



concrete works
of colorado, inc.
Safety is #1

Employee Safety Handbook

2008/2009

◆ concrete works
of colorado, inc. ◆

WELCOME

Welcome to Concrete Works of Colorado. Here at CWC we are committed to creating a safe environment for all employees to work.

My top priority is to do all that is necessary to ensure the safety and good health of every employee here at CWC. Through a combination of regulation compliance and partnering with management in the field, it is my goal to eliminate all hazards while maintaining an efficient project. I am not here to only point out discrepancies, but to fully understand the difficulties faced by each man and woman, for each task, in the workplace and to offer practical solutions to a safer job.

Sincerely,

James M. DelNero
Safety Director
Concrete Works of Colorado

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SECTION ONE

GENERAL SAFETY & OSHA INFORMATION

INTRODUCTION

It is the belief of Concrete Works of Colorado, Inc. that our employees are our greatest assets. The primary purpose of this handbook is to clarify the risk management controls that all employees must utilize in order to maintain a safe and efficient workplace. Strict enforcement and compliance with safety and health rules as set forth within this handbook, will aid in eliminating personal injuries, occupational illnesses, damage to equipment and damage to property and to protect the general public located within, or near, a CWC Project.

The rules and regulations set forth in this handbook apply to any and all personnel (to include but not limited to, all visitors and delivery truck drivers) within a CWC jobsite. ***It is every employee's responsibility to see that the rules and regulations are enforced.***

The design of this program is such that the requirements herein are based upon existing legislative regulations, but are more stringent. In the event that the risk management controls of this program, for any given activity, are deemed safer, and within legislative requirements, than that of other governing bodies, i.e. OSHA, MSHA or CDOT, then the requirements lined out within this program will supercede. It is our goal to do whatever is necessary to ensure the safety and good health of all employees within the workplace to include going above and beyond the minimum requirements.

GENERAL DUTY CLAUSE

29 CFR PART 1926 Sec. 5(a)

Each employer:

(1) Shall furnish to each of his employees employment and a place for employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

(2) Shall comply with occupational safety and health standards as promulgated under this Act.

GENERAL SAFETY & HEALTH REGULATIONS

These underlying general safety and health guidelines are not all-inclusive but are intended to give the reader a basic understanding of what is expected of him/her regarding the Company Safety expectations. For specific safety requirements, based on each individual task, please refer to section 2 of this handbook.

(1) All incidents, to include near miss incidents, must be reported to the CWC Safety Director within 4 hours of occurrence. This is to include all incidents regardless of perceived severity or level of injury and/or damage to property.

(2) All employees are required and expected to immediately report all hazards, potential hazards, unsafe or unhealthy working conditions whether real or perceived to their supervisors.

(3) At no time is an employee of CWC to undertake a task, operate a tool, piece of equipment or vehicle without specific and adequate training. Particular attention will be afforded to all new employees of CWC regardless of supposed experience level.

(4) All employees of CWC must familiarize themselves with all

potential hazards related to chemicals, biological agents or any hazardous material they may come into contact with on a given work area by use of the MSDS located on the project jobsites and the corporate office.

(5) All employees must familiarize themselves with the site-specific emergency and evacuation plan in the unlikely event of a major incident or fire.

(6) All employees of CWC must know how to do the task in a safe manner, know the related hazards and how to protect oneself, or ask the advice of their respective supervisor if they are unsure.

(7) It is essential that all employees actively participate in all safety training meetings and to aggressively support and uphold the requirements within the Company Safety Program. Henceforth it is required that all employees make every effort necessary to familiarize themselves with the requirements set forth within this handbook.

(8) At no time is any employee authorized to place speed or above safety. Safety is, at all times, our highest priority.

(9) All warning signs must be understood by heeded by each employee at all times on or off CWC property or a CWC project jobsite.

(10) Horseplay, careless and/or reckless actions will NOT be tolerated on a CWC Project jobsite. Immediate disciplinary action will be taken.

(11) Firearms, explosives (not in conjunction with blasting or other demolition activities), knives not necessary as a tool, non-prescription drugs and alcohol are strictly forbidden on all CWC property, within CWC vehicles and on a CWC project jobsite.

(12) All employees must, at all times, wear their Personal Protective Equipment (PPE) as required by management or dictated

by conditions within the field, while conducting work on CWC property or a CWC project jobsite.

(13) It is expected of every employee to maintain a clean workspace and to keep all work areas free of unnecessary debris.

