in the conceptual phase helps ascertain the risk for susceptible patient and disruption of essential patient services." Each subsequent section requires an ICRA (eg, numbers and type of isolation rooms) and is predicated upon an "infection control risk assessment" by the infection control committee or a multidisciplinary group designated for that purpose. An ICRA provides for strategic, proactive design to mitigate environmental sources of microbes and for prevention of infection through architectural design (eg, handwashing facilities, separation of patients with communicable diseases), as well as specific needs of the population served by the facility.

Reprint requests: APIC, 1275 K Street NW, Suite 1000, Washington, DC 20005-4006.

Copyright © 2000 by the Association for Professionals in Infection Control and Epidemiology, Inc.

0196-6553/2000/\$12.00 + 0 17/52/106055

doi:10.1067/mic.2000.106055

Table 1. Selected events of nosocomial infection associated with the dispersal of microorganisms during construction

Year, author	Organism	Population	Epidemiologic factors
Airborne			
1976 Aisner et al ¹	<i>Aspergillus</i> spp	Acute leukemia	Fireproofing insulation
1982 Lentino et al ²	<i>Aspergillus</i> spp	BMT; renal	Road construction; window air conditioners
1985 Krasinski et al ³	<i>Rhizopus</i> ; <i>Aspergillus</i>	Neonatal	False ceiling
1987 Streifel et al ⁴	<i>Penicillium</i> spp	BMT	Rotted wood cabinet
1987 Weems et al ⁵	<i>Rhizopus</i> ; <i>Mucor</i> sp;	Hematologic BMT	Construction activity
1990 Fox et al ⁶	<i>Penicillium</i> sp; <i>Cladosporium</i> sp	OR	Ventilation duct fiberglass insulation
1991 Arnow et al ⁷	<i>Aspergillus</i> sp	Cancer-melanoma	Tiles; humidified cell incubators; air filters
1993 Flynn et al ⁸	<i>Aspergillus terreus</i>	ICU	ICU renovation; elevators
1994 Gerson et al ⁹	<i>Aspergillus</i> sp	General	Carpeting
1995 Alvarez et al ¹⁰	<i>Scedosporium prolificans (inflatum)</i>	Neutropenic hematology	Construction, presumed environmental
1996 Pittet et al ¹¹	<i>Aspergillus</i> sp	COPD	Air filter replacement
Waterborne			
1976 Haley et al ¹²	<i>Legionella</i> spp	Immunosuppressed	Soil; water
1980 Dondoro et al ¹³	<i>Legionella</i> spp	Adults, employees	Cooling towers
1980 Crane et al ¹⁴	<i>Pseudomonas paucimobilis</i>	ICU	Potable water used to fill flush water bottles
1985 Claesson et al ¹⁵	Group A <i>Streptococcus</i>	Maternity	Shower head
1993 Sniadeck et al ¹⁶	<i>Mycobacterium xenopi</i>	Endoscopy-pseudo	Potable water; scopes
1997 Dearborn et al ¹⁷	<i>Stachybotrys atra</i>	Infants	Water-damaged homes
1997 Fridkin et al ¹⁸	<i>Acremonium kiliense</i>	Ambulatory surgery	Vent system humidifier

BMT, Bone marrow transplant; OR, operating room; ICU, intensive care unit; COPD, chronic obstructive pulmonary disease.

To carry out an ICRA in the design phase, AIA identifies a multidisciplinary planning group that should involve, at minimum, the health systems' infection control/epidemiology department, the infection control committee (or committee charged with development and review of the infection control policy), and administrators representing special program needs. The planning group's charge is to consider communicable disease prevalence in the community while recognizing the importance of disease variation and distribution across geographic regions and to weigh the availability of public support agencies, as well as to consider the needs of health systems that manage patients with communicable disease, patients who are severely immunosuppressed, or both.

Implementation

The role of infection control is multifaceted and will be required throughout and after completion of the construction project. Infection control staff members provide important leadership and a communication link with program administrators, architects, and engineers. Completion of an ICRA is only the first step; input also is needed in early stages of project design as well as during later blueprint reviews. For example, early coordination with facility management during construction phase identifies necessary support structures required to prevent and control airborne contamination, thus avoiding costly rework or redesign. Newer design chal-

lenges include "retrofitting" older buildings into offices and clinics to meet needs for patient examination and instrument cleaning rooms, laboratories, and storage. In the absence of clear-cut rules or regulations, infection control staff members serve to bridge gaps with health agencies and facility administration regarding infection control guidelines and essential design features needed for safe practice. The ICRA sets the scene for involving infection control and supports continuing implementation of infection control principles.²⁰⁻²³

II. CONSTRUCTION AND RENOVATION POLICY

A comprehensive construction and renovation policy (CRP) operationalizes the facility's ICRA, ensures management's understanding of the ICRA, and specifies essential participants. A well-designed policy will ensure timely notification of the infection control professional and designated committee(s) for early program planning efforts. In addition, the CRP calls for infection control to evaluate the project from conception through completion and supports a systematic approach for project management. The policy should be submitted for approval by the facility's board of trustees and reviewed/approved periodically.

Elements

Numerous publications have identified a common set of elements to address the planning, designing, and

Table 2. Terms and abbreviations

Term or abbreviation	Description
AIA Guidelines	American Institute of Architects: 1996–1997 Guidelines for Design and Construction of Hospitals and Healthcare Facilities
Aii	Airborne infection isolation room (old isolation room)
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers Inc
BMT	Bone marrow transplant
CFU/m ³	Colony forming units per cubic meter (of air)
CRP	Construction and renovation policy
HEPA-filter	High efficiency particulate air filters (99% of .3 micron size particles)
High efficiency	Filtration at 95% efficiency
HVAC	Heating ventilation air conditioning (air handler or air handling unit)
ICRA	Infection control risk assessment
LDRP	Labor/delivery/recovery/postpartum
PE	Protected environment (old protective isolation room)
PPE	Personal protective equipment
SSI	Surgical site infection
UVGI	Ultraviolet germicidal irradiation
VAP	Ventilator-associated pneumonia

monitoring processes. These topics are grouped and itemized below, though many options for development and effective implementation of each have been described in the literature.^{20–24}

- Authority and responsibility for establishing internal and subcontractor coordination of (1) construction preparation and demolition; (2) intraconstruction operations and maintenance; (3) project completion and postconstruction cleanup; and (4) monitoring
- Authority and communication lines to determine if or how patient unit closure will occur
- Planning for air handling and water systems/plumbing as appropriate
- Expectations for contractor accountability in the event of breaches in infection control practices and related written agreements
- Patient area risk assessment; criteria for emergency work interruptions (stop and start processes)
- Education: for whom and by whom
- Occupational health expectations for subcontractors before start, as needed
- Traffic patterns for patients, health care workers, and visitors
- Transport and approval for disposal of waste materials
- Emergency preparedness plans for major utility failures with infection control implications, including location and responsibilities.

Process

The CRP must ensure continuous input from infection control into the structural design process to identify appropriate and timely infection control practices. The CRP should require:

- routine submission of scheduled project lists from facility management to infection control, enabling infection control to be proactively aware of projects and to anticipate infection control needs.
- submission of an "infection control (IC) permit" or "project approval signature block" before the beginning of projects, beyond required project lists.²¹ Formats may range from simple checklists to questionnaires designed to assist staff members in assessing risks and identifying prevention strategies.
- submission of an IC permit designed to assess the complexity of the project as a matrix of risk groups (patients and environment).
The score determines needed interventions based on:
 - construction activity—project complexity in terms of dust generation and duration of activity.
 - patients—assessment of the population at risk and location in terms of invasive procedures.
 The matrix grid format immediately leads to identifying:
 - number and types of necessary controls and IC interventions.
 - signatures of all parties, thus providing accountability for the mutually agreed upon plan.²¹

III. INFECTION CONTROL IMPLICATIONS FOR CONSTRUCTION AND RENOVATION

Planning—design and preconstruction

IC participation is critical in the initial planning and approval meetings during the design phase. Issues frequently addressed include budget, space constraints including storage and equipment cleaning areas, air-handling units, handwashing facilities, appropriate fin-

ishes, specific products with infectious implications, and applicable regulations. Infection control professionals (ICPs) should be prepared to support their position and recommendations with published citations whenever feasible, especially when a recommendation is not budget neutral.^{20,21,26,33-35} ICPs frequently work with consultants during the planning phase, including architectural and construction companies in a “partnering” process. Consulting an environmental expert might also be necessary if the size and complexity of construction provides considerable risk to highly susceptible patients because of location, prolonged time of construction, work conducted over continuous shifts, and likelihood of air handlers sustaining frequent interruptions. These variables increase risks to patients and personnel and may require monitoring. If appropriate, budgets for environmental consultants and anticipated testing or environmental monitoring needs to be considered at the earliest stage of planning.

Design and structure. IC should ensure that major design components are addressed as appropriate and justified by relevant guidelines, standards, codes, and regulations.^{19,24,36-48} Guidance for many elements is described in the resources already referenced; asterisked items below are requirements for new construction addressed in the 1996–1997 AIA Guidelines.¹⁹ Major design components that need to be addressed include:

- Design to support IC practice.*
- Design, number, and type of isolation rooms (ie, airborne infection isolation [AII] or protective environment [PE]).* (AIA Guidelines outline the design characteristics for AII, including no requirement for anterooms, nor support for “reversible” ventilation [ie, rooms “switched” from negative to positive air pressure]; the AIA appendix provides suggestions for PE design.¹⁹⁻²¹ These designs are deliberately consistent with Centers for Disease Control and Prevention guidelines regarding tuberculosis and pneumonia.^{38,39})
- Heating, ventilation, and air conditioning systems (HVAC), including recommended ventilation and filtration charts.*
- Mechanical systems involving water supply and plumbing.*
- Number, type, and placement of handwashing fixtures,* clinical sinks,* dispensers for handwashing soap,* paper towels, and lotion.
- Sharps disposal unit placement.
- Accommodation for personal protection equipment.*
- Surfaces: ceiling tiles, walls, counters, floor covering, and furnishings.*
- Utility rooms: soiled, clean, instrument processing, holding, workrooms.*

- Storage of movable and modular equipment.

Preparation for demolition and construction. The project teams provide ongoing planning and monitoring during area preparation and throughout the demolition, construction, cleanup, preparation for return to service, and final project review.^{19,21,26,34,42,43} Before construction begins, the focus of preparations should be on isolation of the construction/renovation area. Some sources categorize projects in terms of minor or major risk based on the level of needed barriers; checklists are developed accordingly.^{26,28-34,49-51}

Type and extent of construction. Project complexity varies with time, numbers of workers, whether contractors work continuous shifts, scope and degree of activity (high or low dust generation), and proximity to patients with varying degrees of risk for infection. Internal renovations may require as much consideration as external construction. Patient areas or units that cannot be closed or that are adjacent to a major renovation require special planning, (eg, operating room additions adjacent to an active surgical suite). These situations may justify environmental monitoring beyond visual inspection to detect increased airborne contamination and to plan interventions.^{3,21,23,28-30,39,51-54}

External excavation is ideally conducted during off-hours so that air handlers can be shut down and sealed; the goal is to protect the intake as much as possible. Small projects require similar planning and vary by degree, but preparation still requires early communication with facility management. Specific educational needs (eg, Occupational Safety and Health Administration [OSHA]) regulations and health issues for patients and workers need to be addressed. A summary of common issues is provided below within 3 major categories of tasks; items will vary by facility, but the final customized list should be appended to the CRP.^{3,21,22,26,33,43,49,51}

Dust and debris control.

