



Safety & Health Policy

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November 1, 2000

TO: ALL EMPLOYEES, SUBCONTRACTORS, SUPPLIERS, AND CUSTOMERS OF
ARTISAN CONTRACTING INC.

RE: SAFETY IN CONSTRUCTION

Safety in all Artisan Contracting, Inc. operations is not just a corporate goal, it is a requirement!

To this end, we have formulated this written policy to govern all the operations of Artisan Contracting, Inc.

It is a condition of employment with Artisan Contracting, Inc. that all employees adhere faithfully to the requirements of this policy, as well as the safety rules, instructions, and procedures issued in conjunction with it. Failure to do so will result in disciplinary action as outlined in the attached policy.

It is a condition of all subcontracts and purchase orders issued by Artisan Contracting, Inc. that this policy and the safety rules, instructions, and procedures issued in conjunction with it, as well as all applicable state, federal, and local codes and regulations be adhered to. Failure to comply is a breach of contract terms.

All visitors to any Artisan Contracting, Inc. operation including, but not limited to, suppliers, owner representatives, agents of the architect or engineer, regulatory authorities, and insurance company representatives shall be required to follow all safety rules and regulations in effect during their visit.

Artisan Contracting, Inc. will make an effort to ensure that the operations of other contractors not under our control do not endanger the safety of our employees. To this end, all employees are required to report hazardous activities of other employees to appropriate Artisan Contracting, Inc. officials.

The Safety Director, General Superintendent, Job Superintendents, and Foremen have the full support of management in enforcing the provisions of this policy as it relates to responsibilities assigned to them.

Sincerely,

Larry E. Frankum
President



GENERAL STATEMENT OF POLICY

It is the policy of this company to provide a safe and healthful place of employment for **ALL OF ITS EMPLOYEES.**

It is therefore the purpose of this stated policy to:

1. Abide by all federal, state, and local regulations as they pertain to construction.
2. Apply good sense and safe practices to all jobs.
3. Exercise good judgement in the application of this policy.
4. Protect the public from any and all hazards that result from our operations.

To further these goals, the following assignments of responsibility are made:

MANAGEMENT

1. Establish rules and programs designed to promote safety and make known to all employees the established rules and programs.
2. Provide all supervisors with copies of appropriate rules and regulations.
3. Make available training necessary for employees to perform their tasks safely.
4. Provide protective equipment for employees where required.
5. Impress upon all the responsibility and accountability of each individual to maintain a safe workplace.
6. Record all instances of violations and investigate all accidents.
7. Discipline any employee disregarding this policy.
8. Require all subcontractors, as a matter of contract, and all material suppliers, through purchase order terms, to follow safety rules.
9. Encourage all contractors to work safely.
10. Appoint a company employee with enforcement authority over safety matters.
11. Conduct safety inspections of all the company's jobsites, maintain records, and continually monitor the program for effectiveness.

PROJECT SUPERINTENDENT COOPERATING WITH ON-SITE SAFETY PERSONNEL

1. Plan production so that all work will be done in compliance with established safety regulations.
2. Be completely responsible for on-the-job safety and health and secure the correction of safety deficiencies.
3. Make sure proper safety materials and protective devices are available and used and all equipment is in safe working order.
4. Instruct foremen of safety requirements.
5. Review accidents, supervise correction of unsafe practices, and file accident reports.
6. Conduct jobsite safety meetings and provide employees with proper instruction on safety requirements.
7. Require conformance to safety standards from subcontractors.
8. Notify company office of safety violations.

9. Provide for the protection of the public from company operations.
10. Attempt to ensure safe performance by others present on the site, including owner and architect/engineer representatives, the general public, visitors, and the employees of other contractors.

JOB PROJECT SUPERINTENDENT/FOREMEN

1. Carry out safety programs at the work level.
2. Be aware of all safety requirements and safe working practices.
3. Plan all work activities to comply with safe working practices.
4. Instruct new employees and existing employees performing new tasks on safe work practices.
5. Install and maintain devices to protect the public from company operations.
6. Make sure protective equipment is available and used.
7. Make sure work is performed in a safe manner and no unsafe conditions or equipment are present.
8. Correct all hazards, including unsafe acts and conditions, which are within the scope of your position.
9. Secure prompt medical attention for any injured employee.
10. Report all injuries and safety violations.

WORKERS

1. Work in such a manner as to ensure your own safety as well as that of co-workers and others.
2. Request help when unsure about how to perform any task safely.
3. Correct unsafe acts or conditions within the scope of the immediate work.
4. Report any uncorrected unsafe acts or conditions to the appropriate supervisor.
5. Report for work in good mental and physical condition to safely carry out assigned duties.
6. Avail yourself of company and industry sponsored safety programs.
7. Use and maintain all safety devices provided.
8. Maintain and properly use all tools under your control.
9. Follow all safety rules.
10. Provide fellow employees help with safety requirements.

ALL PERSONNEL

1. Strive to make all operations safe.
2. Maintain mental and physical health conducive to working safely.
3. Keep all work areas clean and free of debris.
4. Assess result of your actions on the entire workplace. Work will not be performed in ways that cause hazards for others.
5. Before leaving work, replace or repair safety precaution signs removed or altered. Unsafe conditions will not be left to imperil others.
6. Abide by the safety rules and regulations of every construction site.
7. Work in strict conformance with federal, state, and local regulations.

SUBCONTRACTORS AND SUPPLIERS

1. Abide by the safety rules of contractors on site.
2. Notify all other contractors when their activities could affect the health or safety of other company employees.
3. Check in with jobsite supervision before entering the jobsite.
4. Inform controlling contractor of all injuries to workers.
5. Report to controlling contractor any unsafe conditions that come to your attention.

ARCHITECTS, ENGINEERS, OWNERS, AND VISITORS SHALL BE REQUESTED TO:

1. Abide by all safety rules.
2. Inform construction site superintendent before entering a construction site.
3. Check in with the jobsite supervisor so personal protective equipment may be provided, such as hard hats, eye protection, and respirators, if necessary.



GENERAL WORK RULE GUIDE

Abrasive Grinding

Abrasive wheel bench or stand grinders must have safety guards strong enough to withstand bursting wheels. Adjust work rests on grinders to a clearance not to exceed 1/8 inch between rest and wheel surface. Inspect and ring-test abrasive wheels before mounting. Always leave wheel in working condition for next user. Properly dress wheel before and after use.

Access

Use only safe means of access to and from work areas. Jumping from or to work areas is not allowed, nor is sliding down cables, ropes, or guys.

Air Tools

Secure pneumatic tools to hose in a positive manner to prevent accidental disconnection. Install and maintain safety clips or retainers on pneumatic impact tools to prevent attachments from being accidentally expelled. All hoses exceeding 1/2 inch inside diameter require safety devices at the source of supply to reduce pressure in case of hose failure.

Attitude

All company employees are required to treat safety as the number one priority. As such, they are expected to report to work in good mental and physical condition to safely perform their assigned duties. Before starting any task, employees must consider the possible effects of their actions on themselves and others and take appropriate protective measures.

Belt Sanding Machines

Belt sanders will not be used without guards in place.

Compressed Air, Use Of

Compressed air used for cleaning purposes may not exceed 30 psi, and then only in conjunction with effective chip guarding and personal protective equipment. Exceptions to 30 psi are allowed only for concrete form, mill scale, and similar cleaning operations. The use of compressed air to clean off yourself or other workers is not allowed.

Compressed Gas Cylinders

Put valve protection caps in place before compressed gas cylinders are transported, moved, or stored. Cylinder valves will be closed when work is finished and when cylinders are empty or being moved.