(14) Safety is the responsibility of all personnel. Employees of CWC are required to not only be mindful of their own safety and health but also that of their fellow employees.

(15) It is the responsibility of all levels of management to ensure that all employees receive specific and adequate training and that these basic guidelines are strictly adhered to.

(16) Using common sense is the simplest and best way to prevent accidents and injuries.

OSHA RIGHTS & RESPONSIBILITIES FOR ALL EMPLOYEES

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in that inspection.
- You can file a complaint with OSHA within 30 days of retaliation or discrimination by your employer for making safety and health complaints or for exercising your rights under the OSH Act.
- You have the right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violations.
- Your employer must correct workplace hazards by the date

indicated on the citation and must certify that these hazards have been reduced or eliminated.

- You have the right to copies of your medical records and records of your exposures to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.
- You must comply with all occupational safety and health standards issued under the OSH Act that apply to your own actions and conduct on the job.

SECTION TWO

CONSTRUCTION OPERATIONS SAFETY REQUIREMENTS

PROTECTIVE PERSONAL EQUIPMENT (PPE)

While OSHA's Personal Protective Equipment standard does not explicitly require a written PPE program, Concrete Works of Colorado, Inc. has developed this section to establish our PPE safety plan and specify the protective equipment necessary to protect our employees in instances where the work-related hazards of their jobs cannot be eliminated. Our company believes it is our obligation to provide a hazard free environment to our employees. Any employee encountering hazardous conditions must be protected against the potential hazards. The purpose of protective clothing and equipment (PPE) is to shield or isolate individuals from chemical, physical, biological, or other hazards that may be present in the workplace.

A recent ruling from OSHA states that employers shall provide the



required PPE to all employees that may encounter the exposure that warrants the use of PPE. CWC will replace items if it is damaged or excessively worn through the course of normal wear. If the item is lost or damaged intentionally or due to negligence, CWC may require that the employee reimburse the Company for the cost of replacement.

Upon hiring, with the exception of Office personnel, all CWC personnel will received the following PPE:

- (1) *Hard Hat*
- (2) *Eye Protection*
- (3) *Reflective Vest*

General Requirements for PPE

- It is important that all PPE be kept clean and properly maintained by the employee to whom it is assigned. Cleaning is particularly

important for eye and face protection where dirty or fogged lenses could impair vision.

- PPE is to be inspected, cleaned, and maintained by employees at regular intervals as part of their normal job duties so that the PPE provides the requisite protection.
- Personnel working in designated work areas and/or job assignments are required to wear ANSI-approved goggles/face shields to help prevent eye and face injuries, including those resulting from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or light radiation.
- Personnel working in designated work areas and/or job assignments are required to wear safety shoes to help prevent foot injuries, ankle injuries, slips, and falls. Although CWC will not provide foot wear for employees, it is required that safe, and approved footwear be worn at all times. Rubber boots will be provided to personnel working in wet concrete.
- Personnel working in designated work areas and/or assignments are required to wear gloves to help prevent hand injuries, from cuts, burns, cold, and chemical exposures.
- Personnel working in designated work areas and/or job assignments are required to wear ANSI approved hard hats to help prevent head injuries, including those resulting from falling object, bumping the head against a fixed object, or electrical shock.
- Personnel working in designated work areas and/or job assignments are required to wear ANSI approved, Class 2 reflective vests.
- Additional PPE as determined to be required for specific work areas and/or job assignments will be addressed in the accompanying JHA and available in the Site Specific Supplemental Folder.

HOUSEKEEPING

Housekeeping, although often considered more of a chore than a safety precaution, is one of the easiest ways to eliminate many hazards on a job-site. Keeping a job-site free of waste and debris along with maintaining materials in an organized manner can prevent slips, trips and falls, unsanitary conditions and many other potentially hazardous conditions.

The purpose of this section is to outline some basic requirements for keeping a job-site clean, organized and operating smoothly.

General Requirements for Housekeeping

- Good housekeeping must be maintained at all times in all job-site work areas.
- Common paths of travel should be established and kept free of an accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from any obstruction.
- Specific areas will be established for the storage of materials, waste and construction debris (i.e. spoil piles).
- Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- As work progresses, scrap and non-essential materials shall be removed from the job-site as quickly as possible.
- Waste shall be disposed of in appropriate waste containers and those containers shall be emptied at regular intervals, contingent upon the size and scope of a project. It is at the Site Superintendents discretion to determine the proper intervals of disposing of waste

materials.

