HWC SAFETY MANUAL

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1.0 CORPORATE MANAGEMENT POLICY STATEMENT

The personal safety and health of each employee of our organization is extremely important to HWC Engineering, Inc. (HWC). We believe that our employees are our most important asset and want to ensure their safety on the worksite. Management will provide the equipment and facilities required for the personal safety and health of each of its employees.

All employees working in the field, along with their supervisors and managers, need to abide by the safety manual. Employees are expected to use the safety equipment provided. Safety equipment must not be abused or destroyed.

Cooperation between our employees and management in the observance of this policy will ensure safe-working conditions, will help result in accident-free performance and will work to our mutual advantage. It will also assist in reducing workers' compensation costs and reduce employee down time and regulatory agency fines.

Employees will be held accountable for meeting their responsibilities so that essential tasks will be performed.

1.1 CORPORATE MANAGEMENT SAFETY RESPONSIBILITIES

1. Eliminate potential hazards by providing appropriate safeguards, personal protective equipment and safe work tasks.

2. Provide necessary personal protective equipment and enforce its use and care.

3. Provide effective training, which is required by OSHA standards, as a minimum for the employees.

4. Become familiar and comply with applicable OSHA standards (29 CFR 1910, General Industry, and 1926, Construction) and make copies of medical records as well as all safety and health programs available for employees to review.

5. Review, consider for approval, and execute appropriate action on safety policies developed by management and the safety director.

6. Ensure a high level of productivity and safety performance and hold project management staff accountable.

7. Assign an individual(s) the authority for the implementation of the safety program for each worksite.

1.2 SAFETY DIRECTOR RESPONSIBILITIES

1. Monitor supervisory management and employee activity to ensure that the corporate programs are carried out in a timely manner.

2. Shall coordinate safety information between projects to assure that all projects will benefit from each other's efforts.

3. Coordinate all safety activities including jobsite inspections, and distribution of safety materials. Perform jobsite inspections periodically and follow up corrective actions.

4. Maintain all accident records and complete all required OSHA forms.

5. Analyze accident records and show trends.

6. Promote safety education on all levels.

7. Periodically review safety rules and standards with employees to confirm that the company is meeting its goals and objectives.

8. Review with supervisors how to handle emergency procedures.

9. Confirm that all required signs are posted, and bulletin boards are maintained in clear and legible condition.

10. Confirm employer is enforcing compliance with all applicable federal, state, and local regulations.

11. Provide a regular report to upper management on the results of the safety program.

1.3 MANAGER RESPONSIBILITIES

1. Know safety rules and work practices that apply to the work you supervise. Take action to confirm that all employees in your charge understand the safety rules that apply to them. Always take immediate action to correct safety rule violations. Unsafe acts or procedures cannot be tolerated.

2. Prevent bad work habits from developing. You are responsible to make observations of employees to ensure that they perform their work safely, and continue this observation regularly once safe working habits are established.

3. Take action to correct or control hazardous conditions within your work areas. If it is beyond your control, remove the employee until the condition is safe. Eliminate unsafe conditions and prevent an accident.

4. Encourage workers to report unsafe conditions or procedures. Listen to your workers and don't take their safety complaints lightly. No job should proceed when a question of safety remains unanswered. Seek advice from your supervisor when necessary.

5. Set a good example. Demonstrate safety in your own work habits and personal conduct. Always wear personal protective equipment in areas where personal protective equipment is required.

6. Train your employees on the proper safety procedures to follow, including the use of additional safeguards such as machine guards and personal protective equipment.

7. Investigate and analyze every accident, however slight, that occurs to any of your employees. Control the causes of minor incidents to help avoid future crippling accidents.

8. Complete and file a report on each and every incident and accident that occurs at your jobsite. If you have question or require reporting forms, contact your supervisor.

9. Provide safety toolbox materials and information to employees.

10. Make safety suggestions.

11. Serve on safety committee, if requested.

12. Take an active part and participate in safety meetings.

13. Non-compliance of these rules as well as other federal and/or state laws or regulations may be legal violations subject to civil and/or criminal penalties.