Compressed gas cylinders will be secured in an upright position at all times. Keep cylinders at a safe distance, or shield from welding or cutting operations and place where they cannot become part of an electrical circuit. Oxygen and acetylene must not be stored together.

Oxygen and fuel gas regulators must be in proper working order while in use.

Concrete, Concrete Forms, and Shoring

All protruding reinforcing steel, onto or into which employees could fall, must be guarded to eliminate the hazard of impalement. Wire mesh needs to be secure from recoiling. Form work and shoring will be designed and constructed to safely support all loads imposed during concrete placement. All components will be inspected prior to erection. Drawings or plans of jack layout, form work, shoring, working decks, and scaffolding systems will be available at the jobsite.

Forms and shores may not be removed until it has been determined that the concrete has gained sufficient strength to support its weight and superimposed loads.

Cranes and Derricks

Rated load capacities, recommended operating speeds, and special hazard warnings or instructions must be conspicuously posted on all equipment. Instructions or warnings must be visible from the operator's station.

Accessible areas within swing radius of a crane must be barricaded to prevent employees from being struck or crushed by the crane.

Except where electrical distribution and transmission lines have been de-energized and visibly grounded, or where insulating barriers not a part of or an attachment to the equipment or machinery have been erected to prevent physical contact with the lines, no part of a crane or its load shall be operated within 10 feet of a line rated to 50kV or below; 10 feet + 4 inches for each 1kV over 50kV for lines rated over 50kV, or twice the length of the line insulator, but never less than 10 feet. Cranes will be inspected before each use by the operator. Any defects must be corrected before use. Logs of crane inspections must be kept with the crane.

Crane and Derrick Suspended Personnel Platforms

Crane or derrick suspended personnel platforms may not be used unless the erection, use, and dismantling of conventional means of reaching the worksite would be more hazardous or not possible. Equipment used for this purpose must be tested and equipped in strict accordance with 1926.550(g) or state plan equivalents.

Disposal Chutes

Use an enclosed chute whenever materials are dropped more than 20 feet to any exterior point of a building. When debris is dropped through floor holes without a chute, the area where the material is dropped must be enclosed with barricades at least 42 inches high and not less than 6 feet back from the projected edges of the opening above. Post warning signs at each level.

Drugs and Alcohol

Use or possession of alcoholic beverages or non-prescription drugs on the jobsite is forbidden. Workers reporting under the influence of alcohol or controlled substances will not be allowed to work.

Electrical - General

All extension cords must be 3-wire type, protected from damage, and not fastened with staples, hung from nails, or suspended from wires. No cord or tool with a damaged ground lug may be

used. Splices must have soldered wire connections with insulation equal to the cable. Worn or frayed cables may not be used.

Except where bulbs are deeply recessed in a reflector, bulbs on temporary light will be equipped with guards. Temporary lights may not be suspended by their electric cords unless so designed.

Receptacles for attachment plugs will be of approved, concealed contact type. Where different voltages, frequencies, or types of current are applied, receptacles must be such that attachment plugs are not interchangeable.

Each disconnecting means for motors and appliances, and each service feeder or branch circuit at point of origin, must be legibly marked to indicate its purpose, unless located and arranged so that the purpose is evident.

Cable passing through work areas will be covered or elevated to protect from damage. Boxes with covers for the purpose of disconnecting must be securely and rigidly fastened to mounting surface.

No employee may work in proximity to any electric power circuit that may be contacted during the course of work, unless protected against electric shock by de-energizing circuit and grounding it or by guarding with effective insulation. In work areas where the exact location of underground electric power lines is unknown, workers using jackhammers, bars, or other hand tools which may contact lines must wear insulated protective gloves..

Electrical - GFCI or Inspection

15- and 20-ampere receptacle outlets on single-phase, 120-volt circuits for construction sites which are not a part of the permanent wiring of the building or structure, must be protected by either ground-fault circuit interrupters or an assured equipment grounding conductor program.

An assured equipment grounding conductor program covers all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cords and plugs.

Inspect each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, before each day's use for external defects and possible internal damage. Remove from service or repair immediately any defective items.

Tests will be performed on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord and plug - connected equipment required to be grounded. Grounding conductors will be tested for continuity. Each receptacle and attachment cap or plug will be tested for correct attachment of the equipment grounding conductor.

Equipment Operation

No employee will operate electric, gas, or hand-powered tools or equipment unless familiar with use of the item and safety precautions required. Supervisors will provide necessary safety information for all tasks or equipment.

Excavating and Trenching

Before opening any excavation, efforts (including utility company contact) must be made to determine if there are underground installations in the area. Underground utilities must be located and supported during excavation operations.

Walls and faces of trenches 5 feet or more in depth, and all excavations in which employees are exposed to danger from moving ground or cave-in, must be guarded by shoring or sloping.

Where employees may be required to enter excavations, excavated material must be stored at least 2 feet from the edge of the excavation.

Appoint a competent person. Make daily inspections of excavations. If evidence of possible cave-ins or slides is apparent, cease all work in the excavation until precautions have been taken.

Excavations over 20 feet deep must have shoring or sloping designed by a professional engineer. Trenches 4 feet deep or more required adequate means of exit, such as ladders or steps, located so as to require no more than 25 feet of lateral travel.

Explosives and Blasting

Only authorized and qualified persons will be permitted to handle and use explosives. Smoking and open flames are not permitted within 50 feet of explosives and detonator storage magazines.

Eye and Face Protection

Eye and face protection will be provided and must be worn when machines or operations present potential eye or face injury. Employees involved in welding operation must wear filter glasses or plates of the proper shade number. Employees exposed to laser beams must use suitable laser safety goggles which will protect for the specific wave length of the laser and be optical-density (O.D.) adequate for the energy involved.

Goggles will be worn over any employee owned prescription glasses that do not meet industrial safety standards.

Fencing

Security safety fencing protects employees, the company and the general public. All fencing must be maintained by all employees to the extent of their job description. Report to your supervisor defects beyond your ability to repair.

Fire Protection

Fire fighting equipment must be conspicuously located and readily accessible at all times, and periodically inspected and maintained in operating condition. Report any inoperative or missing equipment to your supervisor.

Fire extinguishers, rated not less than 2A, will be provided for each 3,000 square feet of building area (or major fraction). Travel distance from any point to the nearest fire extinguisher may not exceed 100 feet with at least one extinguisher per floor. In multi-story buildings, at least one fire extinguisher must be located adjacent to the stairway.

Flag Personnel

When signs, signals, and barricades do not provide necessary protection on or adjacent to a highway or street, flag personnel or other appropriate traffic controls must be used. Flag personnel will wear an orange warning garment. Warning garments worn at night will be of reflectorized material and employee will be properly instructed prior to taking his/her flagging station by the project superintendent.

Flammable and Combustible Liquids

Only approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids.

No more than 25 gallons of flammable or combustible liquids may be stored in a room outside of an approved storage cabinet.

No more than 60 gallons of flammable or 120 gallons of combustible liquids may be stored in any one storage cabinet.

No more than three storage cabinets may be located in a single storage area. Inside storage rooms for flammable and combustible liquids must be of fire-resistive construction, with self-closing fire doors, 4-inch sills or depressed floors, a ventilation system of at least six air changes per hour, and electrical wiring and equipment approved for Class I, Division I locations.

Grade storage areas to divert possible spills away from buildings or other exposures, or surround storage areas with a curb or dike. Locate storage areas at least 20 feet from any building and keep free from weeds, debris, and other combustible materials. Keep flammable liquids in closed containers when not in use.

Post conspicuous and legible signs prohibiting smoking in service and refueling areas.