- Toilet facilities must be kept clean and sanitary at all times. There is to be one toilet facility for every fifteen (15) people on-site at any given time.

HAND AND POWER TOOLS

In the construction industry, the best tools of any worker are their hands but all workers use many different types of hand tools and power tools. Just as workers wear gloves to protect their hands, all personnel are required to maintain all tools in a safe and working condition.

Tools, when used improperly can themselves become dangerous. The purpose of this section is to outline some basic requirements for personnel to protect themselves from exposure to hazards associated with the improper use of tools.

General Requirements for Hand & Power Tools

- The most common mistake that workers make with tools, is to not use the correct tool for the task. Common sense dictates that one does not hammer a nail into a piece of wood with a screwdriver. **USE THE RIGHT TOOL FOR THE JOB!**
- Personnel are not authorized to use tools for which they are not trained, or have shown proficient knowledge with.
- All tools shall be inspected prior to use and all damaged tools shall be tagged and removed from service.
- Maintain all tools in a clean and serviceable manner.
- Always use the proper PPE when using tools, a hammer can

easily break the head of a nail and the projectile may impact the users eye or head.

- Do not carry or lower power tools by the cord or hose.
- Portable power tools must be plugged into a GFCI protected energy source at all times to prevent electrical shock.
- All portable power tools must have a three-wire grounded plug and be double insulated. If a tool is found not to meet this requirement, it is not to be used.
- Disconnect all power tools from their energy source when not in use, before servicing or cleaning them, and when changing out accessories (i.e. bits, blades or cutters).
- Safety guards on tools must remain installed while the tools is in use and immediately replaced when damaged, or after service or cleaning of the tool.
- If a cordless tool is connected to a charging device, the power source must conform to the manufacturers requirements.
- When using a knife or bladed tool, stroke or cut away from the body with smooth, consistent motions. Be careful not to use excessive force that could damage the blade or cause the user to lose control of the tool.

PROPER LIFTING PROCEDURES

In the construction industry, most personnel are required to lift, carry and lower heavy items. Many times, the load is too heavy or awkward for one individual, but that individual may not realize it until it is too late and their back becomes sore due to strained muscles and torn ligaments.



Most, if not all of the injuries caused by lifting heavy or awkward loads can be avoided, if not eliminated completely by implementing simple, but effective lifting techniques.

The purpose of this section is to outline the techniques to be employed by all CWC personnel when lifting heavy and/or awkward loads.

General Requirements for Proper Lifting Procedures

- Lift everything twice, first lift the load mentally then plan every step carefully before you do it physically.
- Size up the load to determine the weight and size.
- Ask for assistance from one or more other workers if the load is too heavy or too awkward.

- If the load is too large and heavy, arrange for mechanical help such as pushcart, hand truck, wheelbarrow, forklift or crane.
- Look for obstacles that might cause you to fall, trip, or slip, also check for adequate lighting, traffic (people and vehicles), and changes in elevation.
- Look for ways to reduce the number of times you have to lift and do not lift and twist in the same motion.
- Keep your back straight; tuck your chin and place your feet apart, one ahead of the other.
- Grip load with palm and fingers, not fingers alone, bring load close to you body by tucking elbows in and then lift with your legs and arms, not your back.
- Always maintain a clear view over the load as you lift, carry and lower.

CONCRETE OPERATIONS

Concrete is the bread and butter of this company and comes with it's own set of hazards and risks. As with any discipline within the construction industry, most or the hazards can be mitigated or eliminated by following the requirements set forth in this section.

The purpose of this section is to outline the safety requirements designated for the various concrete operations that CWC personnel may be involved with.

General Requirements for Concrete & Masonry Operations

- Re-bar caps must be used when personnel are working above any protruding reinforcing steel to eliminate the hazard of impalement.



- All employees must wear the necessary protective clothing to ensure that wet concrete never comes into contact with the employees' skin and eyes. When working in wet concrete, employees must wear rubber boots.
- Employees are not permitted to ride in concrete buckets or work under concrete buckets while the buckets are being elevated or lowered into position. Elevated concrete buckets are routed so that no employee or the fewest employees possible are exposed to the hazards associated with falling concrete buckets.
- Employees are not permitted to apply a cement, sand, and water mixture through a pneumatic hose unless they are wearing protective head and face equipment.
- Bulk storage bins, containers, or silos must have conical or tapered bottoms with mechanical or pneumatic means of starting the flow of material.
- Concrete mixers equipped with 1 yard or larger loading skips must be equipped with a mechanical device to clear the skip of material and have guardrails installed on each side of the skip.
- Handles on bull floats that are used where they may contact



energized electrical conductors must be constructed of nonconductive material or insulated with a nonconductive sheath whose electrical and mechanical characteristics provide equivalent protection.