1.4 EMPLOYEE RESPONSIBILITIES

1. Keep your mind on your work at all times. Avoid horseplay on the job. Injury, termination or both could result.
2. Personal safety equipment must be worn as prescribed for each job, such as: safety glasses for eye protection, hard hats at all times within the confines of the construction area where there is a potential for falling materials or tools, gloves when handling materials, and safety shoes are necessary for protection against foot injuries.
3. If any part of your body should come in contact with an acid or caustic substance, rush to the nearest water available and flush the affected part. Secure medical aid immediately.
4. Watch where you are walking. Avoid running.
5. The use of illegal drugs or alcohol or being under the influence of the same on the project shall be cause for termination. Inform your supervisor if taking strong prescription drugs that warn against driving or using machinery.
6. Do not distract the attention of fellow workers. Do not engage in any act which would endanger another employee.
7. Keep your working area clean and free from rubbish and debris.
8. Do not use a compressor to blow dust or dirt from your clothes, hair, or hands.
9. Never move an injured person unless it is absolutely necessary. Further injury may result. Keep the injured as comfortable as possible and utilize job site first-aid equipment until an ambulance arrives.
10. Lift correctly - with legs, not the back. If the load is too heavy, GET HELP.
11. Do stretching exercises. Approximately twenty percent of all construction related injuries result from lifting materials.
12. Nobody but the operator shall be allowed to ride on equipment unless proper seating is provided.
13. Do not use power tools and equipment until you have been properly instructed in the safe work methods and become authorized to use them.
14. Be sure that all guards are in place. Do not remove, displace, damage, or destroy any safety device or safeguard furnished or provided for use on the job, nor interfere with the use thereof.
15. Do not enter an area which has been barricaded
16. If you must work around power shovels, trucks, and dozers, make sure operators can always see you.
17. Barricades are required for cranes.
18. Never oil, lubricate, or fuel equipment while it is running or in motion.
19. Before servicing, repairing, or adjusting any powered tool or piece of equipment, disconnect it, lock out the source of power, and tag it out.
20. Barricade danger areas. Guard rails or perimeter cables may be required.
21. Trenches over five feet deep must be shored or sloped as required. Keep out of trenches or cuts that have not been properly shored or sloped. Excavated or other material shall not be stored nearer than two feet from the edge of the excavation. Excavations less than 5 ft may also require cave in

protection in some instances.

22. Use the "four and one" rule when using a ladder- one foot of base for every four feet of height.
23. Portable ladders in use shall be equipped with safety feet unless ladder is tied, blocked or otherwise secured. Step ladders shall not be used as a straight ladder.
24. Ladders must extend three feet above landing on roof for proper use.
25. Defective ladders must be properly tagged and removed from service.
26. Keep ladder bases free of debris, hoses, wires, materials, etc.
27. Build scaffolds according to manufacturers' recommendations and OSHA Construction Safety Standards.
28. Scaffold planks shall be properly lapped, cleated or otherwise secured to prevent shifting.
29. Use only extension cords of the three-prong type. Use ground fault circuit interrupters at all times and when using tools in wet atmosphere (e.g. outdoors) or with any temporary power supply. Check the electrical grounding system daily.
30. The use of harnesses with safety lines when working from unprotected high places is mandatory. Always keep your line as tight as possible.
31. Never throw anything "overboard." Someone passing below may be seriously injured.
32. Open fires are prohibited.
33. Know what emergency procedures have been established for your job site (location of emergency phone, first aid kit, stretcher location, fire extinguisher locations, evacuation plan, etc.)
34. Never enter a manhole, well, shaft, tunnel or other confined space which could possibly have an un-breathable atmosphere because of lack of oxygen, or presence of toxic or flammable gas, or has a possibility of engulfment by solids or liquids. Make certain a qualified person tests the confined area with an appropriate detector before entry, that the necessary safety equipment is worn. Standby person may be required to be stationed at the entrance.
35. Whenever you are involved in an accident that results in personal injury or property damage, no matter how slight, the accident must be reported to your supervisor or other management personnel immediately. Get first aid promptly.
36. Report any condition or practice you think might cause injury and/or damage to equipment immediately to your supervisor.
37. Do not operate any equipment, which, in your opinion, is not in a safe condition. Immediately report the condition that you believe is unsafe to your supervisor.
38. All prescribed safety equipment and personal protective equipment must be used when required and must be maintained in good working condition. It is your personal responsibility to use such equipment. The use of required personal protective equipment is a non-negotiable item.
39. Obey all safety rules, government regulations, signs, markings, and instructions. Be particularly familiar with the rules and regulations that apply directly to you in the area in which you work. If you don't know, ask your foreman.
40. Always use the right tools and equipment for the job. Use them safely and only when authorized. If you are not familiar with the safe way to use a particular tool or piece of equipment, ask your supervisor. When using your own tools on the job site, make sure all guards, ground pins, etc., are in place.

41. Good housekeeping must always be practiced. Return all tools, equipment, materials, etc., to their proper places when you are finished with them. Keep floors clean and passageways clear. Poor housekeeping wastes time, energy, and material, and often results in injury.