Floor Openings, Open Sides, Hatchways, Etc.

Guard openings with a standard guardrail and toeboards or cover. Provide railing on all exposed sides, except at entrances to stairways.

Every open-sided floor or platform, 6 feet or more above adjacent floor or ground level, must be guarded by a standard railing, or equivalent, on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.

Stairways having four or more risers shall be equipped with at least one handrail.

Guard ladderway, floor openings or platforms with standard guardrails and standard toeboards on all exposed sides, except at entrance to opening, with passage through the railing provided by a swinging gate or offset so a person cannot walk directly into opening.

Temporary floor opening will have standard railings or effective covers.

Floor holes into which persons can accidentally walk will be guarded by either a standard railing with standard toeboard on all exposed sides, or a standard floor hole cover.

While the cover is not in place, the floor hole will be protected by a standard railing.

Gases, Vapors, Fumes, Dusts & Mists

Exposure to toxic gases, vapors, fumes, dusts, and mists at a concentration above those specified in the “Threshold Limit Values of Airborne Contaminants” of the ACGIH should be avoided.

When engineering and administrative controls are not feasible to achieve full compliance, protective equipment or other protective measures will be used to keep the exposure of employees to air contaminants within the limits prescribed. Any equipment and technical measures used for this purpose must be reviewed for each particular use by a technically qualified person. Employees will wear all furnished equipment at all times.

Hand Tools

Employees will not use unsafe hand tools. Wrenches may not be used when jaws are sprung to the point slippage occurs. Keep impact tools free of mushroomed heads. Keep wooden tool handles free of splinters or cracks and assure a tight connection between the tool head and the handle.

Electric-power operated tools will either be approved double insulated, be properly grounded, or used with ground fault circuit interrupters.

Hard Hats

Hard hats will be worn at all times on construction sites.

Hazard Communication

Employees will receive training on their rights, duties, and responsibilities under the Hazard Communication Standard. A copy of the company’s program and the standard will be made available to all employees on request. Employees will review Material Safety Data Sheets when working with a covered material for the first time and anytime thereafter when a question arises. Copies of data sheets can be obtained from project field offices and from any project superintendent or foreman. Safety precautions outlined on Material Safety Data Sheets are to be followed.

Hearing Protection

Hearing protection will be worn in areas where sound levels may exceed 85 decibels.

Heating Devices, Temporary

Fresh air must be present in sufficient quantities to maintain the safety of workers. Solid fuel salamanders are prohibited in buildings and on scaffolds.

Hoists, Material and Personnel

Rated load capacities, recommended operating speeds, and special hazard warnings or instructions posted on cars and platforms may not be exceeded. Entrances to material hoists will be protected by substantial full width gates or bars. Hoistway doors or gates of personnel hoists will not be less than 6 feet, 6 inches high, and be protected with the mechanical locks which cannot be operated from the landing side and are accessible only to persons on the car. Provide overhead protective covering on the top of the hoist cage or platform.

Follow rated load label on nylon slings, check daily for wear and discard or remove frayed or worn slings.

Horseplay

All disruptive activities usually referred to as “horseplay” are forbidden. No practical jokes or fights will be tolerated.

Housekeeping

Form and scrap lumber with protruding nails and other debris will be kept clear from work areas. Remove combustible scrap and debris at regular intervals. Containers will be provided for collection and separation of all refuse. Covers are required on containers used for flammable or harmful substances.

Electric cords, welding leads and similar item are not to be in position to present a tripping hazard.

At the end of each phase of work, return all tools and excess material to proper storage. Clean up all debris before moving on to the next phase. Each employee is responsible for keeping their work areas clean.

Illumination

Construction areas should be lighted to not less than minimum illumination intensities listed while work is in progress:

Foot Candles Area of Operation

Illumination Intensity-5 General construction area lighting: General construction areas, concrete placement, active storage areas, loading platforms, refueling and field maintenance areas and stairways.

Illumination Intensity-5 Indoor: Warehouses, corridors, hallways, and exitways.

Illumination Intensity-5 Tunnels, shafts and general underground work areas (Exception: minimum of 10 foot candles is required at tunnel and shaft heading during drilling, mucking and sealing. Bureau of Mines approved cap lights shall be acceptable for use in tunnel heading.)

Illumination Intensity-10 General construction plant and shops (For example: batch plants, screening plants, mechanical and electrical equipment rooms, carpenters shops, rigging lofts and active storerooms, mess halls, indoor toilets and workrooms.)

Injuries

All injuries, even those that appear to be slight, will be reported immediately to your supervisor.

Ladders

The use of ladders with broken or missing runs or steps, broken or split side rails, or with other faulty or defective construction is prohibited. When ladders with such defects are discovered,

withdraw them from service immediately. Place portable ladders on a substantial base at a 4-1 pitch, have clear access at top and bottom, extend a minimum of 36 inches above landing or, where not practicable, provide grab rails. Secure against movement while in use.

Portable metal ladders may not be used for electrical work or where they may contact electrical conductors.

Job-made ladders will be constructed for their intended use. Cleats will be inset into side rails 1/2 inch, or filler blocks used. Cleats will be uniformly spaced, 12 inches, top-to-top.

Lasers

Only trained employees will be allowed to operate lasers. Employees will wear proper eye protection where there is a potential exposure to laser light greater than 0.005 watts (5 milliwatts).

Beam shutters or caps will be utilized, or laser turned off, when laser transmission is not actually required. When lasers are left unattended for a substantial period of time, turn them off.

Liquefied Petroleum Gas (LPG)

Each system will have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. Each container and vaporizer must be provided with one or more approved safety relief valves or devices. Containers will be placed upright on firm foundations or otherwise firmly secured.

Portable heaters must be equipped with an approved automatic device to shut off the flow of gas in the event of flame failure. Storage of LPG within buildings is prohibited. Storage locations must have at least one approved portable fire extinguisher, rated not less than 20-B.C.

Masonry Access Zone

Limited access zones are to be established on the unscaffolded side of unbraced masonry walls. The zones are to be equal to the finished height of the wall plus four feet.

Medical Services and First Aid

When a medical facility is not readily accessible, a person trained to render first aid will be available at the worksite.

First aid supplies must be readily available.

The telephone numbers of physicians, hospitals or ambulances must be conspicuously posted.

Motor Vehicles and Mechanical Equipment

Check all vehicles in use at beginning of each shift to assure all parts, equipment and accessories affecting safe operation are in proper operating condition and free from defects. All defects shall be corrected before placing vehicle in service.

No employee shall use any motor vehicles, earthmoving, or compacting equipment having an obstructed view to the rear unless: vehicle has a reverse signal alarm distinguishable from the surrounding noise level, or vehicle is backed up only when an observer signals it is safe to do so.

Heavy machinery, equipment, or parts thereof, which are suspended or held aloft will be substantially blocked to prevent falling or shifting work under or between them. Safety belts must be worn. No riders on construction equipment, operators only.

Personal Protective Equipment

The employee is responsible for wearing appropriate personal protective equipment in operations where there is exposure to hazardous conditions, or where need is indicated to reduce hazards.

Lifelines, safety belts and lanyards will be used only for employee safeguarding. Employees working over or near water, where danger of drowning exists, will wear U.S. Coast Guard-approved life jackets or buoyant work vests.

Powder-Actuated Tools

Only trained employees will be allowed to operate powder-actuated tools. All powder-actuated tools will be tested daily before use and all defects discovered before or during use will be corrected. Tools will not be loaded until immediately before use. Loaded tools will not be left unattended.

Power Transmission Mechanical

Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees or otherwise constitute a hazard. No equipment may be used without guards in place.