- Medical waste containers (sharps or other medical regulated waste): These should be removed by the facility before start of the project.
- Barrier systems: The area should be isolated, as the project requires. Small, short duration projects generating minimal dust may use fire-rated plastic sheeting, but should be sealed at full ceiling height with at least 2-foot overlapping flaps for access to entry. Any project that produces moderate to high levels of dust requires rigid, dust-proof, and fire-rated barrier walls (eg, drywall) with caulked seams for a tight seal. Large, dusty projects need an entry vestibule for clothing changes and tool storage. The entry area should have gasketed doorframes; tight seals should be maintained at the full perimeter of walls and wall penetrations. An inter-

im plastic dust barrier may be required to protect the area while the rigid impervious barrier is being constructed. Cleaning is required at completion of the barrier construction; plans should also describe a terminal barrier removal process that minimizes dust dispersal.^{33,34,43}

- **Traffic control:** Designated entry and exit procedures must be defined. Egress paths should be free of debris; designated elevators should be used during scheduled times; and only authorized personnel should be allowed to enter the construction zone. Signage should direct pedestrian traffic away from the construction area and materials.^{5,21,26,34}
- **Demolition:** Debris should be removed in carts with tightly fitted covers, using designated traffic routes. Efforts should be made to minimize use of elevators with transport during the lowest period of activity. Debris should be removed daily and at times specified by agreements. If chutes are used to direct debris outside, HEPA-filtered negative air machines should be used, and the chute opening should be sealed when not in use. Filters should be bagged and sealed before being transported out of the construction area.^{5,21,22,33}
- **Exterior windows:** Windows should be sealed to minimize infiltration from excavation debris.
- **Visual monitoring:** Compliance with barrier maintenance includes education of staff for simple clues (eg, accumulation of visible dust evidenced by footprints, opened doors/windows evidenced by presence of insects and flies, wet ceiling tiles, etc).^{21,26,28}

Ventilation and environmental control.

- **Air system flow:** It should be determined whether the construction area uses fresh/outside or recirculated air; filters should be added or return vents covered as needed with filter material or plastic. Air must flow from clean to dirty areas.^{19,20,21,33,34,43}
- **Negative air pressure:** The air within the construction area must be negative with respect to surrounding areas and with no disruption of air systems of adjacent areas. Constant negative pressure within the zone should be monitored with an alarmed device, which must be maintained and monitored by construction personnel. Exhaust from construction air should be directed outside with no recirculation if possible. If the exhaust must tie into a recirculated air system, a pre-filter and high efficiency filter (95%) should be used before exhaust to prevent contamination of the ducts. Fans should be turned off before opening ductwork and necessary interruptions (eg, fire drills) should be planned for to minimize risk.^{20-22,33,34,43,51}

- **Adjacent areas:** The status of sealed penetrations and intact ceilings should be verified.
- **Air exchange rates and pressure relationships:** It should be verified that the facility can:
 - maintain proper rates in critical areas near construction activity.
 - ensure air is not being recirculated without filtration from the construction area elsewhere.
 - provide accountability for and frequency of testing air pressure throughout the project.^{20-22,26,33}
- **Vibration or disturbances:** Drilling and other sources of vibration have potential to dislodge dust collected above suspended or false ceilings; vibrations loosen corrosion within water pipes as well. Plans should require vacuuming of affected areas and flushing debris from water systems before reoccupancy.^{3,21,30,35,56}
- **Specification of temperature and humidity ranges:** Determine limits as appropriate.^{20-22,33}
- **Monitoring must consider risks of malfunction or complete loss of utilities.** Both visual cues and particulate air monitoring may be used. The type and frequency of monitoring, evaluation of results, and follow-up action by designated parties are essential to planning.^{20,21,26,33,57}

Contamination of patient rooms, supplies, equipment, and related areas.

- **Worksite garb:** Contractor personnel clothing should be free of loose soil and debris before leaving the construction area. If protective apparel is not worn, a HEPA-filtered vacuum should be used to remove dust from clothing before leaving the barricade. Personal protective equipment (eg, face shields, gloves, respirators) are worn as appropriate. Contractors entering invasive procedure areas should be provided with disposable jump suits and head and shoe coverings. Protective clothing should be removed before exiting the work area. Tools and equipment should be damp wiped before entry and exit from the work areas.^{20-22,26,33}
- **Barriers around construction should be monitored to maintain protection of in-use patient care areas as described.** Patient doors adjacent to construction area should be kept closed, with appropriate traffic control.^{20-22,26}
- **Storage should be designated for construction materials.**^{22,33,43}
- **Contractor cleaning:** The construction zone should be maintained in a clean manner by contractors and swept or HEPA-vacuumed daily or more frequently as needed to minimize dust. Adjacent areas should be damp mopped daily or more frequently as needed. Walk-off mats may minimize tracking of heavy dirt and dust from construction areas.^{21,26,33,43}

- **Facility cleaning:** Contracts should clearly specify responsibilities and expectations for routine and terminal cleaning before opening the newly renovated or construction zone.^{21,22,25,31}

Intraconstruction and the role of IC. Once renovation or construction has begun, the ICP should be available to provide maintenance and operational input. Frequency of input or meetings will depend on the scope of the project. Specific concerns need to be customized in each project and include IC practices, education, and monitoring. The ICP is vital in educating and supporting “users/owners” to manage their area under construction (eg, educating staff members on how to monitor their own performance as much as possible). In more complex projects, the ICP may assist directly or make provisions for items already outlined. A number of areas involving specific ICP involvement are discussed below.

Environmental rounds. An efficient method to integrate key IC and life safety issues is the use of rounds, using simple checklists based on the items addressed above. ICPs can advise or participate in rounds, which should be scheduled as often as necessary and include a variety of observable “indicators” such as barriers (doors, signage), air handling (windows closed), project area (debris, cleaning), traffic control, and dress code. It may be necessary on occasion to schedule rounds after normal hours or on weekends if that is when construction or renovation is scheduled.^{20–22,26,33,34,43,49,51}

Outcome or process measures. Projects may be approached as performance improvement initiatives using outcome measures (eg, surgical site infection rates) or process measures (measuring compliance) using visual observations, airborne particulate monitors, satisfaction surveys, etc.^{31–34}

Impact on special areas. Patients requiring AII need close monitoring to ensure negative pressure relationships are maintained, particularly when there is potential for disruption of pressure relationships.^{20,21,39–41} Intake areas such as emergency departments need planning to triage potentially infectious patients.^{19,40,62} If highly susceptible patients cannot be relocated, indicators should be identified to trigger planned intervention.^{5,21,25,26–29,33,32–34} Immunosuppressed populations in bone marrow transplantation units or protected environments, intensive care units, etc, require special planning. The goal is to minimize patient exposure to major construction activity; therefore, nonemergency admissions should be avoided during periods of major excavation. If delaying admissions is not an option, patients should be located in areas as remote as possible from construction activity.^{20,21,26}

Patient location and transport. Health care providers should plan patient care activities to minimize expo-

sure to construction sites.^{20–21} At least one study found that critically ill, ventilator-dependent patients transported from the ICU for diagnostic or therapeutic procedures was an independent risk factor for development of ventilator-associated pneumonia.⁴³ To decrease exposure for patients during construction activities the following should be considered:

- Provide treatment in the patient’s room.
- Transport via an alternate route.
- Schedule transport or procedures during periods with minimal construction activity.
- Minimize waiting and procedure times near construction zones.
- Mask patient or provide other barriers (eg, covering open wounds) based on patient’s clinical status.

Interruption of utility services. Utility services may be interrupted during any type of construction. Infectious agents may contaminate air-handling units, medical vacuum, and water systems after planned or unplanned power disruptions. IC provides input into emergency preparedness to reduce the potential risks of contamination.^{20–22,42,37} Response plans should include assessment of the population at risk and cleanup should focus on steps to prevent, detect, and reduce risk from infectious hazards. For example, as power is reestablished after an interruption, dampers and fans of air handling units resume operation. Dust and particulate matter released during this process may transmit allergenic or infectious agents such as *Aspergillus* sp to patients and staff.^{3,5,20–22,26,33,50,64} Therefore, IC policies for areas in which invasive procedures are performed should require sufficient time to clear the air of potential contaminants before resuming the room(s) use. Ventilation time should be based on the number of air changes per hour required by the area. The National Institute for Occupational Safety and Health (NIOSH) chart for removal efficiency of airborne contaminants may provide guidance, but its use should be tempered by its assumptions.³⁹ In the event of major contamination of patient care areas, plans should specify responsibilities for these decisions as well as for intensified cleaning, environmental surveillance of airborne infectious agents, and restriction of water use until testing or flushing determines safe usage.

Worker risk assessment and education. Health risk evaluations for potential exposures depend on the type of construction planned. Facility staff overseeing or working with outside contractors should assist in determining potential environmental risks for facility workers or contractors. Policies should include provisions for training and by whom (facility or contractor). Training must be appropriate to the task (eg, staff entering air systems for preventive maintenance [changing filters] should be alerted to the potential for

airborne dust containing spores of microorganisms and arrange to first turn off fans and don a mask). Staff members working in sanitary or septic sewage systems, drainage pipes, etc, should be alerted to the risks of moisture and fungal contamination.^{20-22,27,65-67} Agreements should be developed appropriate to the project regarding provisions for pertinent health protection, vaccinations, tuberculosis assessment/PPD skin testing, or related education before workers begin construction. Requirements will vary with degree of environmental risk and proximity to patient population.

Documentation of health/training issues. As agreements are completed, they should provide evidence that workers have received appropriate health protection as noted above and should include the following information:

- Facility exposure control plan(s) for IC, hazardous chemicals, and life safety.
- How to seek help and report exposures (eg, first aid location and initial steps to report exposures).
- Use of particulate respirators or other PPE.
- Risk prevention for unexpected safety issues, such as noxious fumes, asbestos, etc.^{22,66,67}

The facility should be satisfied that provisions have been made for effective IC education designed to address facility-specific needs related to potential infectious risk exposures as described above.⁴⁵⁻⁴⁸

Postconstruction and cleanup

Project checklists. Check-off lists of expected practices identified at the beginning of the project should be reviewed for items agreed upon before the area is returned to full service or patient occupancy. A useful tool during review is the contractor's "punchlist" that will ensure missed details have been addressed (eg, installations of soap dispensers or designated types of handwashing/sink controls).^{33,34}

Postconstruction agreements. Cleanup agreements (eg, cleaning, air balancing, filter changes, flushing of water systems, etc) and other utility service checks/cleaning must be established in the early planning phase as discussed in Section II. These include at minimum^{33,34}:

- Contractor cleaning to include area clearance, cleaning, and decontamination/wipedown.
- Cleaning after removal of partitions around construction area, minimizing dust production.
- Facility-based routine/terminal cleaning before returning area to service.
- Provision of time frames for facility review (eg, 2 weeks) after completion of the project to ensure all issues were addressed properly.^{33,34}
- Systematic review of outcomes in the facility's designated review process, whether by contract or committee structure. Items may range from sealed

cabling/electrical penetrations and ceiling tile replacements to the completed punchlist.

- Cleaning and replacement of filters and other equipment if affected by major or minor disruptions or conditions that could have contaminated the air or water supply.^{4,23,33,68,69}

Steps before occupancy: Checklists specific to the project should be developed for a walk-through just before occupancy. Core IC issues for inclusion are listed below as applicable. The designated team should do the following:

- Check that sinks are properly located and functioning.
- Verify that sinks in critical patient care areas have properly functioning fixtures.
- Check for the presence/absence of aerators in these fixtures according to facility policy.
- Test whether soap and towel dispensers are filled and functioning.
- Check whether surfaces in procedure/service areas are appropriate for use (eg, smooth, nonporous, water-resistant).
- Verify that air balancing has been completed according to specifications.
- Test whether air flows into negative pressure rooms or out of positive pressure rooms.