42. The use of drugs and/or intoxicating beverages on the jobsite is forbidden. Being under the influence of alcohol or drugs when on the jobsite is inexcusable. Immediate discharge for being under the influence and/or using drugs or alcohol may be instituted.

43. Additional appropriate disciplinary action will be taken for the following offenses:

    a. Fighting - no matter what the cause.

    b. Insubordinate conduct or refusal to follow directions.

    c. False statement, such as injury claims.

    d. Other inappropriate behavior including, but not limited to, failure to obey safety rules.

44. Loose clothing and jewelry cannot be worn when operating machinery and equipment. Sleeveless shirts are prohibited.

45. Do not handle chemicals unless you have been trained in the safe handling procedure.

46. Read, understand and follow the guidelines set forth in the material safety data sheets (MSDS) pertaining to your work.

47. Compliance with safety and health rules and regulations is a condition of employment.

I have read the above policies and understand that cooperation between employees and management will ensure safe-working conditions, will help result in injury free performance and will work to our mutual advantage.

President

as of: _____ by: _____

Human Resources Manager

as of: _____ by: _____

Supervisor

as of: _____ by: _____

Employee

as of: _____ by: _____

2.0 DISCIPLINARY POLICY PROCEDURES

All employees are expected to comply with jobsite rules and regulations, and to follow established operating procedures set forth by this company. Violations will not be tolerated and supervisors may be held accountable for the conduct of their employees.

Supervisors are required to take action when a violation is observed. Immediate action to control or eliminate a hazard is required.

In the event a violation is observed, the following procedures have been established to place an employee on notice. HWC reserves the right to terminate an employee immediately for severe safety violations and gross negligence.

Notice*	Action
First Offense	A written warning addressed to the employee with reference to the violation including date and time of the occurrence. A copy of this warning will be given to the employee and another copy will be placed in the employee's file.
Second Offense	A written warning similar to the second notice will be prepared and distributed in the same manner. This warning will be followed by a meeting with the employee, supervisor and/or project manager, safety director and senior management to determine whether the employee will be suspended without pay or terminated depending upon the nature of the violation.
Third Offense	Termination

The above procedure has been prepared so that there is no question about how violations of rules, regulations, and procedures will be handled by management and so that employees will know what to expect if they do not comply with the established rules, regulations, and procedures. Management's knowledge of unsafe behavior and lack or appropriate documented discipline may be a violation of federal, state laws and regulations.

Violations should be recorded on the **Employee Safety Disciplinary Action Form**.

3.0 NEW EMPLOYEE TRAINING

All new employees will be provided with training material instructions or videos. The **New Employee Safety Orientation** Checklist shall be used by trainers (managers, supervisors, safety directors) as a reminder of the items the employee must review. All items must be initialed or identified as not applicable. The checklist must be signed by the employee and the management representative after the orientation is complete.

This form will be given to the home office and kept in the employee's personnel file.

4.0 SAFETY COMMITTEE

The development and implementation of a safety committee is an excellent technique in the monitoring of your safety program. It will create accountability throughout the organization.

Membership: It is most appropriate to appoint members from top management, the personnel director, one or more project managers, supervisors, and key employees.

Meetings/Minutes: The safety committee should meet on a pre-scheduled basis, at a regular time and place. Minutes from these meetings should be kept on file for review by management, and insurance representatives. The agenda for the safety committee meetings will include items that relate to the safety and health of your employees. Safety committee minutes will be distributed to company management, supervisors and safety staff.

Committee Goals: Our committee is expected to provide solutions to worksite safety and health problems. To do so, the committee must be aware of problems, serve as a channel of information from employees to management, and make positive recommendations for corrective action.

Safety Committee Meeting Agenda

Topics for discussion and action at safety meetings will include:

1. Review accident investigation reports and determine if appropriate corrective action was taken to prevent similar occurrences in the future. If not, recommendations will be submitted to management for their consideration and subsequent action.

2. Prepare and review company safety and health rules and procedures for the purpose of keeping the safety and health program up to date and effective.

3. Review potential hazards that are reported and recommend to management ways and means to control or eliminate hazards that could lead to accidents or property damage.

4. Promote safety and health activities.

5. Review the need for employee training and education and make recommendations to management.

6. Make periodic over-sight jobsite inspections to ensure that hazards are not being overlooked by the supervisor, and to ensure that corrective action is adequate and taken in a timely manner.

7. Review accident statistics for the purpose of identifying high accident jobsites, trends, etc. Based on findings, make recommendations to management.

5.0 ACCIDENT INVESTIGATION

Each supervisor will make a documented report of every incident, even those without injury, within twenty-four (24) hours of the occurrence. Reports are to be completed as soon as possible to avoid changes in physical conditions and witness reports. Note: Any accident that causes a fatality or three or more employees to be hospitalized must be reported to OSHA within eight hours of the incident.