- Powered and rotating concrete troweling machines that are manually guided must be equipped with a control switch that automatically shuts off the power when the operator removes his/her hands from the equipment handles.
- Concrete pumping systems using discharge pipes must be equipped with pipe supports designed for 100% overload.
- Concrete buckets equipped with hydraulic or pneumatically operated gates must have positive safety latches or similar safety devices installed to prevent premature or accidental dumping. The buckets must be designed to prevent material from accumulating on the top and sides of the bucket.
- Sections of concrete conveyances must be secured with wire rope (or equivalent material) in addition to the regular couplings or connections.

TRENCHING & EXCAVATIONS

Along with concrete operations, trenching & excavations are two operations that Concrete Works of Colorado, Inc. conducts on an almost daily basis. There are many hazards associated with these activities and account for nearly one-fifth of work-related injuries through out the construction industry.

Due to the nature of these operations and the intrinsic hazards there in, it is imperative that these requirements become second nature to all CWC personnel. The purpose of this section is to outline the requirements to maintain a safe work environment while conducting trenching and excavation operations.

General Requirements for Trenching & Excavations

- Excavations 4 ft. or more in depth must be shored or sloped in a approved manner unless they are made entirely in stable rock.
- Sides of trenches above the 4ft level may be sloped in lieu of shoring, but the slope may no be steeper than a 1H:1V slope in type A soil and type B soils, and 1-1/2H:1V slope in type C soil.
- Excavated or other material must not be stockpiled closer than 2 ft from the edge of any excavation. Surface encumbrances that create a hazard must be moved or supported as necessary.
- Protection should be provided at the edge or face of excavation to eliminate the possibility of loose rock or soil that could fall or roll into the excavation. Some of the processes that may be used are to scale to excavation to remove excess material or debris, place barricades at the edge, or other equivalent means of protection.
- No employee is permitted under loads handled by lifting or digging equipment. When mobile equipment operates adjacent to or approaches the edge of an excavation, a warning system such as

barricades, hand or mechanical signals, must be used.

- A competent person must monitor the use of water control and removal equipment.
- Sloping or benching of excavations greater than 20 ft deep must be approved by a registered professional engineer. The approved design must be kept on site.
- When manufactured support systems are used, the manufacturer's written specifications, recommendations, limitations must be maintained at the jobsite.
- A designated competent person must monitor the construction and maintenance of the recommended protective systems and their use in excavations.
- Safe access and egress should be provided to all excavations and trenches.
- A stairway, ladder, or ramp should be provided for egress from all trenches over 4 ft in depth.
- Means of egress should be provided so that employees do not have to travel more than 25 ft laterally to exit the excavation.
- When ladders are used as a means of egress, they should extend 3 ft above the top of the excavation and be secured at the top.
- All ladders, and/or means of access and egress, must be located within the confines of the shoring or shielding.

Underground utilities and other obstructions present a very real danger and every effort must be taken to determine that excavation operations are performed safely. Therefore, where excavations are required to be performed when existing utilities or structures may be present, the following probing and exploratory trenching procedures must be followed.

- The locations of any underground installations such as sewer lines, electric lines, etc., shall be determined before excavation. Utility companies shall be notified of the proposed work to establish the locations of utility installations before the start of an excavation. All such installations must be appropriately identified for the safety of persons working nearby.
- All excavations are performed with extreme caution to prevent injury or damage to underground piping, electrical wiring, etc.
- If there are known underground obstacles, a pre-excavation meeting will be conducted to define appropriate protective measures.
- When excavations occur within 2 ft, vertically or horizontally, of a active direct buried electrical or communication cable, exploratory hand trenching must be done to authenticate the actual location of the cable.
- If any utilities or underground installations are close to, or disturbed by excavation, then each should be protected, supported, or removed prior to the start of the excavation.
- During excavations with a backhoe, there must be an observer at all times to watch the backhoe bucket. This observer should be stationed adjacent to the excavation to avoid the operations of the hoe. The observer is responsible for visually identifying any obstruction while the bucket is excavating, and alerting the operator immediately if any obstructions are observed.
- If the observer leaves the excavation area, excavation efforts must be stopped immediately until the observer returns.
- During hand excavations, if a person's head is below the top of the excavation or if the trench is greater than 4 ft deep, adequate shoring or sloping is required.