Monitoring activities during construction^{20,23}

There are currently no recommendations for routine environmental culturing during construction. Enhanced targeted patient surveillance (eg, respiratory illnesses consistent with aspergillosis or legionellosis) near construction areas should be part of the ICRA. Other control measures previously discussed need to be continuously monitored.

However, when an outbreak associated with construction is suspected or identified, water or air sampling may be indicated. It is vitally important to establish a hypothesis with clear and measurable goals. Culturing or sampling procedures should be defined before initiation (eg, asbestos, fungal, or particulates). Sampling procedures relative to the suspected agent(s) and sources should be used. The investigator must be cognizant of the many pitfalls associated with the interpretation of environmental data. Therefore, as part of the investigation planning, it is important to establish parameters for interpreting collected data.*

IV. ENVIRONMENTAL EMERGENCIES AND REMEDIATION

Environmental emergencies may occur during construction disruptions; when they occur, timely IC con-

*References 5, 6, 23, 25, 27-29, 38, 41, 45, 51-53, 56, 59, 70-75

sultation is critical. Practical applications of IC principles, generalized from experience in related industries, are offered here within stated limitations. In addition, other structural design issues which lack support if AIA Guidelines or scientific studies will be addressed.

Contamination of ventilation in surgical suites or other invasive areas

Sealing and air intakes. If nearby drilling or excavation occur during surgical activity, it is critical to check for tight room sealing to reduce the potential for air and water leakage. Because operating rooms usually have separate air handlers, the air intakes should be located to determine need for additional protection or sealing during periods of highest construction activity.^{20-22,35,51,52}

Operating room ventilation and tuberculosis. AIA guidelines recommend bronchoscopy procedures be performed in treatment rooms meeting AII room ventilation requirements or in a space that exhausts directly to the outside. Optimum methods for managing patients with active tuberculosis requiring urgent surgical intervention have not yet been determined. However, the number of operating room air changes provides increased dilution of potential contaminants. NIOSH ventilation charts are included in the Centers for Disease Control and Prevention 1994 Guidelines and may assist in calculating percentages of particles removed by time and ventilation rates; this offers some guidance for the time needed to air a room, but the underlying assumptions need study as noted earlier.³⁹ Modifying the pressure relationships of the room to neutral or negative risks overall pressure imbalances, has not been studied for effectiveness, and is not recommended by the AIA.¹⁹

Air handlers, ducts, and filters. If air handlers are replaced, old ducts must be replaced or cleaned, and the issue should be treated as fundamental to the projected budget. Contaminated ducts have been implicated in outbreaks (eg, the operating room outbreak caused by *Penicillium* reported by Fox et al.⁵ The American Society of Heating, Refrigerating, and Air Conditioning Engineers Inc is including language in HVAC system surface standards to prevent future duct lining problems.⁶⁰ Experiences vary, but it is important to clean ducts filled with debris observed during inspections, especially on the return air ducts. Hermann and Streifel recommend semiannual inspections of air-handling units for filter integrity.⁷³ However, definitive evidence specifying frequency of preventive cleaning is lacking.

Water contamination

Water contamination risks and prevention strategies are addressed in multiple sources.^{20-23,27,65,76-77} IC should focus on maintaining a dynamic water flow that meets

local standards. Water pressure "shock" may send a surge of debris when pressure loss is restored after a rupture.⁷⁸ Massive amounts of loosened scale may be released when domestic valves are returned to service after being off during construction or disruptions. If decontamination is necessary, systematic flushing of the water system assists in removing debris shaken loose by drilling or disruptions.

- *Legionella* sp: If testing is warranted because of high-risk populations and suspicion of *Legionella* sp exposure in the facility, major intervention methods should include chlorinating, hot water flushing, or copper-silver ionization treatment.^{69,79-82} The last appears to have advantages over prior methods because of penetration of biofilms and reduced pipe corrosion; concerns for heavy metal (silver ions) accumulation remain and warrant additional study.^{73,83}
- Fungus: Water seepage and damage are difficult to manage in an occupied building.⁶⁹ Reports of moisture/water sources leading to airborne spread of infectious agent(s) have been cited.^{17,18,84} Several suggestions for detection and treatment are offered.^{4,33,68} Prevention of fungal growth takes on increased importance after any type of flooding or utility failure related to water. Brace and Streifel have both published useful case studies and similar information is available from on-line sources.^{33,34} Suggested cleanup protocols after water exposure are summarized here, but the basic approach is one of identifying moisture, followed by cleaning and thorough drying of surfaces.

General remediation procedure after water contamination. A systematized approach to prevent fungal growth in buildings caused by floods, roof leaks, sewage backup, steam leaks, and groundwater infiltration includes the following steps, modified according to the extent of damage sustained^{33,34}:

- Inventory of water-damaged areas of the building, materials, and furnishings, paying particular attention to carpeting under cabinets and furnishings.
- Use of moisture meters (electronic wet test meter) to identify extent of water damage to drywall.
- Environmental sampling to monitor stages of cleanup and remediation.
- Removal of materials within 24-48 hours of water damage.
- Decontamination by spraying with chlorine-based mist or diluted bleach, followed by drying.
- Ventilation balancing to reduce supply air volume to effect a negative air pressure area, sealing off area with tape, and checking airflow with a smoke stick. Mobile HEPA machines may assist in provid-

ing the needed negative air balance in areas being remediated.

- Wall areas to be treated are identified and opened (eg, strip off vinyl covering) for drying.
- Decontamination of opened wall area is accomplished with 1:9 dilution of copper-8-quinolinolate compound, using a pressurized spray pump.^{33,32}
- Remove surface soil with a detergent (eg, diluted tri-sodium phosphate), followed by use of a liquid disinfectant (eg, diluted bleach).
- Ceilings are vacuumed with a HEPA filtered vacuum cleaner. Walls and ceiling are closed and covered with standard wall finishing materials when the area is completely dry. Brace reported filling the spaces with aerosol foam; Streifel did not.^{33,34}

Surfaces: design or disruption/damage issues

Design. Ideally, surfaces are designed to include cleanability; problems can be avoided if surfaces near plumbing fixtures are smooth, nonporous, and water-resistant.^{19,85} Operating and delivery rooms, isolation and sterile processing areas also need smooth finishes, free of fissures or open joints and crevices that retain or permit passage of dirt particles. After disruptions, care should be taken to note penetrations (ducts, pipes), with attention to proper replacement, including tight seals.¹⁹⁻²³

Flooding accidents. Cleaning and decontamination are required for major leaks occurring from the outside, such as broken pipes containing potable water or sprinkler water systems with added chemicals (ethylene glycol). Specific suggestions are itemized below for ceilings, walls, floors, and carpeting.

Ceiling tiles/porous materials. Water leaks or floods that wet acoustical ceiling tiles or fireproofing and filter materials may produce reservoirs of fungal spores.^{1,32,34,52}

- If major water damage has occurred and porous tiles were not removed within 24-48 hours, tiles should be discarded/replaced.
- If tiles are nonporous, or if moisture is a result of small steam leaks, tiles can be cleaned with dilute bleach and air dried before replacement.³³

Walls. When replacement options exist, the ICP should consider that smooth paint surfaces are easier for cleaning.^{19,85} (The potential for antimicrobial effects present in copper paints has been published.⁸⁶ However, concerns for unknown efficacy and potential long-term toxicity have yet to be characterized and validated before efficacy can be established.⁸⁷) Vinyl wall coverings risk moisture problems from condensation and have potential for fungal growth on the substrate. Wall cleaning under different conditions is based on the protocol described earlier:

- Water damage addressed in less than 24 hours: Vinyl-covered drywall laths/plaster/plasterboard should be stripped and examined. Portions of drywall may need to be removed to determine the extent of damage with a moisture meter. In some cases, especially if minor water damage was sustained, only minimal cleaning may be required.
- Water damage not addressed within 24-48 hours: If major flooding has occurred and material has not been removed within 24-28 hours, there is increasing probability that damage has already led to microbial growth, and more extensive effort may be required.
- Removal should be done under controlled conditions (area sealed off and removal done under negative air pressure).
- Water-soaked areas should be removed approximately 12 in above water mark and discarded, while allowing opened areas to dry.
- Hard surfaces are cleaned with diluted bleach solution without rinsing.
- Area may be sprayed from top to bottom with a dilution of copper-8-quinolinolate compound.^{33,34,52}
- Wall is sealed and finished with standard materials after installing new 12 in wall piece.^{33,34}

Floors. Desirable features include surfaces easily cleaned and wear-resistant according to usage. For example, if the floor is subject to frequent wet-cleaning methods, it should not be physically affected by germicidal disinfectants. Floor surfaces subject to traffic when wet (eg, kitchens) should have nonslip surfaces and be resistant to food acids (to avoid discoloration), and the perimeters should be tightly sealed.^{20,21,85} After water disruptions, the perimeter should be closely examined for signs of long-standing moisture and possible fungus contamination.

Carpeting. Esthetic considerations related to stains and odor control support recommendations to avoid carpeting in areas of frequent spillage or heavy contamination; however, carpets have not generally been associated with nosocomial infection.⁸⁸⁻⁹⁰ Carpets require regular vacuuming, shampooing, or extraction depending on use, material, and degree of soiling; cleaning should follow manufacturers' directions for proper cleaning materials, dilution (due to potential for discoloration), and frequency of cleaning techniques.^{55,88} Contamination of carpeting after saturation with water or during demolition has been reported as a reservoir for nosocomial fungal infection.^{9,91}

- Major damage from flooding: Carpeting and padding exposed to sewage should be discarded and the area disinfected with diluted bleach. If it is wet from steam or water leaks for greater than 24-48 hours, it is potentially already contaminated

with fungi and may need to be discarded. If it is wet from steam or potable water leaks, but for *less than 24–48 hours*, protocols require cleaning and disinfection principles similar to those described earlier:

- Remove furniture, extract with water, shampoo with diluted surfactant/detergent.
- Soak with diluted bleach solution (1:10); rinse and extract with clean water to remove bleach; commercial steam cleaning is an alternative to bleach.
- Dry within 12–24 hours of treatment using floor or exhaust fans to aid in drying.³³

Furnishings, fixtures, and equipment

Furniture. Modular furniture not easily moved should be installed on raised platforms or suspended in some manner to achieve a minimum 6-in to 12-in clearance from the floor to pull out for cleaning or to clean underneath. Attention must be paid to storage units with electrical or computer connections.⁸³

Upholstered furniture should be treated the same as carpeting (including disposal) in the event of major soaking and contamination as a result of floods, leaks, or sewage. If it is affected by only steam moisture, it can be dried. Hardwood with intact laminate can be cleaned and disinfected with dilute bleach. If laminated furniture that has exposed particle board beneath the surface or other furniture composed of pressed wood or chip board becomes soaked, it should be discarded.³³

Handwashing facilities/sinks. This section merits consideration primarily for design and cleaning issues; but plumbing disruptions or lack of preventive maintenance pose risks of contamination as well.