Accident reports highlight problem areas. Through the use of good reports, accident patterns can be detected and resources directed toward prevention. Accident reports make excellent training tools. The cause and effect of accidents can be reviewed at safety meetings.

Supervisors will be trained in accident investigation techniques.

- Accident investigation is a management function that must be executed at the supervisor level.
- All accidents/incidents must be investigated regardless of the extent of the injury or damage.
- Employees will never be allowed to fill out their own accident investigation report.
- Focus must be fact finding *not* fault finding.
- Supervisors must identify the unsafe act or unsafe condition.
- Supervisors should provide recommendations for *corrective action*, bring it to top management's attention and assure that it is acted upon.
- Supervisors will be provided with an accident investigation kit, which must remain on site.

The forms at the end of this document will assist with incident investigations.

6.0 RECORDKEEPING

Records must be maintained and kept up to date by the safety director at the home office. These records must be available for review at all times. The following records must be maintained.

1. Supervisor's Investigation and Record of Incident
2. OSHA LOG (form 300) – N/A for HWC http://www.osha.gov/recordkeeping/RKforms.html
3. Self-Inspections
4. Log of Tool Box Instructions
5. Equipment Preventive Maintenance
6. Hazard Communication Compliance Plan
7. Material Safety Data Sheets
8. Chemical Inventory List
9. Minutes of Safety Committee Meetings
10. OSHA Training Requirements Records
11. OSHA Poster Explaining Employee Rights http://www.osha.gov/Publications/poster.html
12. Accident Forms - Medical Records
13. Corporate Safety Program
14. Emergency Phone Number List

7.0 SUB-CONSULTANT COMPLIANCE

Prevention is the first step in avoiding OSHA sanctions. We require sub-consultants to comply with OSHA standards.

Contractual agreements with sub-consultants will state that they must provide the following:

1. Certificate of Insurance

2. Hazard Communication Plan
   - Chemical Inventory List
   - Specific material safety data sheets

3. Safety Program

The following forms will assist in monitoring sub-consultant compliance with safety policies and procedures.

Policies and Procedures for Sub-consultant Coordination

1. It is our policy that all persons on our jobsite are entitled to information regarding the chemicals to which they are exposed in their work areas and that our employees are entitled to information regarding the chemicals to which they may be exposed as the result of the work processes of other sub-consultants or contractors.

2. The Hazard Communication Coordinator or his/her jobsite designee is responsible for the coordination of information between our organization and any other companies/consultants concerning all aspects of this Hazard Communication Program.

3. When the Hazard Communication Coordinator or jobsite designee is informed that other consultants will be on our site, he/she will advise them in person of: any chemical hazards that may be encountered in the normal course of their work on the site; our labeling system; the protective measures required, the safe handling system; the protective measures required, the sage handling procedures necessary and our emergency alarm system(s). In addition, the Hazard Communication Coordinator or designee will notify these individuals of the location and availability of our material safety data sheets.

4. Each consultant bringing chemicals on site, must provide our Hazard Communication Coordinator with the appropriate hazard information on these substances, including labels used and the precautionary measures to be taken in working with those chemicals. The consultants must also inform the Hazard Communication Coordinator or jobsite designee as to where on our jobsite the consultant will maintain a chemical inventory list and appropriate MSDS file.

5. The Hazard Communication Coordinator is also responsible for providing information to any relevant parties about any potentially hazardous substances we may bring into any jobsite at which we may work as consultants.

6. The Hazard Communication Coordinator or jobsite designee will use the checklist, which follows to implement the above policy.

8.0 TOOL BOX SAFETY INFORMATION

Tool box "talks," flyers and/or information will be distributed by the supervisor as needed. Employees never receive too much training, and therefore our company relies upon jobsite management to provide ongoing and continuous employee training.

The subject to each training information provided should be chosen to relate to the type of work that is being performed.

Some examples include:

- The use of safety glasses when using circular saws, grinders, table saws, radial arm saws, jack hammers, power actuated tools, etc.
- The proper set up and use of ladders.
- Hard hats and why they are necessary.
- A discussion of a recent accident and its cause(s).
- A discussion of an old accident.
- A discussion of disciplinary procedures for failure to comply with safety policies

9.0 FIRST AID

Our company will provide first aid supplies at each work location and all personnel are to know procedures to follow in case of an emergency.