Protection Of The Public

All company personnel are charged with aiding in the protection of the public including, as your job description dictates, installation and maintenance of signs, signals, lights, fences, guardrails, ramps, temporary sidewalks, barricades, overhead protection, etc. as may be necessary.

Radiation, Ionizing

Pertinent provisions of the Atomic Energy Commission's Standards for Protection Against Radiation (10 CFR Part 20) relating to protection against occupational radiation exposure, will apply. Persons using radioactive materials or X-rays will be specially trained, or licensed if required.

Railings

A standard railing will consist of top rail, intermediate rail, toeboard, and posts, and have a vertical height of approximately 42 inches from upper surface of top rail to floor, platform, etc. The top rail of a railing will be smooth-surfaced, with a strength to withstand at least 200 pounds. The intermediate rail will be approximately halfway between top rail and floor.

A stair railing will be of construction similar to a standard railing, but the vertical height will not be more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.

Respiratory Protection

In emergencies, or when feasible engineering or administrative controls are not effective in controlling toxic substances, approved respiratory protective equipment will be provided and

used. Respiratory protective devices will be approved for the hazardous material involved and extent and nature of work requirements and conditions. Employees required to use respiratory protective devices will be thoroughly trained in their use. Respiratory protective equipment will be inspected regularly and maintained in good condition.

Rollover Protective Structures (ROPS)

Rollover protective structures (ROPS) standards apply to the following types of materials handling equipment: all rubber-tired, self-propelled scrapers, rubber-tired front-end loaders, rubber-tired dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders, with or without attachments, that are used in construction work. This requirement does not apply to sideboom pipelaying tractors.

Safety Nets

Safety nets are required when workplaces are more than 25 feet above the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts are impractical. State or local regulations may differ.

Saws

All portions of band saw blades will be enclosed or guarded, except for working portion of blades between bottom of guide rolls and required table.

Portable, power-driven circular saws will be equipped with guards above and below the base plate or shoe.

The lower guard will cover the saw to depth of teeth, except for minimum are required to allow proper retraction and contact with the work, and will automatically return to covering position when blade is removed from the work.

All swing or sliding cut-off saws will be provided with a hood that will completely enclose the upper half of the saw.

Limit stops will be provided to prevent swing or sliding type cut-of saws from extending beyond the front or back edges of the table.

Each swing or sliding cut-off saw will be provided with an effective device to return the saw automatically to the back of table when released at any point of its travel.

Inverted sliding cut-off saw will be provided with an effective device to return the saw automatically to the back of table when released at any point of its travel.

Circular table saws will have a hood over the portion of the saw above the table mounted so that the hood will automatically adjust itself to the thickness of and remain in contact with the material being cut.

Circular table saws will have a spreader aligned with the blade, spaced no more than 1/2 inch behind the largest blade mounted in the saw. Circular table saws used for ripping will have non-kickback fingers or dogs. Feed rolls and blades of self-feed circular saws will be protected by a

hood or guard to prevent the hands of the operator from coming into contact with in-running rolls at any time.

Scaffolds (General)

Scaffolds will be capable of supporting 4 times maximum intended load and will be erected on sound, rigid footing, capable of carrying the maximum intended load without settling or displacement.

Guardrails and toeboards will be installed on all open sides and ends of platforms more than 10 feet above ground or floor. Exceptions to this would be needle beam scaffolds and floats which require the use of safety belts. Scaffolds 4 feet to 10 feet in height, with a minimum dimension in either direction of less than 45 inches, will have standard guardrails installed on all sides and ends.

There will be a screen with maximum 1/2 inch openings between toeboards and guardrail, where persons are required to work or pass under scaffolds. Planking will be Scaffold Grade, or equivalent, as recognized by approved grading rules for the species of wood used. Overlap scaffold planking a minimum of 12 inches or secure from movement.

Scaffold planks will extend over end supports not less than 6 inches not more than 12 inches. Scaffolding and accessories with defective parts will be immediately replaced or repaired.

Scaffolds (Mobile)

Platforms will be tightly planked with full width of scaffold, except for necessary entrance opening. Platforms will be secured in place.

Guardrails made of lumber, not less than 2 x 4 inches (or equivalent) approximately 42 inches high, with a midrail of 1 x 6 inch lumber (or equivalent), and toeboards, will be installed at all open sides and ends on scaffolds more than 10 feet above ground or floor. Toeboards will be a

minimum of 4 inches in height. Where persons are required to work or pass under scaffolds, install wire mesh between toeboard and guardrail.

Scaffolds (Swinging)

On suspension scaffolds designed for a working load of 500 pounds, no more than two persons will be permitted to work at one time. On suspension scaffolds with a working load of 750 pounds, no more than three persons may work at one time. Each employee will wear an approved safety belt or harness attached to a lifeline. The lifeline will be securely attached to substantial members of the structure (not scaffold), or to securely rigged lines, which will safely suspend employee in case of fall.

Scaffolds (Tubular Welded Frame)

Scaffolds will be properly braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally. Cross braces will be of such length as will automatically square and align vertical members so erected scaffold is plumb, square, and rigid. All brace connections will be made secure.

Signs

For the protection of all, warning signs such as “No Smoking,” “Keep Out,” “Eye Protection Required,” “Out of Order-Do Not Use,” and “Authorized Personnel” will be posted. All employees will obey these directions and aid in maintaining the signs.

Stairs

Flights of stairs having four or more risers will be equipped with standard stair railings or handrails as specified below. Stairways less than 44 inches wide with one side open must have at least one stair railing on the open side. Stairways less than 44 inches wide having both sides open must have one stair railing on each side. Stairways more than 44 inches wide but less than 88 inches wide must have one handrail on each enclosed side and one stair railing on each open side.

On all structures 20 feet or over in height, stairways, ladders, or ramps will be provided. Rise height and tread width will be uniform throughout any flight of stairs.

Storage

All materials stored in tiers will be secured to prevent sliding, falling or collapse.

Aisles and passageways will be kept clear and in good repair.

Stored materials will not obstruct exits. Materials will be sorted with due regard to fire characteristics.

Tire Cages.

A safety tire rack, cage or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.

Toilets

Toilets will be provided according to the following: 20 or fewer persons-one facility; 20 or more persons-one toilet seat and one urinal per 40 persons; 200 or more persons-one toilet seat and one urinal per 40 persons. Remember to provide facilities with locks for female employees.

Wall Openings

Wall openings, from which there is a drop of more than 4 feet and the bottom of opening is less than 3 feet above working surface, will be guarded. When the height and placement of the opening in relation to the working surface is such that a standard rail or intermediate rail will effectively reduce the danger of falling, one or both will be provided. The bottom of a wall opening, which is less than 4 inches above the working surface, will be protected by a standard toeboard or an enclosing screen.

Welding, Cutting and Heating

Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention will be taken in areas where welding or other “hot work” is being done. No welding, cutting or heating will be done where the application of flammable paints, or presence of other flammable compounds, or heavy dust concentrations, creates a fire hazard. Equip torches with anti-flashback devices.

ARC welding and cutting operations will be shielded by noncombustible or flameproof shields to protect employees from direct arc rays.

When electrode holders are left unattended, electrodes will be removed and holder will be placed or protected so they cannot make electrical contact. All arc welding and cutting cables will be completely insulated. There will be no repairs or splices within 10 feet of electrode holder, except where splices are insulated equal to the insulation of the cable. Defective cable will be repaired or replaced.

Fuel gas and oxygen hose must be easily distinguishable and not interchangeable. Inspect hoses at beginning of each shift and repair or replace if defective.