- Number and design: AIA Guidelines for new construction recommend the minimum number of handwashing facilities for patient rooms as one in the toilet room; they recommend handwashing facilities in the patient room only when the toilet room serves more than 2 beds.¹⁹ Having a sink in a patient/resident room and in the toilet room (whether private or shared) supports essential IC practices. Whereas there is support for the ideal, IC plays a critical role in recommending proper placement of handwash facilities, and in both rooms.⁸³ In addition, IC support for a sink standard of minimum dimensions may prevent installation of small “cup” sinks that challenge proper handwashing.⁸³ AIA guidelines describe permissible types of controls for handwashing facilities in various areas.^{19,21}
- Placement: Improper placement can add to the environmental reservoir of contaminants. Sinks need to be convenient and accessible, but nearby surfaces should also be nonporous to resist fungal growth.^{33,85} One source recommends a minimum

distance of 15 ft from all inpatient beds/bassinets and 25 ft from outpatient chairs, stretcher, and treatment areas to ensure access.⁸⁵ Handwashing facilities should also be situated to avoid splashing (suggesting at least 36 in from patients or clean supplies), or equipped with a splash guard to avoid splash contamination.⁸³

- Cabinets: Areas beneath sinks should not be considered storage areas due to proximity to sanitary sewer connections and risk of leaks or water damage. Clean or sterile patient items should be not be placed beneath sanitary sewer pipe connections or stored with soiled items; cleaning materials are the only items acceptable to be stored under sinks, from a regulatory aspect.⁸⁵ Facilities may develop design standards excluding storage space beneath sinks, thus preventing misuse and need for cleaning. As noted earlier, cabinet construction materials need to be nonporous to resist fungal growth.
- Aerators: Aerated sink faucets located near patients, particularly in intensive care units, may be a risk because of their ability to enhance growth of waterborne microorganisms. The faucet aerator has been identified as a reservoir and possible source of infection within the hospital. Rutala notes that the most convincing evidence for the role of faucet aerators is provided by Fierer et al (1967). In this study, premature infants became infected with *Pseudomonas aeruginosa* from delivery room resuscitation equipment contaminated by a faucet aerator.⁸⁷ Rutala concludes that the degree of importance of aerators as reservoirs for nosocomial pathogens remains unknown. Because *Legionella* sp grow well in the sediment formed in aerators, Freije recommends aerator removal.³⁰ Proper sink design and dimensions can reduce splashing and risks of general contamination, while eliminating concerns for aerators completely.

Flush sinks/hoppers. Clinical sinks are frequently located in soiled utility rooms for disposal of body fluids and liquids but warrant similar considerations for moisture and contamination.⁹² Splash guards are valuable but inclusion may depend on sink usage and design. If staff members are not routinely required to use face protectors, a splash guard should be required.

Whirlpool or spa-like (Jacuzzi) bathing facilities. Various types of bathing facilities are now available for mothers in birthing rooms; recommendations for cleaning have been compared with hydrotherapy tanks and equipment cleaning procedures.⁹³ However, plumbing for Jacuzzi tubs or similar spa-like tubs have longer piping with higher siphons, resulting in risks for trapped contaminated water after apparent draining;

the trapped water may be flushed into the tub with its next use. Communication with state regulators, cleaning and disinfecting the tub and jets with specific spa-cleaning products, and proper draining and flushing sequences are essential when considering installation.⁹²⁻⁹³

Eyewash stations. OSHA directs proper use and placement of eyewash stations with distance determined by the pH of the involved chemicals. Source water in stationary eyewash stations may stand unused in the incoming pipes at room temperature for long periods, providing a reservoir for potential pathogens.⁹⁴ After a report of *Acanthamoeba* in eyewash stations, OSHA issued a bulletin recommending cleaning and disinfection methods.⁹⁶ The schedule follows the American National Standards Institute Z358-1981 recommendations for flushing the system 3 minutes each week.⁴⁴

Placement of sharps containers. Location of disposal containers should consider ease of visibility to avoid overfilling and should be within easy horizontal reach of the user. Systems should have secure locking and enable easy replacement. When containers are fixed to a wall, the vertical height should allow the worker to view the opening or access the container. NIOSH recommendations suggest ergonomic considerations for installation heights or creative approaches for specialty areas.⁹⁷ Sufficient temporary storage space for filled containers must be in design planning.^{47,92}

V. RESEARCH NEEDS

The role of IC continues to expand and interacts closely with safety and occupational health functions. Studies from indoor air quality research have an increasing impact on current practice. Industrial experiences continue to be evaluated for health care facility application. Some items identified throughout the text but not yet resolved are summarized below and offered for consideration:

- Surgical suite contamination: Many issues remain unanswered and require further study including the effectiveness of laminar air flow, ultraviolet germicidal irradiation, and the approach to managing *Mycobacterium tuberculosis* or other airborne pathogens in the operating room. Designs of future operating rooms to control all sources of environmental contamination are being studied in current IAQ building research.⁹⁸
- Surgical suite air handling systems: Certification and recertification requirements for operating room air handling systems remain unresolved. Frequency of testing HEPA filters, systems, and air pressure balancing for operating rooms has not been determined or recommended.
- Ambulatory care sites: There is a need to identify optimal engineering controls for current ambulatory care surgery settings to improve outcomes; there is also need for further delineation of the role of mobile HEPA units, UVGI, etc, in clinics and non-traditional care settings, especially for highly susceptible, ambulatory patients.
- Fans: Concerns have been raised regarding use of fans in patient care areas. No studies or regulations have directly addressed this issue in terms of infection risk(s).
- Aerators: The degree of risk associated with aerator installation has not yet been determined and may be resolved by examining other methods of water purification or sink design.
- Plumbing and preventive maintenance systems: Better methods to reduce or eliminate *Legionella* sp. contamination in potable water systems continue to be sought. In the setting of continued low-level contamination, determination of the dose-response relationship from potable water exposures resulting in disease remains elusive. This remains key to preventive water system treatments, as well for clearer indications for environmental surveillance cultures.
- Role and methods of air monitoring: A number of major issues need clarification including (1) determination of electronic versus other sampling methodologies, and (2) need for standards and guidelines for sampling designs according to circumstances and related methodologies (eg, total particulate versus bioparticulates). The development of standards for certain patient care areas needs correlation to disease outcomes.
- Efficacy of remediation protocols: Controlled studies on the efficacy and safety of current or newer antifungal treatments after severe water damage are needed. Clearer determinations regarding the safety of damaged drywall left in place, versus its removal, needs further elaboration. Other studies are needed to determine the efficacy and safety of other types of materials for remediation.
- Ventilation and pressure relationships: Whereas the need for negative air pressure is clear, new studies are needed to determine the ideal room pressure differential related to actual infectious agent transmission and risk for developing actual disease. This is an area beginning to be addressed.⁹⁹

In conclusion, the role of IC/epidemiology in construction and renovation remains a challenging and exciting one and is the ultimate demonstration of its multidisciplinary nature. Interaction and integration of efforts with other disciplines enables disease prevention for patients and health care workers to remain the

focus and driving force during construction/renovation processes.

References

- Aisner J, Schimpff SC, Bennett JE, Young MV, Witnik PH. *Aspergillus* infections in cancer patients: association with fireproofing materials in a new hospital. *JAMA* 1976;235:411-12.
- Lentino JR, Rosenkranz MA, Michaels JA, Kurup VP, Rose HD, Rytel MW. Nosocomial aspergillosis: a retrospective review of airborne disease secondary to road construction and contaminated air conditioners. *Am J Epidemiol* 1982;116:430-7.
- Krasinski K, Holzman RS, Hanna B, Greco MA, Graff M, Bhogal M. Nosocomial fungal infection during hospital renovation. *Infect Control Hosp Epidemiol* 1985;6:278-82.
- Streifel AJ, Stevens PP, Rhame FS. In-hospital source of airborne *Penicillium* species spores. *J Clin Microbiol* 1987;25:1-4.
- Weems JJ Jr, Davis BJ, Tablan OC, Kaufman L, Martone WJ. Construction activity: an independent risk factor for invasive aspergillosis and zygomycosis in patients with hematologic malignancy. *Infect Control* 1987;8:71-5.
- Fox BC, Chamberlin L, Kulich P, Rae EJ, Webster LR. Heavy contamination of operating room air by *Penicillium* species: identification of the source and attempts at decontamination. *AJIC Am J Infect Control* 1990;18:300-6.
- Arnow PM, Sadigh MC, Weil D, Chudy R. Endemic and epidemic aspergillosis associated with in-hospital replication of *Aspergillus* organisms. *J Infect Dis* 1991 Nov;164:998-1002.
- Flynn PM, Williams BG, Hethrington SV, Williams BF, Giannini MA, Pearson TA. *Aspergillus terreus* during hospital renovation [letter]. *Infect Control Hosp Epidemiol* 1993;14:363-5.
- Gerson SL, Parker P, Jacobs MR, Creger R, Lazarus HM. Aspergillosis due to carpet contamination [letter]. *Infect Control Hosp Epidemiol* 1994;15:221-3.
- Alvarez M, Lopez Ponga B, Raon C, Garcia Gala J, Porto MC, Gonzales M, et al. Nosocomial outbreak caused by *Scedosporium prolificans* (*inflatum*): four fatal cases in leukemic patients. *J Clin Microbiol* 1995;33:3290-5.
- Pittet D, Huguénin T, Dharan S, Sztajzel-Boissard J, Ducloux G, Thorens JB, et al. Unusual case of lethal pulmonary aspergillosis in patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 1996;154(2 Pt 1):541-4.
- Haley CE, Cohen ML, Halter J, Meyer RD. Nosocomial legionnaires' disease: a continuing common-source epidemic at Wadsworth Medical Center [abstract]. *Ann Intern Med* 1979;90:583-6.
- Dondero TJ Jr, Rendtorff RC, Mallison GF, Weeks RM, Levy JS, Wong EW, et al. An outbreak of legionnaires' disease associated with a contaminated air-conditioning cooling tower. *N Engl J Med*;302:365-70.
- Crane LC, Tagle LC, Palutke WA. Outbreak of *Pseudomonas paucimobilis* in an intensive care facility. *JAMA* 1981;246:985-7.
- Claesson BEB, Claesson UL-E. An outbreak of endometritis in a maternity unit caused by spread of group A streptococci from a showerhead. *J Hosp Infect* 1995;6:304-11.
- Sniadeck DH, Ostroff SM, Karlix MA, Smithwick RW, Schwartz B, Sprauer MA, et al. Nosocomial pseudo-outbreak of *Mycobacterium xenopi* due to contaminated potable water supply: lessons in prevention. *Infect Control Hosp Epidemiol* 1993;14:637-41.
- Dearborn DG, Infeld MD, Smith PG, Brooks LJ, Carroll-Pankhurst DC, Kosik R, et al. Update: pulmonary hemorrhage/hemolysis among infants. *MMWR Morb Mortal Wkly Rep* 1997;46(2):33-5.
- Fridkin SK, Kremer FB, Bland LA, Padhye A, McNeil MM, Jarvis WR. *Acromonium kilense* endophthalmitis that occurred after cataract extraction in an ambulatory surgical center and as traced to an environmental reservoir. *Clin Infect Dis* 1996;22:222-7.
- American Institute of Architects Academy of Architecture for Health. 1996-1997 guidelines for design and construction of hospitals and healthcare facilities. Washington (DC): The American Institute for Architects Press; 1996.
- Bartley J. Air (HVAC/Laminar Flow). In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 103:1-9.
- Bartley J. Construction. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 104:1-6.
- Streifel AJ. Maintenance and engineering; biomedical engineering. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 111:1-7.
- Bartley J. Water. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 118:1-4.
- McDonald L. Regulatory/accrediting/guideline setting agencies. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 121:1-4.
- Haberstich N. Prevention of infection during major construction and renovation in the surgery department of a large hospital. *AJIC Am J Infect Control* 1987;15:36A-38A.
- Carter CD, Barr BA. Infection control issues in construction and renovation. *Infect Control Hosp Epidemiol* 1997;18:587-96.
- Turner G, Sumner R, Ornelas L, Martin M. Controlling construction dust in the hospital environment; a quality improvement project [abstract]. *AJIC Am J Infect Control* 1995;23:115.
- Brown S, Detzler I, Myers J, Swift S. The impact of environmental controls and air quality monitoring on surgical site infection rates during operating room construction [abstract]. *AJIC Am J Infect Control* 1996;24:140.
- Gartner K, Blank M, Volosky R. Keeping the air clean—lessons from a construction project [abstract]. *AJIC Am J Infect Control* 1996;24:111.
- Kennedy V, Barnard B, Hackett B. Use of a risk matrix to determine level of barrier protection during construction activities [abstract]. *AJIC Am J Infect Control* 1996;24:111.
- Kennedy V, Barnard B, Hackett B. Use of a risk matrix to determine level of barrier protection during construction activities. *Hosp Infect Control* 1997;2:27-8.
- Harvey MA. Critical care-unit bedside design and furnishing: impact on nosocomial infections. *Infect Control Hosp Epidemiol* 1998;19:597-601.
- University of Minnesota Extension Service, University of Minnesota Building Research Consortium, IAQ Project, Department Env. Health and Safety. Health Care Construction and IAQ, Minneapolis (MN): Sept 15-16, 1997. Components available from: URL: <http://www.dehs.umn.edu/>.
- Brace SE. Infection control during construction: planning is key. *Healthcare Facilities Management Series* (#094300). Chicago (IL): ASHE of American Hospital Association; 1993.
- Bartley J. Environmental control: operating room air quality. *Today's OR Nurse* 1993;15:11-7.
- American Society of Heating, Refrigerating and Air Conditioning Engineers. *Systems and equipment handbook. Air cleaners for particulate contaminants*. Atlanta (GA): ASHRAE Inc; 1996. p. 24.9-24.11.
- Health Care Finance Administration. *Medicare and Medicaid programs; hospital conditions of participation 1986*. Baltimore (MD): Department of Health and Human Services; 1986.
- Tablan OC, Anderson LJ, Arden NH, Butler BR, McNeil MM, the