1. Report all injuries immediately, no matter how minor, to your jobsite office.

2. Emergency phone numbers for fire, police and ambulance will be posted.

9.1 ASSISTING CO-WORKERS IN A MEDICAL EMERGENCY

1. If an emergency situation arises, dial 911 immediately. Afterwards, contact your supervisor to report the incident.

2. The use of the First Aid Kits that may be available within our organization are for self-help. That is, an employee who is injured may use the materials in the first aid kit for self-administration.

3. Please note that if an employee uses a first aid kit to assist a co-worker (although such action is not required by anyone's duties) we would view this activity as a "Good Samaritan" act.

10.0 SUPERVISOR SELF-INSPECTION

It is our policy to reduce and eliminate an unsafe or hazardous work environment that can lead to employee injury or property damage. Self-inspection is one way to provide a safe workplace for our employees.

Supervisors are required to make daily visual inspections of their work areas and the construction jobsite prior to the start of the work shift to establish all HWC employees are working in a safe environment. Corrective action must be provided immediately if any hazards exist and if any Personal Protective Equipment (PPE) is not functioning properly. If the PPE equipment cannot be repaired before being used so that it is safe to use, then it must be removed from service. If the contractor is performing an operation that adversely affects the safety of an HWC employee, the HWC project supervisor is to identify the safety issue to the contractor and note the discussion in the inspector daily log.

Supervisors (or other assigned management representatives) are required to make regular inspections of the work site using the **Job Safety Checklist** furnished by our company. All work areas including office areas will be inspected using this form. If any hazardous or unsafe conditions are noted, corrective action must be taken. If the corrective action is beyond our authority and/or capability, keep all employees away from the hazardous or unsafe condition until it is corrected or controlled. Notify the contractor and/or client in writing to request corrective action. Supervisors are expected to follow up on reported safety issues to make sure they have been eliminated or controlled.

All completed forms, signed and dated by the project supervisor where indicated must be turned into the HWC office upon completion of the form

Lack of appropriate inspections as well as falsification of inspection forms is a violation of company procedure and may be a civil and/or criminal violation of federal and/or state laws and/or regulations.

11.0 HAZARD SPECIFIC POLICIES

To further ensure the safety of our employees and ensure compliance with specific requirements that may be mandated under local, state or federal regulations, HWC Engineering has attached the following safety and health plans, designed to address specific hazards in the workplace. These plans will be updated periodically as indicated by law and changes in the operation.

In the event that a worksite incident should occur, employees are to contact their supervisor immediately. The supervisor should fill out an incident form or direct the employee to talk directly with Human Resources to fill out the form. The forms to be used are the **Incident Reporting Form** (if no injuries occurred at the time of the incident) and the **Workman's Comp Indiana First Report of Injury** (if an injury was sustained).

11.1 FALL PROTECTION

I. The following work situations are covered by HWC's program for fall protection:

a. Ladders - fixed, free standing, temporary, or roll away type

b. Elevating Personal Platforms – scaffolds, aerial platforms, scissors lifts, forklift-mounted platforms, cherry pickers, etc.

c. Vertical Opening - ground level entry into excavations, trenches, holes, pits, vessels, and other confined spaces.

d. Elevated Surfaces – working on top of elevated surfaces should be avoided. Catwalks, bridge beams, bridge decks and retaining walls may be encountered.

II. This policy has the following objectives:

a. Identify employees who may work six feet or more above a lower level;

b. Ensure fall protection is provided to those employees; and

c. Provide training in fall protection.

III. OSHA has identified 15 areas or activities where some type of fall protection is needed if the potential fall distance is six feet or greater. The following are situations were fall protection is needed. Please keep in mind there may be other situations where a fall of 6 feet or more is possible.

1. **Unprotected Sides and Edges**: Employees on a walking/working surface with an unprotected side or edge that is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems or personal fall arrest systems. All employees shall be instructed on the necessary precautions prior to conducting inspections, investigations, or assessments.

2. **Leading Edges**: Employees constructing a leading edge that is 6 feet or more above a lower level shall be protected by guardrail systems or personal fall arrest systems. Any employee on a walking/working surface 6 feet or more above a lower level where leading edges are under construction, but the employee is not performing the leading edge work, shall be protected from falling by a guardrail system or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.

3. **Hoist Areas**: Each employee in a hoist area shall be protected from falling 6 feet or more to lower levels by guardrail systems or personal fall arrest systems. If a guardrail system or portion(s) of the system is removed to hoist objects and the employee must lean through the access opening or out over the edge, that employee shall be protected by using a personal fall arrest system.

4. **Openings/Holes**: Each employee on walking/working surfaces shall be protected from falling through openings/holes (including skylights and roof penetrations) more than 6 feet above lower levels, by personal fall arrest systems, covers, or guardrails erected around the holes/openings. Each employee shall be protected from tripping or stepping into or through openings/holes by use of hole covers of

standard strength and construction. Each employee on a walking/working surface shall be protected from objects falling through openings/holes from above.