WORKING AT HEIGHTS

Over 35% of all occupational injuries within the construction industry occur when personnel fall from heights. Most of those injuries could have been prevented if the use of a fall arrest system had been in use.

The purpose of this section is to outline the basic requirements for CWC personnel when they are required to work at heights.

General Safety Requirements for Working At Heights

- It is the policy of Concrete Works of Colorado, Inc. that all personnel working at a height above six (6) feet from the next lower elevation shall utilize one of many authorized fall arrest systems. These systems are:
 - Harness & lanyard attached to anchor point rated at 5000 pounds per person using that anchor point.
 - An approved guard rail system with a deflection ratio of no more than two (2) inches deflection per ten (10) linear feet of rail. The rail may consist of rigid metal or steel cable.
 - When personnel are working on a large raised surface with no more than a pitch ratio of 4 to 12, they are not required to wear a harness or lanyard if they maintain a minimum distance of 6 feet from the edge. At any time should the job require personnel to work closer to the edge than the allotted distance, a fall arrest system must be in use.

Roof Tops

- Personnel conducting work on a roof top with a pitch ratio of more than 4 to 12 are required to utilize the approved fall arrest

system at all times.

- Personnel conducting work on a rooftop with a pitch ratio less than 4 to 12 or flat roof are not required to use a fall arrest system but must maintain a minimum distance of 6 feet from all edges.
- Personnel conducting work on a rooftop of any pitch may use a guardrail as specified in the previous section and are not required to use any other fall arrest system.
- Personnel traversing from an aerial lift or other elevator system to a roof top must ensure that the approved fall arrest system is employed at all times prior to stepping on to the roof top, thus ensuring 100% fall protection at all times.

Aerial Lifts

- Only trained and authorized personnel are permitted to operate aerial lifts.
- When conducting work from the basket of an aerial lift, personnel are required to wear a full body harness and attach their lanyard to provided anchor points in the basket at all times.
- Personnel must remain inside the basket at all times and must never climb on the rails to gain access to an elevated working platform.
- Personnel must remain on the floor of the basket at all times and are never permitted to use the rail, planks or ladders to extend the reach of the basket.
- Aerial lifts shall be positioned on flat, level surfaces and the brakes must be set prior to extending the basket. If outriggers are available, they must be employed as well. Wheel chocks are only required if the aerial lift is positioned on a grade of more than 5 degrees.

- At no time are personnel permitted to conduct work in an elevated aerial lift basket when wind speed reaches twenty (20) miles per hour or more.
- At no time is aerial lift to be used for hoisting materials, unless it is small enough to fit easily in the basket it self and does not exceed the weight limit of the lift as designated by the manufacturer

Scaffolding

- At no time are any personnel authorized to access scaffolding until it has been inspected by an authorized Competent Person for correct erection and serviceability.
- Only access scaffolding by approved means. Scaffold cross bracing is, at no time, an approved means of access or egress.
- All personnel must remain inside the scaffold guardrail system at all times. Leaning over or around the rail system is not permitted. Climbing on top of the rail system is not permitted.
- If using a suspended scaffold system, all personnel are required to use a personal fall arrest system and it must be attached to an approved anchor point not within the scaffolding system. If the scaffold fails and falls, CWC personnel are not permitted to fall with it.
- At no time are personnel permitted to work on a scaffolding system if there is ice, snow or other slippery substance on the working surfaces.
- At no time are personnel permitted to work on a scaffolding system if wind speed reaches twenty (20) miles per hour or more.

Ladders

- A ladder is generally required when a sheer vertical break in

elevation of thirty six (36) inches or more exists.

- Ladders must be inspected by an authorized Competent Person each day prior to use. All damaged ladders must be immediately removed from service.
- Ladders must be used only for their intended purpose and loads must never exceed the manufacturers weight limits.
- Only one person is authorized on a ladder at any given time.
- The user must face the ladder while in use and maintain three points of contact at all times.
- At no time are personnel permitted to carrying anything up or down a ladder with them. Materials, tools or equipment must be raised or lowered by other approved means.
- Portable ladders must extend three (3) feet above the landing surface.
- Straight and extension ladders must be positioned at such an angle that the distance between the ladder base to the wall is one-fourth the length of the ladder.
- Straight or extension ladders must be tied off or secured to the structure in order to prevent displacement.
- Step ladders must only be used in the open and locked position.