- Hospital Infection Control Advisory Committee. Guidelines for prevention of nosocomial pneumonia. *AJIC Am J Infect Control* 1994;22:247-92.
39. Centers for Disease Control and Prevention. Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care facilities, 1994. *MMWR Morb Mortal Wkly Rep* 1994;43(RR-13):29.
 40. American Society of Heating, Refrigerating and Air Conditioning Engineers. Design considerations for controlling microbial growth. Atlanta (GA): ASHRAE Inc; BSR/ASHRAE 62-1989R Draft Aug 1996. Appendix M1-M4.
 41. Occupational Safety and Health Administration. Legionnaires' disease. In: OSHA Technical Manual Section II: 7:1-46. Available from: URL: http://www.osha-slc.gov/Tech_Man_data/II.7.html.
 42. Comprehensive Manual on Accreditation of Hospitals. Oakbrook (IL): Joint Commission on Accreditation of Hospitals and Healthcare Organizations Publications; 1997.
 43. Kuehn TH, Gacek B, Yang CH, Grimsgud D, Janni KA, Streifel AJ, et al. Final report: ASHRAE 804-RP Phase I identification of contaminants, exposures effects and control options for construction/renovation activities. Atlanta GA: ASHRAE Inc; 1995.
 44. American National Standard for Emergency Eyewash and Shower Equipment ANSI Z358.11990 Revision of ANSI Z358.1-1981. New York: ANSI; Oct 5, 1989.
 45. Occupational Safety and Health Administration. Proposed rule for occupational exposure to tuberculosis. *Fed Reg*; 62: 54159-54308; 1997.
 46. Garner J. Hospital Infection Control Practices Advisory Committee. Guideline for isolation precautions in hospitals. *AJIC Am J Infect Control* 1996;24:24-52.
 47. Occupational Safety and Health Administration: Occupational exposure to bloodborne pathogens, final rule. (29 CFR 1910.1030), *Fed Reg*; 56:64175-64182; 1991.
 48. Garner JS, Favero MS. Guideline for handwashing and hospital environmental control, 1985. National Technical Information Service (PB855-923404); 1985, p. 14.
 49. Hansen W, editor. A guide to managing indoor air quality in health care organizations 1997. Oakbrook (IL): Joint Commission on Accreditation of Healthcare Organizations Publications; 1997.
 50. Freije MA, Barbaree JM. *Legionellae* control in health care facilities: a guide for minimizing risk. Indianapolis (IN): HC Information Resources Inc.; 1996.
 51. Rask D, Dziekan B, Swiencicki W, Heinsohn P, Walmsley D. Air quality control during renovation in health care facilities. In: Healthy buildings: solutions to global and regional concerns. Atlanta (GA): ASHRAE Inc Press; 1998.
 52. Opal SM, Asp AA, Cannady PB Jr, Morse PL, Burton LJ, Hammer PG II. Efficacy of infection control measures during a nosocomial outbreak of aspergillosis associated with hospital construction. *J Infect Dis* 1986;153:634-7.
 53. Overberger PA, Wadowsky RM, Schaper MM. Evaluation of airborne particulates and fungi during hospital renovation. *Am Ind Hyg Assoc J* 1995;56:706-12.
 54. Johnson K, Cohen M. An occupied hospital under construction: the role of environmental cultures [abstract]. *AJIC Am J Infect Control* 1997;25:166.
 55. Chou T. Environmental services. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 107:1-7.
 56. Goetz AM. *Legionella* species. Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 64:1-4.
 57. McDonald M. Disaster response. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 106:1-7.
 58. Humphreys H, Johnson EM, Warnock DW, Willats SM, Winter RJ, Speller DC. An outbreak of aspergillosis in a general ITU. *J Hosp Infect* 1991;18:167-7.
 59. Iwen PC, Reed EC, Armitage JO, Bierman PJ, Kessinger A, Vose JM, et al. Nosocomial invasive aspergillosis in lymphoma patients treated with bone marrow or peripheral stem cell transplants. *Infect Control Hosp Epidemiol* 1993;14:131-9.
 60. Kerr JR, Moore JE, Carran MD, Graham R, Webb CH, Lowery KG, et al. Investigation of a nosocomial outbreak of *Pseudomonas aeruginosa* pneumonia in an intensive care unit by random amplification of polymorphic DNA assay. *J Hosp Infect* 1995;30:125-31.
 61. Lingnau W, Allerberger F. Control of an outbreak of methicillin-resistant *Staphylococcus aureus* (MRSA) by hygienic measures in a general intensive care unit. *Infection* 1994;Suppl 2: S135-S139.
 62. Rutala WA, Weber DJ. Environmental interventions to control nosocomial infections. *Infect Control Hosp Epidemiol* 1995;16:442-3.
 63. Kollef MI, Von Harz B, Prentice D, Shapiro SD, Silver P, St. John R, et al. Patient transport from intensive care increases the risk of developing ventilator-associated pneumonia. *Chest* 1997;112:765-73.
 64. Weber SF, Peacock JE Jr, Do KA, Cruz JM, Powell BL, Capizzi RL. Interaction of granulocytopenia and construction activity as risk factors for nosocomial invasive filamentous fungal disease in patients with hematologic disorders. *Infect Control Hosp Epidemiol* 1990;11:235-42.
 65. Weinstein SA. Health and Safety Programs In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 108:1-8.
 66. Bolyard EA, Tablan OC, Williams WW, Pearson ML, Shapiro CN, Ditchman SD. Guideline for infection control in health care personnel, 1998. *AJIC Am J Infect Control* 1998;26:289-354.
 67. Centers for Disease Control and Prevention. Immunization of health-care workers: recommendations of the Advisory Committee on Immunization Practices and the Hospital Infection Control Practices Advisory Committee. *MMWR Morb Mortal Wkly Rep* 1997;46(RR 18):1-42.
 68. Streifel AJ. Aspergillosis and construction. In: Kandsin RB, editor. *Architectural design and indoor microbial pollution*. New York: Oxford University Press; 1988 p. 198-217.
 69. Streifel AJ, Lauer JL, Vesley D, Juni B, Rhame FS. *Aspergillus fumigatus* and other thermotolerant fungi generated by hospital building demolition. *Appl Environ Microbiol* 1983;46:375-8.
 70. Yu VL, Zeming I, Stout J, Goetz A. *Legionella* disinfection of water distribution systems: principles, problems and practice. *Infect Control Hosp Epidemiol* 1993;14:567-70.
 71. Goetz A, Yu VL. Screening for nosocomial *Legionella*. *AJIC Am J Infect Control* 1991;19:623-33.
 72. Palmgren U, Strom G, Blomquist G, Malmberg P. Collection of airborne micro-organisms on nucleopore filters, estimation and analysis—CAMNEA method [abstract]. *J Appl Bacteriol* 1986;61(5):401-6.
 73. Buttner MP, Stetzenbach LD. Monitoring airborne fungal spores in an experimental indoor environment to evaluate sampling methods and the effects of human activity on air sampling [abstract]. *Appl Environ Microbiol* 1993;59:219-26.
 74. Rath PM, Ansorg R. Value of environmental sampling and molecular typing of *Aspergilli* to assess nosocomial sources of aspergillosis. *J Hosp Infect* 1997;37:47-53.
 75. Hermans RD, Streifel AJ. Ventilation designs. Proceedings of the Workshop on Engineering Controls for Preventing Airborne Infections in Workers in Healthcare and Related Facilities; 1993 July 14-16; Cincinnati, Ohio. NIOSH; 1994.
 76. Marrie TJ, Haldane D, MacDonald S, Clarke K, Fanning C, Le Fort-Jost S, et al. Control of endemic nosocomial legionnaires' disease by using sterile potable water for high risk patients. *Epidemiol Infect* 1991;107:591-605.