5. **Formwork and Reinforcing Steel**: Employees should not be standing on forms or vertical rebar.
6. **Ramps, Runways, Platforms, and Other Walkways**: Each employee on ramps, runways, and other walkways shall be protected from falling 6 feet or more to lower levels by guardrail systems or personal fall arrest systems.
7. **Excavations**: Each employee at the edge of an excavation, pit, well, or shaft 6 feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers. Excavations less than 6 feet deep shall be marked with barrier tape and appropriate warning signs.
8. **Dangerous Equipment**: Each employee working above dangerous equipment regardless of height shall be protected from falling into or onto equipment by guardrail equipment or by equipment guards. Each employee 6 feet or more above dangerous equipment shall be protected from fall hazards by guardrail systems or personal fall arrest systems.
9. **Wall Openings**: Each employee working on, at, above, or near wall openings where the outside bottom edge is six feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface, shall be protected from falling. This protection shall be provided through the use of guardrail systems or a personal fall arrest system.
10. **Protection from Falling Objects**: When an employee is exposed to falling objects, HWC Engineering requires that each employee wear a hard hat and implement one of the following measures:
    a. Erect toe boards, screens, or guardrail systems to prevent objects from falling from higher levels;
    b. Erect a canopy structure and keep potential falling objects far enough from the edge of the upper level; or
    c. Barricade the area where overhead objects could fall and prohibit employees from entering the area.
11. **Walking/Working Surfaces Not Addressed**: If the specific activity was not addressed above, each employee on a walking/working surface 6 feet or more above a lower level shall be protected by a guard rail system or personal fall arrest system.

IV. Personal Fall Arrest System

When work is performed on elevated surfaces such as roofs, or during construction activities, protection against falls frequently must be considered. Fall arresting systems, which include lifelines, body harnesses, and other associated equipment, are often used when fall hazards cannot be controlled by railings, floors, nets, and other means. These systems are designed to stop a free fall of up to six feet while limiting the forces imposed on the wearer.

A personal fall arrest system consists of the following components:

1. **Full-body harness** - A full-body harness consists of nylon and/or polyester straps that encompass the chest, chest and waist or full body. In the event of a fall, a full body harness distributes the fall arrest force over the pelvis, thighs, waist and shoulders. The attachment point must be in the center of the back or at the shoulder level of the wearer.
2. **Lanyard** - A lanyard connects the body harness to the anchorage point. The lanyard should be attached to a D-ring on the body harness between the shoulder blades and above the employee. Lanyards may be equipped with deceleration or shock absorbing devices that limit up to 80 percent of the arresting force placed on the wearer during a fall. The lanyard must be of sufficient strength to withstand twice the impact energy of a person free falling six feet or the free-fall distance permitted by the system if the free-fall distance is less than six feet. Self-retracting lifelines and lanyards that automatically limit free fall distance to two feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position. Self-retracting lifelines and lanyards that do not limit free fall distance to two feet or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

   Anchorage used for attachment to personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and shall be capable of supporting at least 5,000 pounds per person attached or shall be designed, installed, and used as part of a complete personal fall arrest system that maintains a safety factor of at least two and under the supervision of a qualified person.

   When stopping a fall, personal arrest systems shall:
   a. Limit the maximum arresting force on an employee up to 1,800 pounds for a body harness;
   b. Be rigged so that the user can neither free fall more than 6 feet, nor contact a lower level;
   c. Bring the user to a complete stop and limit the maximum deceleration distance the user travels to 3.5 feet; and
   d. Have sufficient strength to withstand twice the potential impact energy of the user free falling a distance of 6 feet or the free fall distance permitted by the system.
3. Lifeline - A lifeline consists of a flexible line that is connected to the anchorage point at one or both ends which serves as means to connect other components of the personal fall arrest system to the anchorage. Self-retracting lifelines provide mobility as well as worker protection. The line retracts as the worker moves toward the unit and pulls out as the worker moves away from the unit. If the worker slips or falls, the sudden jerk on the cable activates the breaking mechanism and the worker is brought to stop within 2 feet.28Lifelines can be either vertical or horizontal.
4. A vertical lifeline consists of a flexible vertical line suspended from affixed

anchorage to which a fall arrest device is secured. Vertical lifelines must have a minimum breaking strength of 5,000 pounds. When vertical lifelines are used, each worker must have a separate lifeline and provided the breaking strength of the lifeline is 10,000 pounds.