General mechanical or local exhaust ventilation or air line respirators will be provided, as required, when welding, cutting or heating hazardous materials or in confined spaces. Always wear approved tinted eye protection when welding or when in areas where welding is being done.

Wire Ropes, Chains, Ropes and Other Rigging Equipment

Wire ropes, chains, ropes and other rigging equipment will be inspected prior to use and as necessary during use to assure their safety. Remove defective rigging equipment from service immediately.

Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, or other such attachments will not be used. When U-bolts are used for eye splices, the U-bolt will be applied so the "U" section is in contact with dead end of rope.

Woodworking Machinery

All fixed power-driven woodworking tools will be provided with a disconnect switch that can be either locked or tagged in the off position.



CHECKLIST FOR SAFETY PROGRAM COMPLIANCE

JOB SITE REQUIREMENTS

TEMPORARY FACILITIES

- a. Adequate temporary power with marked breaker boxes
- b. GFCI's or assured grounding program
- c. Site/storage layout for placement of materials, equipment, etc.
- d. Communication system/walkie talkies
- e. Water (including drinking water) and sanitary facilities
- f. Jobsite security equipment (fencing, lights, etc.)
- g. Temporary access and parking facilities

PAPERWORK REQUIREMENTS

- a. Employee Signup Packets
- b. Posting area for employee notices
- c. Copy of OSHA standards & poster
- d. Emergency phone numbers
- e. OSHA 300 log (February 1st – April 30th)
- f. Contractor's safety program and rules for reporting accidents
- g. Workers Compensation notice
- h. Accident and treatment report forms
- i. Written hazard communication program
- j. MSDS for all materials on-site
- k. Daily job site walk around checklist
- l. Daily equipment walk-around checklist
- m. Fire extinguisher inspection log
- n. Training records and Training Plan for MSHA sites
- o. Required signs (Hard Hats, No Trespassing, Danger, Caution, etc.)
- p. Required special permits (burning, welding, traffic, blasting, excavation, etc.)
- q. Toolbox Safety Talks and signup forms

EMERGENCY NEEDS

- a. First aid/CPR trained personnel
- b. First aid kit (checked at least weekly)
- c. Fire extinguishers (or water equivalent)
- d. Emergency evacuation plans
- e. Emergency phone #s

PROTECTIVE EQUIPMENT

- a. Hard hats
- b. Safety glasses
- c. Respirators/Dust masks
- d. Ear plugs
- e. Faceshields
- f. Harnesses, lifeline, and lanyards or nets
- g. Steel Toed Boots
- h. Welding safety equipment (gloves, jacket, hood, extra lenses, etc)
- i. Personal protective equipment for visitors
- j. Barricade Tape
- k. Trench and excavation shoring materials
- l. Labeled safety cans for flammable liquids
- m. Back-up alarms operational
- n. Lockout/Tagout equipment
- o. Confined Space equipment

GENERAL SAFETY REQUIREMENTS

- a. Spill Response Kit
- b. Safe access to and from landings (stairs, ladders, etc.)
- c. Proper ladders: length, style, and usage
- d. Scaffolds properly erected, braced, and supported
- e. Proper and sufficient material and equipment for the scope of the work
- f. Schedule for safety meetings
- g. Flashers, signals, barricades and reflective clothing for traffic controls
- h. Equipment maintenance schedule and procedure



MINIMUM SAFETY STANDARDS

Manual Material Handling

1. Use mechanical devices at every opportunity in place of manual handling of material.
2. Perform daily inspections of ropes, slings, chains, hooks, cables, and chokers.
3. Properly stage materials to minimize lifting and carrying.
4. Provide a certified operator for forklift duties.

Housekeeping: Slips, Trips and Falls

1. Make sure walking and working surfaces are clear and free of debris.
2. Provide waste and trash containers and see that they are used.
3. Each contractor should clean up after themselves.
4. Provide adequate lighting at all times.
5. Keep storage trailers/boxes and laydown yard in an orderly fashion.
6. Rebar caps must be used when there is a chance a worker could fall onto them resulting in an impalement injury.

Fire Protection and Prevention

1. All flammable containers must be clearly identified.
2. Keep fire extinguishers readily accessible and serviced regularly.
3. Keep area around welding/cutting/grinding free of combustible material.
4. "No Smoking" signs posted and enforced.

Electrical

1. Follow assured grounding program or use G.F.C.I.'s at all times.
2. Use lockout/tagout system on all circuits and equipment to avoid accidental start-up.
3. Keep working surfaces free of tangled cords so as to not create a tripping hazard.
4. Utilize powerline hazard checklist to identify such hazards, to plan avoidance of such hazards, and to identify material storage locations.

Ladders

1. Inspect ladders before using.
2. Secure ladders at the top of the landing.
3. Make sure side rails extend 36 inches past top of landing.
4. Do not work on top two steps of stepladder.
5. Landing area must be kept clean and free of tripping hazards.

6. Do not exceed maximum load rating of ladder.
7. Place ladder at a 4:1 ratio.

Scaffolding

1. Perform daily inspections of scaffolding (competent person).
2. Make sure rolling scaffolds are locked when working off of.
3. Erect scaffold on a firm surface.
4. Make sure planking is of scaffold grade and at least 18 inches wide with no more than a 1 inch gap between them.
5. Provide fall protection (guardrails or full-body harness with lanyard) when there is a chance a worker can fall (from any distance) from a working platform.
6. Protect workers below from falling objects.
7. Provide an easy and safe access to and from scaffold platform. Do not climb side of scaffold unless it is designed with a ladder system.
8. Make sure all connections are sound and secure.

Personal Protective Equipment

1. Hard hats and safety glasses must be worn at all times.
2. Provide hearing protection for workers exposed to noisy conditions (85 decibels and above).
3. Fall protection must be provided when a worker is exposed to a fall of 6 feet or better. MSHA states anytime a worker is exposed to a fall from any height fall protection shall be provided.
4. Provide respiratory protection for workers when conditions warrant.
5. Substantial footwear recommended.

Welding and Cutting

1. Oxygen and Acetylene cylinders must be stored at least 20 feet apart or with a 5 foot fire wall between them.
2. Oxygen and acetylene cylinders must be secured in an upright position at all times.
3. Yellow protective valve stem caps shall be used on all jobs when there is a chance of material falling onto the cylinders.
4. Welding hood/goggles, gloves and fire resistant clothing must be used when welding.

Hoists, Cranes and Derricks

1. Operator must inspect crane on a daily basis. Keep log.
2. Make sure annual inspection of crane has been performed.
3. Inspect all rigging equipment before each use.
4. Locate any powerlines within swing radius of crane.
5. Assign one worker as "signaler."
6. Barricade swing radius of crane. Orange cones or yellow caution tape is sufficient.
7. No one is permitted under a load.
8. Provide taglines on all loads.
9. Pelican hooks are only allowed during shake-out procedures.
10. Outriggers must be fully extended for each lift.

Floor, Wall Openings, Stairways

1. Floor and roof openings need to be guarded by guardrails and toe boards or a secured cover able to sustain four times the maximum load intended.
2. Open-sided floors and platforms 6 feet or more above ground shall be guarded with standard railing/guardrails no higher than 42 inches (with a midrail) and capable of withstanding 200 lbs. of force.
3. Stairs with 4 or more risers must be equipped with standard hand rail protection.
4. Any work platform over moving equipment (conveyor) must be guarded to prevent falls.