CHAPTER 21 – INFECTION CONTROL PROCEDURES

section f continued

AJIC

Volume 28, Number 2

Bartley et al 169

77. Bert F, Maubec E, Bruneau B, Berry P, Lambert-Zechovsky N. Multi-resistant *Pseudomonas aeruginosa* outbreak associated with contaminated tap water in a neurosurgery intensive care unit. *J Hosp Infect* 1998;39:53-62.
78. Mermel LA, Josephson SL, Giorgio CH, Dempsey J, Parenteau S. Association of legionnaires' disease with construction: contamination of potable water? *Infect Control Hosp Epidemiol* 1995;16:76-81.
79. Yu VL. Prevention and control of *Legionella*: an idea whose time has come. *Infect Dis Clin Pract* 1997;6:420-1.
80. Goetz A, Yu VL. Copper-silver ionization: cautious optimism for *Legionella* disinfection and implications for environmental culturing. *AJIC Am J Infect Control* 1997;25:449-51.
81. Butler JC, Fields BS, Breiman RF. Prevention and control of *Legionella*. *Infect Dis in Clin Pract* 1997;6:458-64.
82. Muraca P, Yu VL, Goetz A. Disinfection of water distribution systems for *Legionella*: a review of application procedures and methodologies. *Infect Control Hosp Epidemiol* 1990;11:79-88.
83. Muetzner S, Schwille RC, Farley A, Wald ER, Ge JH, States SJ, et al. Efficacy of thermal treatment and copper-silver ionization for controlling *Legionella pneumophila* in high-volume hot water plumbing systems in hospitals. *AJIC Am J Infect Control* 1997;25:452-7.
84. Johanning E, Biagini R, Hull D, Morey P, Jarvis B, Landsbergis P. Health and immunology study following exposure to toxigenic fungi (*Stachybotrys chartarum*) in a water-damaged office environment. *Int Arch Occup Environ Health* 1996;68:207-18.
85. Michigan Department of Consumer and Industry Services. Minimum design standards for health care facilities in Michigan. Lansing (MI): MDCIS; 1998.
86. Cooney TE. Bactericidal activity of copper and noncopper paints. *Infect Control Hosp Epidemiol* 1995;16:444-50.
87. Rintala WA. Water as a reservoir of nosocomial pathogens. *Infect Control Hosp Epidemiol* 1997;18:609-16.
88. Health Facilities Forum on Carpet in Health Care Facilities Series. Health facilities management. Chicago (IL): American Hospital Association; 1993;12:22-34; 1994;1:26-30; 1994;2:38-46.
89. Anderson RL, Mackel DC, Stoler BS, Mallison GF. Carpeting in hospitals: an epidemiological evaluation. *J Clin Microbiol* 1982;15:408-15.
90. Lumish, RM. Carpeting in hospitals: an infection control problem? *JAMA* 1989;261:2422.
91. Skoutelis AT, Westenfelder GO, Berkerdite M, Phair JP. Hospital carpeting and epidemiology of *Clostridium difficile*. *AJIC Am J Infect Control* 1994;22:212-7.
92. Schmidt EA. Medical waste. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996.
93. Baker C. Obstetric practice areas. In: Olmsted R, editor. *APIC: infection control and applied epidemiology: principles and practice*. 1996. St Louis (MO): Mosby; 1996. p. 93:1-7.
94. Dadswell JV. Managing swimming, spa and other pools to prevent infection. *Commun Dis Rep* 1996;6(2):R37-40.
95. Hollyoak V, Boyd P, Freeman R. Whirlpool baths in nursing homes: use, maintenance and contamination with *Pseudomonas aeruginosa*. *Commun Dis Rep* 1995;5(7):R102-104.
96. Miles J. Potentially hazardous amoebae found in eyewash stations. Hazard information bulletin. United States Department of Labor and Occupational Safety and Health Administration. Dec. 1986. Bulletin 19861223. Available from: URL: <http://www.osha-slc.gov/HIB19861223.html>.
97. DHHS (NIOSH) Publication 97-111. Selecting, evaluating and using sharps disposal containers. Available from: URL: <http://www.cdc.niosh/sharps1.html>.
98. Aerobiological Engineering. Pennsylvania State University, Graduate school of Architectural Engineering and Department of Biology. July, 1997. Available from: URL: <http://www.engr.psu.edu/arc/server/wjkaerob.html>.
99. Rice N, Streifel A, Veseley D. Room pressure: a critical parameter for special ventilation rooms. Proceedings of the SHEA Eighth Annual Scientific meeting; 1998; Orlando, Fla.

CHAPTER 22 – FIRE PREVENTION & SAFETY

section a

FIRE EMERGENCY & PREVENTION PROCEDURES & POLICIES

1. A fire extinguisher is to be kept in each company vehicle and office. These are to be inspected monthly and recharged immediately after being discharged.
2. Permanent water supply to the project shall be made available as soon as possible and made available for use.
3. Fire extinguishers shall be inspected weekly during the weekly safety inspection and monthly the fire extinguisher shall be inspected per the Manufacturer's recommendations. A record of these inspections shall be noted on the fire extinguisher tag. Fire extinguishers shall be serviced every five years.
4. Site Superintendents are to enforce good housekeeping policies at their respective locations. Check that walkways and exits are clear and passable and that no flammable piles of garbage are allowed to accumulate. An appropriate fire extinguisher shall be kept and displayed not closer than 25 feet nor farther than 75 feet from any flammable liquid storage area.
5. No smoking policies are to be enforced. Designated smoking areas will be provided with a safe cigarette disposal container.
6. High-risk areas such as storage areas where combustible liquids, flammable solids (wood dust) or compressed gases are used or stored must be posted no smoking and employees should be trained in safe practices for these areas. If stored outside, they must be at least 50 feet from buildings. **A 10B fire extinguisher must be kept within 50' of flammable liquid storage (fuel) whenever more than five (5) gallons or pounds of flammables are being used.**
7. Remove any dry weeds or grass from around buildings, equipment, or storage tanks.
8. Employees shall be trained in the following items during the site specific safety orientation:
 - How to report a fire
 - Location's alarm or warning communication system
 - Gathering location and evacuation methods
 - Employee's responsibilities during a fire emergency
 - Where firefighting equipment is kept and how to use it
9. Only employees who have received training in using firefighting equipment are to use it. Employees who are not trained are not allowed to use it even if a fire occurs. All employees are to receive training in the use of fire extinguishers.
10. Construction sites must have a fire extinguisher, functioning garden hose or 55-gallon drum of water and two buckets within 100 feet radius and on the same level of where work is in progress. Refer to OSHA and OSHA State Plan regulations for additional required items in the use of garden hoses and 55-gallon drums
11. Gasoline and kerosene must always be stored in a safety can, which is clearly labeled.
12. At a minimum, a fire extinguisher rated not less than 2A shall be provided for each 3,000 SF of a combustible building area or major fraction thereof and / or each floor. Travel distance shall not exceed 100 feet.
13. Temporary buildings shall be not less than 10 feet from another building or structure.

The protection of human life must be #1 priority in fire planning



IN THE EVENT OF A FIRE

RACE (New)

- R: RESCUE** Anyone in Immediate Danger
- A: ACTIVATE** Nearest Fire Alarm and/or Call AH/MB/TG – 811; Ambulatory – 9-911
- C: CONTROL** Ventilation (Close Doors/Windows)
- E: EXTINGUISH** Fire and/or Evacuate

PASS

- P: PULL** Safety Pin from Handle
- A: AIM** (nozzle, cone, horn) at Fire Base
- S: SQUEEZE** the Trigger Handle
- S: SWEEP** from Side to Side

CHAPTER 22 – FIRE PREVENTION & SAFETY

section c

GASOLINE SAFETY

Gasoline doesn't burn, but its vapors do. Gasoline vapors form at temperatures as low as 45 below zero, but the warmer the temperature the faster it evaporates and the more dangerous it becomes. Gasoline vapors are heavier than air and will puddle invisibly at a low spot unless there is good air circulation. One spark is all it takes to ignite gasoline vapors.

1. Gasoline must always be stored in a safety can labeled with the content. Lingering vapors in gasoline can ignite with a violent explosion. Empty cans are more dangerous than full ones. Never store gasoline in glass.
2. Static electricity can be generated by pouring gasoline from one container into another. Always keep the two metal containers touching each other. Or better yet, connect the two containers with a bonding wire. Static electricity can provide the spark needed to ignite the vapors.
3. Never refuel hot or running engines.
4. Never siphon gasoline with your mouth.
5. Never store gasoline in your car trunk.
6. Never use gasoline to clean your hands.
7. Never dispense gasoline near spark or flame - no smoking in gasoline use areas.
8. Fuel soaked clothing can cause a fire or explosion in your clothes dryer - even after the clothing has been washed.
9. Never store gasoline in the same area as oxygen, LPG or acetylene tanks. Gasoline should be stored away from flammable materials such as wood stacks or weeds.
10. Gasoline powered equipment must be vented to outside air.

CHAPTER 22 – FIRE PREVENTION & SAFETY

section d

TEMPORARY HEATING

Temporary Heating Using Liquefied Petroleum Gas (LPG)

1. All LPG containers must be of approved types with clear labeling.
2. Check that the cylinder valve is closed, and protective caps or collars are in place when moving cylinders.
3. All containers and connections shall have shut off valves located as close to the container as practical, except safety relief connections, liquid leveling gauging devices and plugged openings.
4. All containers and vaporizers must be provided with one or more approved safety relief valves or devices.
5. LPG tanks and petroleum products should not be stored in the same area. Do not allow temperature of compressed gas cylinder to rise above 100 degrees F.
6. Containers shall be stored in a suitable, ventilated enclosure or otherwise protected against tampering. They should never be stored inside buildings.

Temporary Heating Devices

1. Temporary heating devices must not be used near debris, wood, in dusty atmospheres or near any other combustibles. Locate at least 10' spacing from combustibles.
2. Do not operate resting on wood floor or other combustibles. Set heater on concrete floor or on two, stacked 4'x 4' pieces of 1/2 inch of drywall and must extend 2'-0" beyond in all directions.
3. Heaters shall be horizontally level unless otherwise permitted by the manufacturer's markings.
4. LPG tank shall be located outside of the building, secured on a firm level base.
5. Special care must be taken to provide sufficient ventilation in order to ensure proper combustion, maintain the health and safety of workers and limit the temperature rise in the area.
6. Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and pilot if used in the event of a flame failure.
7. Periodic checks should be made during the operation of temporary heating units at all hours while they are in use.
8. Barrel fires or job made heaters are not permitted.
9. Ventilation shall be in accordance with the type of heater being utilized and shall be monitored.

CHAPTER 22 – FIRE PREVENTION & SAFETY

section e

HOT WORK POLICY AND PROCEDURES

Policy

Hot work can be defined as work that uses or creates excessive heat, open flames, sparks, or welding when within 35 feet of combustible materials. When performing hot work, a hot work permit notifying the facility or construction site of the activity shall be utilized.

The Hot Work permit's checklist shall be utilized to ensure the proper precautions are followed before work starts to prevent any fires. Hot work requires at least 48 to 72-hour notice in occupied spaces prior to commencement of work. All sources of potential combustibles near the work area are to be eliminated prior to starting work.

Be aware that a hot work permit may not be granted due to other types of work that are being performed at the same time in a different area of the facility. For example, if the fire sprinkler system is out of service for some reason, then hot work will not be permitted.

While performing hot work, a continuous fire watch must be performed. This includes breaks where a person must remain in the work area to perform the fire watch. When the hot work being performed is complete for the day, the time that work stopped shall be recorded on the ticket. Fire watch must continue after the hot work has been completed continuously for one hour immediately after completion of hot work and every 15 minutes for the following three (3) hours.

Occupied buildings can have different requirements established regarding hot work procedures. Individual facility requirements must be followed when performing hot work at said facilities.

Hot Work Permits

Hot work permits shall be filled out for each trade involved in the hot work and are only valid for the day that the permit is filled out. One hot work permit for the entire site is not acceptable. The permit must be used in conjunction with the fire watch logs to document the monitoring of the hot work area.

Fire Watch Log

Fire watch logs shall be used in conjunction with the hot work permit to document monitoring of the hot work area. Fire watch logs shall only be used to document each hot work permit issued.

Fire watch logs may also be used to document monitoring when a building fire alarm system is compromised for a period of more than four hours.