5. A horizontal lifeline consists of a flexible line connected to two horizontal fixed anchorage points to which a fall arrest device is secured. Horizontal lifelines are used when maximum horizontal mobility is required and no overhead anchorage point is available.

   Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person, as part of a complete fall arrest system that maintains a safety factor of at least two. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Lifelines shall be protected against being cut or abraded.

6. Snap-hooks: Snap-hooks are used to connect the lanyard to the D -rings on the body harness. Snap hooks must be constructed from smooth, corrosion-resistant steel and be double-locking. Snap hooks and D-rings must be compatible. This helps prevent roll-out, which occurs when the Drin twists out of the throat of the hook and rolls out, causing the catch to open and the D-ring to come loose. Locking Snap-hooks should always be used instead of no locking Snap-hooks because of the potential for unintentional release (rollout).
   Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth. Dee-rings and snap-hooks shall have a minimum tensile strength of 5,000 pounds. They shall be proof tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or becoming permanently deformed. All snap-hooks shall be locking-type.

   Snaphooks that are not designed for the following connections shall not be engaged directly to:

   a. Webbing, rope or wire rope;
   b. To each other;
   c. To a dee-ring to which another snaphook or other connector is attached;
   d. To a horizontal lifeline; or
   e. To any object incompatible in shape or dimension relative to the snaphook that may cause the connected object to depress the snaphook keeper and release it unintentionally.

   On suspended scaffolds or similar work platforms with horizontal lifelines that may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

Body harness systems shall not be used to hoist materials. Personal fall arrest systems and components subjected to impact loading shall be removed from service and shall not be used again. Prompt rescue of employees involved in a fall shall be provided.

All personal fall arrest systems shall be inspected by the user prior to each use. Inspect for wear, damage, and other deterioration. If any defects or damage is present, the system shall be removed from service immediately.

Personal fall arrest systems shall not be attached to guardrail systems or hoists. When personal fall arrest systems are used at hoist areas, they shall allow movement of the user only as far as the edge of the walking/working surface.

V. Floor Openings

Pit and trap door floor openings, infrequently used, shall be guarded by a cover of standard strength and construction. While the cover is not in place, the pit or trap door openings shall be constantly attended by someone or shall be protected on all sides by removable standard railings.

Manhole floor openings shall be guarded by a standard manhole cover. While the cover is not in place, the manhole shall be constantly attended by someone or shall be protected by removable standard railings.

VI. Fixed Ladders

Ladder safety devices (life belts, friction brakes, sliding attachments) are required on tower, water tanks and chimney ladders that are over 20 feet, unless cage protection is provided.

VII. Scaffolds

Guardrails, midrails, and toeboards shall be installed on open sides of scaffolds which are 10 feet or greater in height. Full body harnesses and lifelines are required for suspension scaffolds and boatswains chairs.

VIII. Aerial Lifts

Employees working in a bucket truck or boom lift are required to wear a full body harnesses and lanyards.

IX. Training

Employees exposed to fall hazards shall be trained. Training shall be conducted by a qualified competent person and shall include the following:

1. The nature of fall hazards in the work area;
2. The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems;
3. The use and operation of guardrail systems, personal fall arrest systems, and other protection methods; and
4. Training shall be documented.

Retraining shall be conducted when:

1. Inadequacies in employee knowledge prove training to be warranted;
2. Any other situation that the Supervisor or Safety Director determine that retraining

is warranted; and

3. Where changes in fall protection usage is necessary due to technological changes of newly purchased fall protection equipment, or specific changes for fall protection usage occur.

11.2 CONFINED SPACE ENTRY

It is the responsibility of sub-consultants and employers to educate their employees on confined space entry. No
employee shall enter areas defined below without authorization:

1. A space that is NOT DESIGNED FOR CONTINUOUS employee OCCUPANCY
2. Is large enough and so configured that a person can bodily enter into and perform assigned work
3. Has LIMITED or RESTRICTED means for ENTRY or EXIT
4. May have a POSSIBLE HAZARDOUS ATMOSPHERE that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue caused by:
    a. Flammable gas
    b. Airborne combustible dust
    c. Atmospheric oxygen concentration below 19.5 or above 23.5%
    d. A toxic atmosphere or substance
    e. Danger of engulfment

UNTIL AN AUTHORIZED PERSON EVALUATES THE AREA AND AUTHORIZES ENTRY.

11.3 PERSONAL PROTECTIVE EQUIPMENT POLICY

I. Purpose

The purpose of the Personal Protective Equipment (PPE) Program is to develop and implement the procedures for the identification, use, care and maintenance of PPE required to be used by employees for the prevention of illness and injury.