MULTI-CONTRACT CHECKLIST

1. Job Site Safety Program
 - a. Emergency facilities and/or first aid trained personnel
 - b. First aid facility (or kit)
 - c. Safety postings including OSHA poster and emergency phone numbers
 - d. Safety meetings
 - e. Safety inspections
 - f. Accident investigations
2. Safety rails and covers for openings
3. Fire protection program
4. Fire prevention
5. Street and sidewalk protection and maintenance
6. Special notices to utilities, adjoining property owners, etc.
7. Temporary water (installation, cost)
8. Temporary toilets
9. Temporary telephones
10. Temporary heat (Prior to enclosure)
11. Temporary heat (After enclosure)
12. Temporary power/light
13. Temporary ladders & temporary stairs, including access ramps & runways
14. Allocation of site storage space
15. Jobsite security/safety fence
16. Temporary roads and parking area
17. Hoisting during construction
18. Hoisting after structure is complete
19. Final clean-up and window washing
20. Road and street cleaning
21. Street repairs
22. Main building permit
23. Sidewalk or street use permit
24. Approach and driveway permits
25. Insurance and bonds
26. Performance and payment bonds
27. Jobsite sign
28. Watchman
29. Offices & sheds, owner-architect & contractor
30. Testing
 - a. Compaction
 - b. Concrete



HAZARDOUS COMMUNICATION PROGRAM

This program has been prepared to comply with the requirements of the Federal OSHA standard 1926.59 and MSHA Part 47. It was designed to insure that information necessary for the safe use, handling and storage of hazardous chemicals is provided to and made available to employees.

This program includes guidelines on identification of chemical hazards and the preparation and proper use of container labels, placards and other types of warning devices.

This program applies to all work operations in our company where employees may be exposed to hazardous substances under normal working conditions or during an emergency situation.

A. Chemical Inventory

Hazardous chemicals brought onto the worksite by Artisan Contracting may be made available upon request by the Project Supervisor and/or Safety Dept.

B. Container Labeling

1. All chemicals on site will be stored in their original or approved containers with a proper label attached, except small quantities for immediate use. Any container not properly labeled should be given to the Project Supervisor for labeling or proper disposal.
2. Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed, must be returned to the original container or Project Supervisor for proper handling.
3. No unmarked containers of any size are to be left unattended in the work area.
4. Artisan Contracting will rely on manufacturer-applied labels whenever possible, and shall ensure these labels are maintained. Containers that are not labeled, or on which the manufacturer's label has been removed, will be relabeled.
5. Artisan Contracting will ensure that each container is labeled with the identity of the hazardous chemical contained and any appropriate hazard warnings.

C. Material Safety Data Sheets (MSDS)

1. Employees working with a hazardous chemical may request a copy of the material safety data sheet (MSDS). Requests for MSDS's should be made to the Project Supervisor.
2. MSDS's shall be made available and standard chemical reference may also be made available upon an employee's request.
3. Artisan Contracting, Inc. employees perform duties in many different locations and construction sites, which may include exposure to foreign chemicals. Artisan Contracting employees may contact the 3E Company to obtain an MSDS. To acquire MSDS's, a supervisor or any employee may call 3E Company **(1-800-451-8346 or 1-760-602-8703)**. Prior to calling, the employee shall obtain the product name and number, the manufacturer's name and phone number, and any other pertinent data on the product, such as size and form (liquid, aerosol, paste, etc.). The 3E Company will then promptly email or fax the data to the employee at a provided address or fax number. Internet searches may also be utilized to obtain MSDS's.

D. Employee Training

Employees will be trained to work safely with hazardous chemicals. Training will include:

1. Physical and health hazards associated with chemicals,
2. Protective measures to be taken,
3. Safe work practices, emergency responses, and use of personnel protective equipment,
4. Information on the Hazard Communication Standard including labeling and warning systems and an explanation of Material Safety Data Sheets.
5. Proper procedures following an accidental spill/release.

E. Personal Protective Equipment (PPE)

Required PPE is available from the Project Supervisor. Any employee found in violation of PPE requirements may be subject to disciplinary action up to and including termination.

F. Emergency Response

1. Any incident of over-exposure or spill of a hazardous chemical/substance must be reported to the Project Supervisor immediately.
2. The Project Supervisor will be responsible for ensuring that proper emergency response is taken in leak/spill situations.

G. Hazards of Non-Routine Tasks

1. The Project Supervisor will inform employees of any special tasks that may arise which could involve possible exposure to hazardous chemicals.
2. Review of safe work procedures and use of required PPE will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

H. Informing Other Employers

1. Other on-site employers are required to adhere to the provisions of the Hazard Communication Standard.
2. Information on hazardous chemicals known to be present may be exchanged with other employers.
3. Other on-site employers may be provided with a copy of Artisan Contracting's Hazard Communication Program.

I. Posting

A copy of the Company's Hazard Communication Program will be given to an employee upon hiring. Artisan Contracting, Inc. may also post information on the Hazard Communication Standard for employees at the job site. If not posted, this information can be obtained from the Project Supervisor. Information on how to contact 3E Company will be posted throughout each job site.

J. Additional Information

All employees, or their designated representatives, can obtain further information on this written program, the hazard communication standard, applicable MSDS's, and chemical information lists from the Project Manager or Safety Dept. Employees may also contact the main office at 573-339-1103.



PROBLEM SOLVING PROCEDURE

To have an effective safety program, communication must take place on all rungs of the corporate ladder. When a safety problem arises, everyone in the company must know where and to whom to turn. Employees must know that each safety problem will be corrected. The following is a sample corporate procedure for solving safety problems.

ARTISAN CONTRACTING, INC.

SAFETY PROBLEM SOLVING

It is the intent of Artisan Contracting, Inc. to provide a safe work place for all employees. Supervisory personnel have been instructed to watch for and correct all unsafe conditions immediately. Construction sites are complex and items are easily overlooked. It is important that all employees be on the lookout for unsafe conditions. If you observe a condition that is unsafe, the following actions agree to be taken:

1. If possible, correct the condition immediately. Many safety hazards, such as a piece of missing guardrail, are easy to correct.
2. If you are not able to take corrective action, report the condition to your immediate supervisor for correction.
3. All company employees with any supervisory responsibility have been instructed to take corrective action or contact someone who can when a safety concern is raised. In the event corrective action is not begun in a reasonable length of time, the employee is requested to contact Janie Okenfuss, safety director, on her cell phone (573) 275-7652, or Brian Bauman, Corporate Safety Director, at (314) 808-2195.

We appreciate your cooperation in reporting all safety problems. If we all work together, we can all work safely.



ACCIDENT/INJURY INVESTIGATION AND REPORTING

SCOPE

This procedure identifies the responsibilities that management and employees must carry out when an accident/injury occurs on a jobsite. It also establishes the steps to follow in the event of a jobsite accident or injury.

A. DEFINITIONS

Accident: Is an unplanned event.

First Aid Only Case: Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters and so forth that do not ordinarily require medical care.

OSHA Recordable Case: All work-related deaths and illnesses, and those work-related injuries that result in: Loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

MSHA Reportable (Occupational Injury/Illness): An *occupational injury* is any injury to an employee which occurs at a mine. To be reportable, the injury must (1) require medical treatment, or (2) result in death or loss of consciousness, or (3) result in the inability of the injured person to perform all of the job duties required by the job on any day after the injury, or (4) require the injured person to be temporarily assigned to other duties or (5) require the injured person to be transferred to another job, or (6) require the injured person to be terminated. An *occupational illness* is an illness or disease of an employee. The illness is reportable if it may have resulted from work or exposure at a mine or was an illness for which an award of compensation was made.

Lost Time Accidents: Lost time accidents involve days away from work because of a job related injury or illness. The focus of these accidents is on the employee's inability, because of injury or job related illness, to be present in the work environment during his/her normal work shift.