CHAPTER 22 – FIRE PREVENTION & SAFETY

section f

HOT WORK PERMIT

Name: _____ Date: _____	
Company: _____	
Location: _____	
Building: _____	Floor: _____
Name(s) of person(s) performing Hot Work: _____	
Description of Work: _____	
We verify the above location has been examined and the precautions checked below have been taken to prevent fire, and permission is authorized for this work.	
Worker's Signature _____	Worker's Signature _____
Worker's Signature _____	Superintendent / Foreman Signature _____

Expiration Date: _____

Expiration Time: _____

Required Precautions Checklist

<input type="checkbox"/>	1.	Available sprinklers, hose streams, and extinguishers are in service and operable	Requirements within 35 feet of work
<input type="checkbox"/>	2.	Hot Work equipment is in good working order	
<input type="checkbox"/>	3.	Hot Work area is free of flammable liquids, dust, lint and oily deposits	
<input type="checkbox"/>	4.	Explosive atmosphere in area is eliminated	
<input type="checkbox"/>	5.	Other combustibles have been removed where possible or protected with fire resistive tarpaulins	
<input type="checkbox"/>	6.	Floors are swept clean	
<input type="checkbox"/>	7.	All wall and floor openings are covered	
<input type="checkbox"/>	8.	Combustible floors have ben wet down and covered with damp sand or fire resistive sheets	
<input type="checkbox"/>	9.	Fire resistant tarpaulins have been suspended beneath work	
<input type="checkbox"/>	10.	Ducts and conveyors that may carry sparks to ignite combustibles have been shut down or protected	
<input type="checkbox"/>	11.	Construction is noncombustible and without combustible coverings or insulations	Work on walls, ceilings or
<input type="checkbox"/>	12.	Combustibles on other sides of walls, ceilings or roofs are moved away	
<input type="checkbox"/>	13.	Enclosed equipment cleaned of all combustibles (follow confined space polices)	Working on enclosed equipment
<input type="checkbox"/>	14.	Containers purged of flammable liquids and vapors	
<input type="checkbox"/>	15.	Pressurized vessels, piping and equipment removed from service, isolated and vented	
<input type="checkbox"/>	16.	Fire watch will be provided during work and 60 minutes after work, including during breaks	Fire Watch
<input type="checkbox"/>	17.	Fire watch is supplied with suitable extinguishers and where practical a charged stream hose	
<input type="checkbox"/>	18.	Fire watch is trained in use of equipment and in sounding alarm and documenting on the fire watch log	
<input type="checkbox"/>	19.	Fire watch may be required in adjoining areas, above and below the hot work	
<input type="checkbox"/>	20.	Monitor hot work area for 4 hours, continuously for the first hour and every 15 minutes for the following three hours	



CHAPTER 23 – LOCK OUT | TAG OUT

section a

LOCKOUT | TAGOUT POLICY & PROCEDURES

Introduction and Purpose

The purpose of the Lockout | Tagout Program is to ensure that persons, assigned to tasks requiring the control of hazardous energy are fully trained in the isolating of energy sources, equipment or machines.

Energy sources include Electricity, Hydraulic, Pneumatic, and Gravity.

When a machine can be unplugged, and that plug is visibly and physically under the control of the potentially exposed worker, no lock or tag is required.

Duties to the Lockout Tag out Policy

Each Superintendent will maintain the records of any use of the Lockout | Tagout program on their project for the duration of the project and see that records are archived with the project documents. The Director of Field Operations or Operations Manager, with the council of the Abbott Construction Safety Leadership Board, will periodically review the Lockout | Tagout Program and at any instance where the system failed, or a close call was noted. The Director of Field Operations or Operations Manager will periodically renew training and the need for Lockout | Tagout systems to be used. Project Managers and Project Superintendents will review for approval any submitted Subcontractor's Lockout | Tagout Program. The program must meet the minimum standards of the OSHA or OSHA State Plan Regulations. During construction, the site Superintendent will maintain an awareness of all isolation devices that may require Lockout | Tagout during the project. Any potential exposure to a hazard from an energy source will be evaluated and a site specific plan JHA will be developed and put in place to warn of the need for Lockout | Tagout for worker protection.

Preparation for Lockout | Tagout

Prepare a log for Lockout | Tagout use and keep sufficient supply of locks / tags and devices to apply locks and tags. Keep a supply of warning signs and posters to keep workers aware of the hazard and make specific Lockout | Tagout use a topic at Tool Box Talks and Orientations. Recommended is a commercially available Lockout | Tagout system that can be displayed in the work place that contains specific locks and printed tags.

Lockout | Tagout Rules

1. Controls. Controls that are deactivated during work on energized or de-energized equipment or circuits shall be tagged and padlocked in the position that protects workers from the energy to be controlled.
2. Equipment and controls. Equipment or energy controls that are de-energized shall be rendered inoperative and have tags and locked padlocks attached at all points where such equipment or controls can be activated.
3. Tags. Tags shall be placed to identify plainly
4. Lockout and tagging. While any employee is exposed to contact with parts of fixed electric equipment or any system which has been isolated for the control of any energy source, the valves or circuits energizing the system or parts shall be locked out or tagged or both according to the requirements of this section. The requirements shall be followed in the order in which they are presented (i.e., (a) of this subsection first, then (b) of this subsection).

Note 1: As used in this section, fixed equipment refers to equipment fastened in connected by permanent wiring or piping methods or jacks or other supports to prevent the falling of any object or load.

Note 2: Lockout and tagging procedures that comply with OSHA or State Plan Regulations, will also be deemed to comply with this policy provided that:

1. The procedures address the electrical safety hazards covered by OSHA or State Plan Regulations and any Machine Guarding Rules of OSHA or State Plan Regulations.
2. The procedures also incorporate the requirements of (c)(iv) and (d)(ii) of this subsection.
 - a. Procedures. The Project or Subcontractor shall maintain a written copy of the procedures outlined in this subsection and shall make it available for inspection by employees and by the Director of Field Operations or Operations Manager and his/her authorized representative.
 - b. De-energizing equipment
 - i. Safe procedures for de-energizing circuits/systems and equipment shall be determined before circuits/systems or equipment are de-energized.

CHAPTER 23 – LOCK OUT | TAG OUT

section a continued

- ii. The circuits/systems and equipment to be worked on shall be disconnected from all energy sources. Controls including circuit devices, such as push buttons, selector switches, and interlocks, shall not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment shall not be used as a substitute for lockout and tagging procedures. Valves must be chained or secured. Jacks must have blocking in place to support the weight of the load in case a jack should fail. Transfer switches that are connected to generators or to other sources of power must be considered and isolated.
- iii. Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged, and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.

Note: If the capacitors or associated equipment are handled in meeting this requirement, they shall be treated energized.

- iv. Stored nonelectrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.
- c. Application of locks and tags.
- i. A lock and a tag shall be placed on each disconnecting means or isolation device used to de-energize circuits/systems and equipment on which work is to be performed, except as provided in (c)(iii) and (v) of this subsection. The lock shall be attached to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools.
 - ii. Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.
 - iii. If a lock cannot be applied, or if the Contractor can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained using a lock, a tag may be used without a lock.
 - iv. A tag used without a lock, as permitted by item (iii) of this subsection, shall be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device
 - v. A lock may be placed without a tag only under the following conditions:
 - A. Only one circuit or piece of equipment is de-energized; and
 - B. The lockout period does not extend beyond the work shifts; and
 - C. Employees exposed to the hazards associated with reenergizing the circuit/system or equipment are familiar with this procedure.
- d. Verification of de-energized condition. The requirements of this subsection shall be met before any circuits or equipment can be considered and worked as de-energized.
- i. A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
 - ii. A qualified person shall use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and shall verify that the circuit elements and equipment parts are de-energized. The test shall also determine if any energized conditions exist because of inadvertently induced voltage or unrelated voltage back feed even though specific parts of the circuit have been de-energized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment shall be checked for proper operation immediately before and immediately after this test.
- e. Reenergizing equipment. These requirements shall be met, in the order given, before circuits or equipment is reenergized, even temporarily.
- i. A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized. This must be done prior to removing any lock or tag and putting that equipment or system or circuit back in service.
 - ii. Employees exposed to the hazards associated with reenergizing the circuit/system or equipment shall be warned to stay clear of circuits/systems and equipment.
 - iii. Each lock and tag shall be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the work place, then the lock or tag may be removed by a qualified person designated to perform this task provided that:

CHAPTER 23 – LOCK OUT | TAG OUT

section a continued

- A. The employer ensures that the employee who applied the lock or tag is not available at the work place; and
 - B. The employer ensures that the employee is aware that the lock or tag has been removed before he or she resumes work at that work place.
- iv. There shall be a visual determination that all employees are clear of the circuits systems and equipment.

Maintenance of equipment; all equipment/circuits or systems shall be restored to their original safe condition before any reenergizing of any system.

CHAPTER 24 – INSPECTIONS

section a

OSHA INSPECTION GUIDELINES

1. Be prepared for OSHA inspection at all times. Compliance officers usually arrive without notice. Inspections are more likely following a serious accident, union dispute or after layoffs. Keep your location neat and clean with safety training and file up to date.
2. If you are notified of a pending OSHA inspection or that an OSHA inspector arrives at your location, notify the site Superintendent immediately.
3. We do not require inspectors to have a search warrant. Warmly welcome them. The inspector should show you his credentials. An employee representative and site Superintendent should accompany the inspector on the entire "walk around" inspection.
4. During opening conference, the inspector should explain the reason for the visit, what it will entail and how it will be conducted. If the inspector does not offer this information, ask for it.
5. The inspector must determine if the site qualifies for a focused inspection. (Refer to Focused Inspections). Site Superintendent must demonstrate we have a well-functioning safety program in order to qualify.
6. As soon as possible in the opening meeting, the Superintendent should point out the company's significant safety / health achievements and statistical trends. Be positive and point out our policies and procedures for the location, safety disciplinary policies, and safety file and safety resources.
7. Compliance officers usually request information such as employee orientation forms, weekly safety meeting forms, first aid cards, Hazardous Communication Program, SDS for substances onsite, or Fall Protection Plans. The officer will also request to review our Accident Prevention Program. Contact the Director of Field Operations or Operations Manager if needed.
8. The inspector may speak privately with employees at any time during inspection provided the interview does not disrupt work.
9. During the walk-around inspection, if you notice a hazard or see an employee working in an unsafe manner, act immediately to rectify the condition or correct the employee. Mention employee discipline policy and its use at your location.
10. The inspection will usually end with a closing conference, during which the officer may inform you of any hazardous conditions or practices noted on the inspection. You should take immediate steps to correct any "immediate danger" violations.
11. Document any conditions with photos, measurements, meter readings, or witness statements if you disagree with the compliance officer's findings. Offer your opinions but do not be argumentative. Document all potential citations with intent of appealing.
12. Post a copy of any violation received at the site and send copy to the main office.

CHAPTER 24 – INSPECTIONS

section b

FOCUSED OSHA INSPECTIONS

When an OSHA inspector comes onsite to do an inspection, he first determines if the Company is qualified for a focused inspection. If when reviewed, the inspector determines the company has:

- A complete Accident Prevention Program
- Good safety meeting and training records
- Subcontractor safety oversight
- Weekly jobsite inspections
- Site specific safety plans
- A designated, competent person prepared to implement it all on site

Then the OSHA inspector will do a focused inspection rather than a comprehensive inspection.

A focused inspection only looks for the four leading serious hazards:

- Falls – like floors, platforms, roofs, Fall Protection Plan
- Struck by – like vehicles, falling objects
- Electrical – like cords, outlets, temporary electricity, GFI's, or Assured Grounding Plan
- Caught in – like unguarded machinery, cave-ins

It does not look at bulletin boards, specific SDS, container labeling, etc. It is much to our advantage to qualify for focused inspections. Construction health and sanitation (water, Sani-cans, etc.) are not considered serious hazards, but they will be cited because they are health rather than safety violations.

During the walk around, the inspector will continue to evaluate the implementation of your program and may interview employees. If at any point he determines the program is not being followed he may change the inspection to a comprehensive. Although, while doing a focused inspection he will not search out other violations, if serious violations are noted he may cite for them.