HIGHWAY & ROADWAY WORK ZONES

There will be a clear demonstration of commitment by Concrete Works of Colorado, Inc., management regarding the necessary resources required for the implementation of best practices, accountability, training, and necessary personal protective equipment. It is the

responsibility of management to ensure that an effective traffic control plan (TCP) is provided and used whenever vehicle traffic poses a hazard to our employees.

The purpose of the Traffic Control and Work Zone Safety Program is to develop a program that will provide the maximum safety controls for Concrete Works of Colorado, Inc., employees when working in and around live traffic. The program is also intended to ensure the safety of the traveling public. It is also the goal of this program at all times to minimize and prevent damage to private and public property, the prevention of accidents, minimize claims and litigation, expedite traffic flow and reduce confusion, and insure conformity with all Federal, State, and municipal regulations.

General Safety Requirements for Highway Work Zones

- All certified flagging personnel must complete a minimum 4-hour flagger certification program before assuming and flagging responsibilities for CWC. This flagger certification and re-certification program must include 4 hours of classroom time under supervision of a qualified instructor. The classroom training must meet or exceed standards required by such recognized organizations as CDOT's Flagger Ahead Program, The National Safety Council, ATSSA, or any organization accepted by the State of Colorado. A successful test score of 80% must be achieved before any employee is issued a flagger certification card. All training and instruction will be provided in the language appropriate to all participants. (English or Spanish for example).
- It is the policy of Concrete Works of Colorado, Inc., that all Traffic Control Supervisor's or designated Competent Persons ensure that the appropriate personnel protective equipment (PPE) have been issued to employees and is being worn by employees. All of Concrete Works of Colorado employees will be required to wear:

(1) High visibility Safety vests and apparel. ANSI/SEA 107-1999, Class II, or Class III.

(2) Consideration will be made concerning apparel, so that workers do not blend into the background.

(3) Inspection of high-visibility clothing to ensure that color has not faded and reflectivity has not been lost.

(4) Reflective material may be used on hard hats.

(5) Lighting stations or portable hand held lighting units will be used when deemed necessary during nighttime operations as described by the MUTCD or CDOT spec's.

- Traffic control devices are defined as a sign, signal, markings, barricade, or other devices placed on or adjacent to a street or highway to warn, or guide traffic. Traffic control devices assist motorist with guidance to safely travel any public road. To be effective, a traffic control device should meet five basic requirements:

(1) Fulfill a need.

(2) Command attention.

(3) Convey a simple message.

(4) Command respect of the road user, and

(5) Give adequate time for response.

- It shall also be noted that all Concrete Works of Colorado traffic control equipment or devices will conform to the NCHRP 350 standards and Best Practices for Cone Setting Operations.

- All Impact Attenuator units will be equipped with a minimum 4x8 foot type C, 25 light Arrow board unit

- All coning operations during mobile traffic work (short duration) i.e., skip-line, edge-line and tapers will be set with the assistance of

an impact attenuator vehicle on high-speed roadways.

- Coning operations will be accomplished from side constructed work platforms. These work platforms will be equipped with handholds and front chain guards.

- Traffic cones used by Concrete Works of Colorado, Inc., will be predominately orange, or fluorescent orange in color and made of material that can be struck without damaging vehicles on impact. They will be used to channel traffic and protect the traveling public from wet paint material. Consideration will be made to ensure that cones will not be blown over by wind or the traveling motorist. Cones will be doubled when necessary. Also the following requirements will be followed by Concrete Works of Colorado traffic control plans:

(1) Traffic cones will be maintained in good working condition. Any traffic cone that is found to be defective will be removed from service (i.e.: discolored, large holes or tears, or cannot stand alone).

(2) Cones 18 inches in height will only be used in low-volume, low speed traffic control daylight hours.

(3) Cones 36 inches and collared will be used in high volume, and high speed traffic control.

(4) Collars affixed to 36 inch cones will be at minimum 4 and 6 inches of high reflective material.

- Devices placed adjacent to the traveled portion of roadway will be spaced so it is apparent a portion of highway is closed to traffic. Consideration to the type and speed of roadway will determine proper cone spacing. Gaps in traffic control devices should be avoided to incorrectly indicate that they have passed the work area.