B. MANAGEMENT AND EMPLOYEE RESPONSIBILITIES

Each member and level of management has responsibilities that must be fulfilled when there is an accident or injury on our jobsites. The prevention of these injuries is the primary goal, but once there is an incident or injury, measures must be taken to determine the cause to prevent re-occurrence.

Upper Management:

1. Must support all investigation efforts and provide the necessary time and/or capital so that the true causes can be determined.
2. Support the findings of the investigations and assist in the implementation of measures/procedures to prevent re-occurrence.

Area Managers/Project Managers/Superintendents:

1. Provide for immediate medical attention to the injured employee.
2. Secure the area of the accident/injury to prevent disturbance of the scene.
3. Immediately notify the Safety Director or Superior verbally.
4. Conduct and/or assist the Safety Director in the accident investigation process.
5. Ensure that a preliminary Accident/Incident Form is completed prior to the end of the work shift and a final Accident/Incident Investigation Report is completed within 24 hours of the accident/incident occurrence. Both forms must be faxed to the Main Office and Safety Dept. If a General Foreman/Forman is not available to complete these reports, it is the Area Manager/Project Manager/Superintendent's responsibility to complete and fax the Accident/Incident Form within the above-specified timeframes.

General Foreman/Foreman:

1. Continuously monitor employees throughout the workday and correct any identified deficiencies before employees are injured.
2. Once informed of an injury, regardless of severity, accompany the employee to the Superintendent/Project Manager to determine if medical attention is needed and to thoroughly document the incident.
3. Immediately notify the Safety Director or Superior verbally.
4. Assist the Superintendent in securing the area and interviewing witnesses.
5. A preliminary Accident/Incident Form should be faxed to the Main Office and Safety Dept. prior to the end of the work shift. Complete a final Accident/Incident Investigation Report within 24 hours of the accident/incident occurrence, and fax it to the Main Office and Safety Dept.
6. Assist the Safety Director or other investigating body to help determine the cause of the accident/incident and actively participate in the implementation of new policies/procedures.

Tradesmen:

1. Report any accidents/injuries verbally to Superior as soon as they occur. If you believe that you may be injured in any form, you must notify your Foreman prior to leaving the site that day.
2. Actively participate in the accident investigation process. As a tradesperson who works with tools on a daily basis, you can help provide workable solutions to prevent further incidents.

C. ACCIDENT REPORTING POLICIES AND PROCEDURES

Every accident shall be reported verbally to the injured party's General Foreman/Foreman and thus reported to the Safety Department immediately, as outlined in Section B of this document. The Safety Department will then be responsible for reporting the accident to the Work Comp Officer. Accident reporting is required for the following:

1. Accidents involving collapse, cave-in, or other failures of structures or equipment.
2. Accidents which have or are likely to receive news media coverage, so that families may be notified by the company before press release.
3. Accidents likely to result in permanent disability or death.
4. Accidents involving all employees.
5. Accidents involving equipment or vehicles.
6. Accidents requiring hospitalization.
7. Accidents requiring first aid only treatment.
8. Near miss type accidents.
9. Any accident involving the equipment and/or employees of subcontractors or material suppliers for the project.

D. HOW TO INVESTIGATE AN ACCIDENT OR NEAR MISS

The following investigation procedure shall be employed as applicable:

1. Immediately, the Superintendent or highest ranking representative of the company at the scene of the accident shall take a statement from all possible witnesses noting the names of each witness, employers, their title or capacity, and a brief summary of their statements and comments concerning the accident. The accident scene shall be secured, cordoned off and not allowed to be altered. Only company management personnel, owner representatives, emergency medical, and law enforcement personnel shall be allowed access to the scene until the investigations are complete. Immediately notify the Safety Director verbally.
2. Photograph the accident scene, the surrounding areas and conditions in the immediate vicinity. Write a brief statement describing what each photograph represents, the person taking the photograph, and the date and time it was taken.
3. A preliminary Accident/Incident Form should be completed prior to the end of the work shift and faxed to the Main Office and Safety Dept. A detailed inspection concerning the probable cause of the accident should be made into a written report.

- This written report should be completed within 24 hours of the accident/incident and faxed to the Main Office and Safety Dept.
4. If a subcontractor or supplier is involved in the accident, a determination should be made concerning the extent of the subcontractor's liability, any possible third party liability for the accident, and a review of possible insurance coverage summarized.
 5. The time of the accident, the status of the weather, and any other physical conditions existing at the scene of the accident must be observed and reported.
 6. Do not assume an accident is unimportant and we have no liability; complete the report anyway.

E. NEAR-MISS CASES

In all cases where an accident **nearly happens**, or a situation arises which **could have caused** a work-related illness or injury, the Safety Director should be verbally notified immediately. A preliminary Accident/Incident form shall be completed by the end of the work shift and faxed to the Main Office and Safety Dept. A final Accident/Incident Investigation Report shall be completed within 24 hours of the incident and faxed to the Main Office and Safety Dept.

F. FIRST AID INJURY CASES

1. When an employee receives any minor injury, they must report immediately to their supervisor for first-aid treatment.
2. The Superintendent/General Foreman/Foreman will immediately notify the Safety Director verbally.
3. The Superintendent/General Foreman/Foreman of the injured employee is responsible for thoroughly investigating the cause of the accident and faxing a preliminary Accident/Incident form to the Main Office and Safety Dept. prior to the end of the work shift. Once all questions on the form are filled out accurately, including signatures and witnesses, the completed Accident/Incident Form should be faxed to the Main Office and Safety Dept. within 24 hours of the occurrence. The purpose for reporting first aid injuries is to prevent future claims based upon minor injuries, which later developed complications. Without a report we have no record to prove or disprove that an accident/incident occurred on our jobsite, and who or what may have been involved. It will also help us in our effort to prevent future accidents of the same nature.
4. When completing the form, the accident description should permit readers to clearly visualize the accident scene.

G. MEDICAL TREATMENT CASES

1. Steps 1 – 4 under First Aid Only Cases also apply to Medical Treatment Cases (cases requiring treatment by a physician or medical clinic).
2. Call the clinic/doctor and briefly explain what happened and give the extent of the injury. Await the doctor's instructions on whether or not to transport the injured employee to the clinic or the nearest emergency room.

3. Accident's requiring a doctor's exam and/or medical treatment require immediate post-accident substance abuse screening.

H. VEHICLE AND PROPERTY LOSS ACCIDENTS

1. Immediately notify a Superior/Safety Director verbally. An Accident/Incident Form must be completed and faxed to the Main Office and Safety Dept. by the end of the work shift.
2. Accidents involving vehicles/equipment require immediate post-accident substance abuse screening.
3. Photographs must also be taken of the scene.

I. DISCIPLINARY ACTIONS RELATED TO ACCIDENT REPORTING

The immediate reporting of accidents/injuries is an expectation within the Company. Failure to report an accident/injury at any level within the timeframes specified above will result in disciplinary action. The Disciplinary Process that Artisan Contracting, Inc. will follow is based on a five-year term, beginning with the employee's first offense. At the end of the employee's fifth year, any accrued offenses will be eliminated. The offenses follow:

- **First time offense:** Employee will receive a written warning that will be recorded in the employee's file.
- **Second time offense:** Employee will be summoned to a meeting with Company Officials to discuss the offense. The results of the meeting, along with a second written warning, will be documented in the employee's file.
- **Third time offense:** Employee will be suspended for a period of no less than one day without pay, to be documented in the employee's file. Depending upon the severity of the offense, the employee may be subject to termination.