If the inspection was prompted by a complaint or accident, the instigating factor will first be addressed and then the determination to continue with a focused or comprehensive inspection will be determined.

One can assume comprehensive inspections will be much more comprehensive than they have been in the past and focused inspections much more brief and to the point.

CHAPTER 25 – STRETCH & FLEX

section a

STRETCH & FLEX

Stretching in the morning and after break can help prevent injuries. This program linked with awareness and education of proper lifting techniques will greatly reduce soft tissue injuries on the job.

An effective Stretch and Flex program on site should include the following:

1. Abbott project team must actively lead and participate in the program on the site during the time of stretching.
2. Everyone on site must participate in Stretch and Flex each morning at minimum.
3. Supervision should be aware of any injuries that would prevent a worker from participating in Stretch and Flex.
4. Remind workers that Stretch and Flex is designed as a preventative measure to ensure worker safety and protection against injury.
5. Stretch to the extent that your body allows and as time progresses move forward with stretches in a manner that is safe and not harmful.
6. Assist workers in training of proper lifting techniques and ensure that you are willing to help when loads are too heavy for one worker.

Stretching Principles

- Only stretch to your level of comfort
- Stand with feet spread shoulder-width and knees slightly bent
- Move in and out of stretches slowly, relax after each stretch
- Hold each stretch for ten seconds and breathe normally throughout
- Protect your back – keep your head up and eyes forward

1. Warm Up

Heat muscles through large-muscle group rhythmic activity

- Shoulder Shrug x 8
- Bench Press motion x 8
- Incline Press motion x 8
- Overhead Press motion x 8
- Backstroke motion x 8



CHAPTER 25 – STRETCH & FLEX

section a continued

2. Shot Put

- With one foot planted, turn your body toward that foot and reach high.
- Remember to pivot opposite foot to avoid back strain.
- Switch planted foot and repeat other direction.
- Repeat each motion:
 - Reaching up x 8
 - Reaching straight out x 8
 - Reaching down x 8



3. Skyward Reach

Targeting biceps, lats, forearms, and spinal muscles

- Reach straight up, hands forward, rise on toes, and hold.
- Continue reaching but lower heels & flex wrists so fingers point down.
- Turn hands in, hold.
- Turn hands out, hold.
- Bring arms down slowly.



CHAPTER 25 – STRETCH & FLEX

section a continued

4. Chest

Targeting chest, biceps & forearms

- Extend your arms fully in front of your body and parallel to the ground
- Spread your arms slowly until they are straight out at your sides
- Slowly pull arms in at elbow and push back out



5. Triceps

Targeting triceps and lats

- Stand straight with slightly bent knees, feet shoulder width apart and head up
- Raise your right arm and place palm between your shoulder blades
- With your left hand, grasp your right elbow and pull up and back gently
- Repeat sequence for your left arm



CHAPTER 25 – STRETCH & FLEX

section a continued

6. Shoulder

Targeting shoulders and upper back

- Keeping your hips and shoulders straight ahead, extend your right arm straight forward and thumb up
- Maintaining that position, swing the arm leftward until it is close to your chest
- Turn your head in the opposite direction and grasp your right elbow with your left hand, pulling gently
- Repeat sequence for your left shoulder



7. Neck

Targeting neck and collar muscles

- Tilt your head slowly forward and tuck your chin
- Rotate your head gently from side to side
- Next, with head up and eyes forward tilt your head to the right while extending your left arm, palm parallel to the ground and “push” downward
- Repeat sequence for left side



CHAPTER 25 – STRETCH & FLEX

section a continued

8. Forearm

Targeting wrists, hands, and forearms

- Extend your right arm and raise your hand at the wrists, with fingers pointing up
- With your left hand, pull fingers / palm back gently to your level of comfort
- Next, point fingers down and, with thumb behind wrist, press against the back of your right hand
- Repeat sequence for left arm



9. Shoulder Release

Targeting shoulders and upper back

- Stand with feet spread shoulder width apart
- Extend arms behind back and clasp hands; tilt your wrists upward slightly
- Pull your hands up gently by bending at elbows; hold the stretch



CHAPTER 25 – STRETCH & FLEX

section a continued

10. Calf

Targeting calves and Achilles tendon

- Stand with your left foot forward
- Extend your right foot back 2-3 feet, in line with your left foot
- Keep your back straight, head up and eyes forward, heels flat
- Bend your left knee slowly and lean forward until you feel the stretch, bracing both hands on your left thigh – ensure left knee does not pass left foot
- Repeat sequence for left calf



11. Hamstring

Targeting hamstring

- Extend right foot at a slight angle, 1-2 feet in front of left foot
- Flex left foot by lifting toes and keeping heel on the ground
- Lean forward slightly at the waist and brace yourself with both hands on your left thigh
- To enhance this stretch, draw your toes up further or extend them down
- Repeat for left hamstring



CHAPTER 25 – STRETCH & FLEX

section a continued

12. Quadriceps

Targeting quadriceps

- Stand upright on left leg and bring your right foot up behind your thigh, keeping your knees together
- Grasp the foot with your right hand and pull up gently
- Bring right heel close to your buttocks while extend your left arm up, and hold the stretch
- To enhance this stretch, push foot against hand or pull let back slightly
- Repeat sequence for left thigh



13. Squats

Targeting quads, hamstrings, and glutes

- Stand with your feet flat and spread slightly more than shoulder width
- Bend slowly at the knees, lowering your rear end back and down
- Always protect your back; keep your head up and eyes forward
- Keep your knees behind the plane of your toes, and thighs parallel with the ground
- Keeping your weight on your heels, rise slowly
- Repeat sequence 5 – 10 times



CHAPTER 26 – TRENCHING & EXCAVATING

section a

TRENCHING & EXCAVATION SAFETY

Two workers are killed every month in trench collapses. Abbott Construction is committed to providing a workplace free of recognized hazards that may cause serious injury or death and to comply with the trenching and excavation requirements of OSHA and OSHA State Plan Regulations. If there are to be workers in a trench or excavation, the Superintendent will be responsible for being familiar with applicable State Code.

An excavation is any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal. Trench means a narrow excavation, in relation to its length, made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench, measured at the bottom, is not greater than 15 feet.

There are many dangers associated with trenching and excavation including cave-ins, falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment. Cave-ins are more likely than any other excavation-related accidents, however, to result in worker fatalities. One cubic yard of soil can weigh as much as a car; therefore, workers shall not enter an unprotected trench under any circumstances.

In the event that another contractor is providing the trench or excavation, the site Superintendent must be certain the trench meets minimum requirement for safety before any Abbott employees or others enter or approach the trench or excavation. The contractor must provide access to, and the site Superintendent must work alongside the designated competent person for trenching and excavation. Never assume another Contractor's competency.

Trench Safety Measures

Trenches four feet deep or greater require a protective system unless the excavation is made entirely of stable rock. If less than four feet deep, a competent person may determine that a protective system is not required. Any trench less than four feet may not be safe.

Trenches 20 feet or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and / or approved by a registered professional engineer.

Access & Egress

OSHA and OSHA State Plan Regulations require safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations four feet or deeper. These devices must be located within 25 feet of all workers.

Protective Systems

Designing a protective system can be complex as many factors must be considered. In designing a system, one must consider soil classification, depth of the cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity. Below are a few different types of protective systems that can be utilized.

Benching

Benching means a method of protecting workers from cave-ins by excavating the sides of an excavation to form one, or a series of, horizontal levels or steps, usually with vertical or near vertical surfaces between levels. Benching cannot be done in Type C soil. Check the local code for benching specifics.

Sloping

Sloping involves cutting back the trench wall at an angle inclined away from the excavation. A slope of 1-1/2:1 is usually a good choice. Never pile any spoil next to the edge of the excavation, keep all spoils at least two feet from the edge.

Shoring

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

Shielding

Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins. The engineering for these must be done onsite.

Designs by a registered professional Engineer can be used to show that no other protective system is needed. The design must be stamped and onsite before anyone can enter the excavation.

CHAPTER 26 – TRENCHING & EXCAVATING

section a continued

Competent Person

OSHA and OSHA State Plan Regulations require that before workers may enter an excavation, it must be inspected by a competent person daily, and as conditions change, to ensure elimination of excavation hazards. A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to workers. In the case of trenches and excavations, the competent person must also be able to classify soil types and approve protective systems required, and who is authorized to take prompt corrective measures to eliminate any hazards and unsafe actions or conditions.

Training

Before the start of work in any trench or excavation, a Job Hazard Analysis must be completed and utilized to train employees connected with this work. Documentation of this training must be kept in the site specific safety manual onsite.

General Trenching & Excavation Rules

Training

- Training, including orientations, related to trench and excavations must be conducted by the Competent Person

Supervision & Inspection

- Competent Person must be named in site specific safety plan (JHA) and all work must be supervised by the competent person
- All trenches or excavations must be inspected by the Competent Person at the following intervals:
 - Daily, prior to any worker entering the trench or excavation
 - After any event or activity which may change the safety of the trench or excavation

General Rules

- Trenches or excavations greater than four feet must have a protective system in place
- Heavy equipment must be kept away from trench edges
- Other sources that might affect trench stability must be identified
- All spoil is to be kept back at least two feet from the excavation edge where employees may be in the trench or excavation
- Locate underground utilities prior to digging. Notify the site Superintendent immediately upon discovery of any tank, contaminated soil or other unexpected findings such as piping, conduits, or wiring during any excavation
- Test for atmospheric hazards such as low oxygen, hazardous fumes and toxic gases when greater than four feet deep
- Do not allow workers to work under suspended or raised loads and materials
- Ensure that personnel wear high visibility or other suitable clothing when exposed to vehicular traffic
- All excavating material handling equipment with obstructed view to the rear will use a backup alarm system and backing of dump trucks will require a signal person or all employees kept out of the backing zone
- All trenches or excavations will be provided with a ladder within 25 feet of each worker
- All flammable liquids must be dispensed from an approved "Safety Can" and are not to be left onsite unsecured. They must be removed or locked up
- A fire extinguisher must be of the appropriate type and provided for any flammable or combustible hazard
- Housekeeping must be maintained to allow for the safe access and egress of the employees onsite
- All accidents, incidents, or close calls must be reported to the site Superintendent immediately
- Maintain all compressed gas cylinders in a safe manner and use all required precautions for any welding or burning operations
- ANSI approved head protection, eye protection and high visibility safety vest must be worn at all times. Hearing and hand protection may be required as needed
- Do not remove any safety signs, warnings, fencing, guardrails or other safety protections without the site Superintendents permission
- No construction hazards are to be present in any public area. Take care that no dust or flying debris leaves the site
- Provide and keep on file any documentation of required training

CHAPTER 26 – TRENCHING & EXCAVATING

section b

DUMP TRUCKS IN CONSTRUCTION ZONES

Since 1999, seven construction workers have been killed when they were backed over by dump truck. The most recent incident was August 2006, when a laborer tacking string for an asphalt paving operation was killed by a dump truck backing up.

These deaths occurred despite the trucks being equipped with audible back-up alarms. An audible back-up alarm in a noisy construction site may not be enough to protect workers.

How to protect workers in the construction zone

In addition to an audible back-up alarm, if workers are in the backing zone or could reasonably be expected to enter the area, the truck may only be backed up when there is:

- An observer signaling when it is safe to back up; or
- A device such as a video camera that provides the driver with a full view of the area behind the dump truck

Backing Zone

The following diagram defines the backing zone. Distances in feet.