- Employees will not be allowed to pursue cones that have been dislodged from their original position, exposing them to high vehicle

traffic. These cones will be picked up at a later time when traffic and safety conditions allow. Cones that are found in grass median areas will be retrieved only if it does not interfere with the motoring public or endanger employee safety.

- A work area traffic control zone is defined as the portion of street or highway in which all of the traffic control devices are used to warn, regulate or guide motorists and pedestrians past a roadway construction or maintenance operation.
- Sign placement (spacing) will be according to MUTCD minimum standards. If State or municipal standards meet or exceed the MUTCD standards, the more stringent standard will apply.
- All highway or street traffic control work zones will have an advance warning area, a transition area, and a work area. It will also include termination area if possible. The main traffic control devices will include cones, and diamond shaped warning signs (black on orange design) as specified for construction and maintenance operations. Signage may or may not be required to be of reflective material. The minimum size of CWC signage will be 48 x 48 inch.
- Consideration will be made concerning the placement of signs used in the advance warning area due to various situations. These could include driveways, side streets, site obstructions, vegetation, or parked vehicles.
- Signs will face and be visible to oncoming traffic and be a minimum of 2 feet from the bottom of the sign to the pavement of the roadway. If necessary, signs may require a greater height of 2 feet due to location of placement.
- All signs shall be installed prior to commencement of any work and removed immediately when they are no longer needed.

WORKING IN CONFINED SPACES

The purpose of this section is to outline and define the required measures to be implemented for the protection of authorized CWC personnel that may enter a confined space and may be exposed to hazardous atmospheres, engulfment or entrapment, conditions that may become hazardous due to the nature of a confined space and any other safety or health hazards associated with a given confined space.

General Safety Requirements for Working in Confined Spaces

- An authorized representative of CWC will initially assess all confined spaces on the job-site that personnel would be required to enter in the performance of their duties. Using criteria established by 29 CFR 1910.146, it is the intention of CWC to classify all confined spaces and to determine, on the outset of a project, if a confined space will require a permit.
- Once a space has been designated as a “Permit-Required Confined Space”, all personnel are prohibited from entry until authorized. All personnel working on a CWC Project Job-site that contains a Permit-Required Confined Space will be made aware of



the existence, location and known hazards associated with that space prior to entry onto the job-site. All efforts will be made to prevent unauthorized entry, which may include signage, barricades, security personnel, etc.

- If it becomes necessary for any personnel to enter a designated Permit-Required Confined Space located on a CWC Project Job-site, the following procedures must be followed.

(1) The Job-site Superintendent must designate an Entry Supervisor and ensure that the CWC Safety Director has been contacted.

(2) The Entry Supervisor must designate all Entry Attendant(s), Entrants and safety personnel. He must also contact the local Fire Department and inform them of the entry.

(3) The Entry Supervisor, with concurrence from the Entry Attendant(s), must complete the approved permit, to include all evaluations and testing, and designate the required equipment for the entry.

(4) The Entry Supervisor, Entry Attendant(s), Entrants and safety personnel will at this time, conduct an equipment serviceability check as well as a safety briefing, to include rescue & retrieval procedures as designated by the Site Specific Safety Plan, or the confined space permit.

(5) Once the Entry Attendant(s) are satisfied that all equipment is serviceable and being used, all entry procedures have been followed, and required hazard control methods are in place as specified by the permit, the authorized Entrant(s) are now permitted to enter the space and conduct the necessary tasks.

(6) The Entry Attendant(s) must maintain constant communication with all Entrants either via sight, radio or natural verbal communication. All Entrant(s) are required to update the Entry Attendant as to the conditions of the space at regular intervals. The

length of this interval is at the discretion of the Entry Supervisor.

(7) If at any time a previously unknown hazard becomes apparent, a failure in equipment occurs or there is a change in atmospheric conditions, all personnel must immediately evacuate the space and the permit is to be cancelled until further evaluation of the space can be conducted and a new permit issued.

(8) Upon completion of all tasks within a Permit-Required Confined Space, all Entrant(s) must immediately exit the space and place their initials on the permit in the proper place. Once all personnel are accounted for, the Entry Attendant and Entry Supervisor must make a final visual inspection of the space from outside of the entrance and make a final verbal call for any personnel that may be inside the space to immediately exit. When both the Entry Supervisor and Entry Attendant(s) are satisfied that there are no remaining personnel within the space, the permit is to be cancelled and the space is to be closed.

(9) All permits are to be logged in to the Site Specific Safety Plan Supplemental Folder and the original permit is to be kept in the corporate office. A copy of the permit is to be kept on the Job-site until the completion of the project.