All employees are required to follow the minimum procedures outlined in this program. Any deviations from this program must be immediately brought to the attention of the Safety Director.

II. Employer/Employee Responsibilities

A. Management

The management of HWC Engineering is committed to the safety and health of its workers. Management supports the efforts of the PPE Safety Director by pledging financial and leadership support for the identification of hazards and implementation of appropriate PPE for those hazards. Management will regularly communicate with employees about this program.

B. Safety Director

The Program Administrator reports directly to upper management and is responsible for the hazard assessments, implementation, training and administration of the PPE program. The Program Administrator will monitor the results of the program to determine additional areas of focus as needed. The Program Administrator will also:

a. Conduct workplace hazard assessments to determine the presence of hazards that require the use of PPE

b. Select and purchase PPE

c. Review, update and conduct PPE hazard assessments whenever:

d. A job or process changes

e. New equipment is used or added

f. There has been an accident

g. A supervisor or employee requests it

h. Maintain records on hazard assessments

i. Maintain records on PPE assignments and training

j. Provide training, guidance, and assistance to supervisors and employees on the proper use, care and cleaning of approved PPE

k. Periodically re-evaluate the suitability of previously-selected PPE

l. Review, update and evaluate the overall effectiveness of PPE use, training, policies and program

C. Supervisors

Supervisors have the primary responsibility for implementing and enforcing PPE use in their work area, including, but not limited to:

a. Providing appropriate PPE and making it available to employees

b. Ensuring that employees properly use and maintain their PPE

c. Notifying the Program Administrator when new hazards are introduced or when processes are added or changed

d. Ensuring that defective or damaged PPE is immediately disposed of and replaced

D. Employees

The PPE user is responsible for following the requirements of the PPE program, including, but not limited to:

a. Properly wearing PPE as required

b. Attending required training sessions

c. Properly caring for, cleaning, storing, maintaining and inspecting PPE as required

d. Following program policies and rules

e. Informing the supervisor of the need to repair or replace PPE

f. Employees who repeatedly disregard and do not follow PPE procedures and rules will face disciplinary action up to and including termination.

III. Requirements

Appropriate PPE is required to be worn at all times when employees are exposed to hazards that cannot be eliminated through the use of preferred elimination, substitution, engineering or administrative controls.

The workplace will be evaluated and all uncontrolled hazards will be identified at least two times a year based on changes to the workforce and workplace operations. Assessments will include, but are not limited to, the following items:

a. Torso and abdominal protection

b. Eye and face protection

c. Head protection

d. Foot protection

e. Leg protection

f. Hand protection

PPE appropriate for the identified hazards will be identified, purchased and provided to all employees exposed to those hazards. All PPE will be properly fit to each employee before relying on it as a protective measure.

Employees will be continually trained, formally and informally, on the types of PPE necessary for the workplace hazards and its limitations. Training will also include the proper way to wear, use and maintain the PPE.

IV. Training Requirements

Before any employee is allowed to perform work in areas requiring PPE, they must first receive training in the proper use and care of the PPE they will be using. Periodic retraining will be offered to PPE users as identified by the lack of knowledge or the improper use of PPE, after changes in work tasks or at the supervisor's request. The training will include, at a minimum, the following subjects:

a. HWC Engineering requirement that PPE be worn at all times during identified tasks or in areas requiring PPE
b. When it is necessary to wear PPE
c. What PPE is necessary
d. How to properly put on, take off, adjust and wear PPE
e. The limitations of the PPE
f. The proper care, maintenance, useful life and disposal of the PPE

A. Eye and Face Protection

a. Use appropriate eye and face protection equipment when exposed to hazards from flying objects or particles, molten metal, fumes, chemical liquids, gases, vapors, dusts, acids, caustics, and other potentially injurious chemical or physical hazards.
b. When wearing prescription lenses while engaged in operations that involve eye hazards, wear eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses without disturbing the prescription lenses or the protective lenses.

B. Foot Protection

Each affected employee will steel-toed work boots on job sites.

C. Hand and Body Protection during Concrete Testing

The Safety Director will select and require employees to use appropriate hand protection when employees' hands are exposed to hazards from cuts, abrasions, punctures, chemical or thermal burns, harmful temperature extremes, vibration and skin absorption of harmful substances.

D. Head Protection

Each affected employee will wear appropriate protective head gear (hard hats, etc.) when working in areas where there is a potential for injury to the head from falling objects, impact hazards, extreme temperatures or high UV levels.

11.4 EMERGENCY PROCEDURES

In case of an emergency on site the following procedures should be instituted at each site:

1. Method of communication should be determined at each site: phone, radio, etc.
2. Designate person to direct emergency crews to site of emergency.