BASIC ELECTRICAL SAFETY

Although most people are not electricians, we all use electrical devices several times per day. Improper use, and the failure to understand how electricity works and what it is capable of, poses a serious hazard to all personnel.

The purpose of this section is to illustrate the capabilities of electricity and methods on how to mitigate the risks and hazards of electricity.

General Requirements for Basic Electrical Safety

- Only authorized personnel are permitted to enter high voltage areas.
- At no time are CWC personnel permitted to tamper with electrical wiring unless qualified, and authorized, to do so.
- All electrical wiring and equipment must be considered energized unless lockout/tagout procedures are implemented.
- Inspect all power cords, power tools and electrical equipment to ensure serviceability. Any damaged item must be immediately removed from service.
- All power cords must be equipped with third-wire grounding, be covered or elevated, or otherwise protected from damage when passing through work areas, be protected from pinch points if routed through doorways and never be fastened with staples, hung from nails, or suspended from wire.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the lines have been de-energized, grounded and lockout/tagout procedures have been implemented. Maintain at least fifteen (15) feet from energized power lines for voltages of 50kV or less and an addition ½ inch for every kV over 50kV.

HOT WORK

The purpose of this section is to ensure safe practices when conducting welding, cutting or brazing operations, or more commonly referred to as “Hot Work”. This section applies to all CWC personnel, sub-contractors on all Project Job-Sites.



General Safety Requirements for Hot Work

- Welding, cutting and/or brazing (hot work) will only be performed by certified and authorized personnel only.
- All tools, equipment and required PPE must be inspected for serviceability prior to the start of any hot work operation. All damaged items must not be used and immediately removed from service and replaced.
- All fire prevention and control measures must be employed prior to the start of all hot work operations.
- A hot work permit must be completed and issued prior to the start of all hot work operations. This permit is to be kept in the Site Supplemental Folder and on-site at all times for the duration of the operation.
- All lead lines, hoses and power cords traversing passageways must be kept at or above eight (8) feet and secured with plastic zip

ties or other approved non-conductive material.

- All hot work must be conducted in well-ventilated areas. Outside areas, areas that contain blowers and/or heavy fans are permissible. If adequate ventilation is not possible, the personnel working within the area must wear the appropriate respiratory protection.

HOT TEMPERATURE STRESS TABLE

Symptoms & Treatment of Heat Stress				
	Heat Syncope	Heat Rash	Heat Cramps	Heat Exhaustion
Signs & Symptoms	Sluggishness or fainting while standing erect or immobile in heat.	Tiny, raised blister-like vesicles on affected areas, along with prickling sensations during heat exposure.	Painful spasms in muscles.	Fatigue; nausea; headache; skin pale, clammy & moist; rapid pulse; oral temperature normal or low.
Treatment	Remove to cooler area with shade; increase fluid intake; recovery is usually immediate, but observe for 1 hour in case symptoms return or change.	Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.	Remove victim to cooler area with shade. Rest lying down. Increase fluid intake. Keep victim lying down in the shade for 3 hours and observe symptoms after that.	Remove victim to cooler area with shade. Rest victim lying down and raise legs above head. Increase fluid intake and contact the Safety Director for further instruction.

COLD TEMPERATURE STRESS TABLE

Symptoms & Treatment of Cold Stress		
	Immersion Foot	Frostbite
Signs & Symptoms	Feet discolored and painful to the touch; sever swelling and possible infection.	Blanched, white, waxy skin, but tissue is resilient; tissue cold and may have large white blisters.
Treatment	Wrap feet in warm blanket and seek medical treatment immediately.	Move victim to warm place. Warm affected area in warm water (NOT HOT) and have victim drink warm water (NOT COFFEE OR ALCOHOL). Do not break blisters and immediately seek medical treatment.

EMPLOYEE SAFETY HANDBOOK SIGN-OFF SHEET

Employee Name: _____

Employee Identification Number: _____

Department: _____

I have received a copy of the Concrete Works of Colorado Employee Safety Handbook. I understand that I must read and familiarize myself with the contents of this Handbook and that it provides information for the guidance and reference of all employees.

I understand that the contents of this Handbook may be changed at the company's discretion at any time for any reason. I also understand that this Handbook is confidential company information and that copying in any manner is prohibited. In addition, I understand that this Handbook is company property and must be surrendered upon termination of employment.

Name

Date