RETURN TO WORK PROGRAM

Artisan Contracting, Inc. has established a Return To Work (RTW) program which will be applied to injured employees and, whenever feasible and appropriate, for non-work related ill or injured employees.

The goals of the Return To Work program are to:

- Foster and enhance the physical and psychological recovery process for the injured worker.
- Reduce medical, disability, and lost time costs.
- Reduce indirect accident costs.
- Minimize the chance of re-injury.
- Encourage cooperation between the employee and management.
- Establish a more stable workforce.
- Enhance the injured employee's sense of confidence and well-being.
- Return the injured employee to full duty status as quickly and efficiently as possible.

To help achieve these goals, Artisan Contracting, Inc. has instituted a transitional work program. Transitional work is defined as the period of time when the employee returns to the workplace with restrictions, modifications, or in an alternative capacity until they progress back into their full job duties. Transitional work is temporary and is the graduated return to work process based on the employee's progress during the recovery process. Normally, transitional work can last up to 45 days.

The Safety Director will be in direct contact with the injured employee throughout the process.

RETURN TO WORK PROCEDURES

The purpose of transitional work is to safely re-integrate an injured employee into the work environment as soon as possible. Artisan Contracting, Inc. will make an effort to bring an injured employee back to work whenever practical. The work assignments will contribute to daily business operations in a beneficial manner.

- Upon receiving appropriate documentation from a physician, the employee may return to work on a transitional work basis.

- To ensure that both the employee and their immediate supervisor understand the employee's work restrictions and transitional work assignments, the Safety Director will send a Return To Work letter to the employee who is returning to work and then review its contents with the employee and his/her immediate supervisor.
- Transitional work assignments may require an employee to change shifts or even job site locations to accommodate any restrictions. Therefore, employees working transitional duty must be available to work any shift as reasonably necessary.

EMPLOYEE RIGHTS AND RESPONSIBILITIES

While on transitional duty, the employee will earn the same base wage rate as that of their pre-injury position, and they will continue to accrue sick, vacation, and holiday time as provided under the applicable policies (or labor agreement). The employee must notify their supervisor and/or Human Resources Generalist of all scheduled and unscheduled absences.

Employees on transitional duty are also subject to all applicable employment policies and procedures while on transitional duty. They are expected to participate in all treatment that is reasonably essential to promote their recovery, including but not limited to, keeping all scheduled appointments with occupational health care providers. Non-compliance may result in an interruption of benefits and could jeopardize the employee's ability to remain at work under this program.

Any and all changes in employees' restrictions and transitional work status must be reported to their supervisor and/or Safety Director immediately with the appropriate documentation. Artisan Contracting, Inc. reserves the ability to exercise its rights in accordance with applicable laws regarding an employee's diagnosis, treatment plan, and status.



DISCIPLINARY POLICY

It is the policy of Artisan Contracting, Inc. to document all violations of Company policy with respect to performance, safety, attendance, tardiness, attitude, workmanship or any other problems relating to an employee's work with Artisan Contracting, Inc. The seriousness of any infraction will be assessed to determine the appropriate disciplinary response, but repeated infractions of the same or different policies will have a cumulative effect. This will be based on the entirety of the employee's tenure.

The Company reserves the right to take any disciplinary action it deems appropriate upon consideration of its seriousness or the intent of the employee. A single infraction or incident may be just cause for termination if management determines discharge is warranted under the circumstances. For less serious offenses, the Company will generally follow a progressive disciplinary procedure: documented oral reprimand; written reprimand with possible suspension; termination.



GENERAL DRUG AND ALCOHOL POLICY

Artisan Contracting is committed to providing a work environment conducive to efficient operations and safety for all Artisan Contracting employees. To promote this goal, employees are required to report to work in appropriate mental and physical condition to perform their jobs in a satisfactory manner. While the Company has no intention of intruding into the personal lives of its employees, it recognizes that involvement with drugs or alcohol takes a toll on job performance. Artisan Contracting strongly encourages persons with drug or alcohol problems to seek immediate treatment.

In response to the requirements of the Federal “Drug-Free Workplace Act” and in keeping with Artisan Contracting’s concern for the health and safety of our workforce, Artisan Contracting is establishing this General Drug and Alcohol Policy.

This Policy also applies to Employees subject to DOT drug and alcohol testing and to Employees subject to drug and alcohol testing in any State where Artisan Contracting does not have a separate State-specific Drug and Alcohol Policy and is in addition to the requirements contained in Artisan Contracting’s DOT Drug And Alcohol Policy .

This Policy certifies Artisan Contracting’s intent to maintain an alcohol and drug-free workplace. Our policy is as follows:

As a condition of employment, all employees are required to refrain from the use of illegal drugs and use of alcohol during working hours. Artisan Contracting employees are strictly prohibited from manufacturing, distributing, dispensing, possessing, using or being under the influence of a controlled substance or alcohol, or testing other than negative for drugs or alcohol in the workplace, which includes but is not limited to Company facilities, Company property, any Company worksite, Company vehicles/equipment or any place where Company business is being conducted.

In order to ensure compliance with the Federal “Drug-Free Workplace Act,” and to protect the lives of employees and property of the Company, Artisan Contracting has implemented this General Drug and Alcohol Policy.

Violations of this Policy will lead to disciplinary action, up to and including immediate termination of employment, and/or required participation in a substance abuse rehabilitation or treatment program. Such violations may also have legal consequences.

The Safety Manager will oversee implementation of this program on a Company-wide basis and serve as the Drug Program Manager (DPM).

Prescription Medications

This Policy does not prohibit employees from taking prescription drugs under the direction of a physician. The Company is not interested in the reason the employee is taking the prescription drug, but rather it is interested in assuring that it does not impair an employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger the employee or other individuals in the workplace. When the Company deems it appropriate, it may limit an employee's work or assignments in order to avoid problems caused by side effects of the prescription drugs.

Note: Where an employee is given prescription or non-prescription drugs by a physician, the employee is required to ask his physician whether such drugs may adversely affect the employee's ability to safely perform assigned duties, thereby endangering others, himself/herself, or Company property. In such a case the employee is required to advise his or her supervisor that they are taking medication that could impact the employee's ability to perform assigned duties safely.

Employees taking a drug at the direction of a licensed physician **must retain the drug in its original container** that identifies the drug, dosage, date of prescription and authorizing physician (if a prescription drug), and show the drug to his or her supervisor, when required by law or the employee's performance is called into question.

The Company shall, in turn, keep this information confidential and will only disclose the recommended work restriction warranted by the side effects to Artisan Contracting management on a need-to-know basis. Artisan Contracting shall observe these recommended work restrictions by assigning the employee to appropriate duties during the time of his or her medication, or provide an unpaid medical leave of absence to the employee if no assignment is available. (See Section 3-460 – Non-FMLA Medical Leave).

Testing Procedures

1. APPLICANTS

- a. Applicants will be screened for drugs if the Company offers them a job and will be tested before beginning work. The job shall be conditioned upon a negative test result. Applicants subject to DOT drug testing will be tested pursuant to DOT regulations.
- b. Applicants will be required to sign an "Applicant Consent/Release" authorizing the drug-screening tests and to release the results to the Company.
- c. The Company will withdraw its offer of employment from any applicant who refuses to sign the Applicant Consent/Release, refuses to take the test, adulterates or dilutes the specimen, substitutes the specimen with that from another person or provides a substitute for another employee, or receives other than a negative test result.

- d. Results of the tests will be released to the applicant/employee, the Company, any federal, state, or local governmental authority which inquires about the applicant/employee, including Workers' Compensation, Unemployment, etc., or any other entity under compulsion of law or subpoena.
- e. An individual who is reported as initially having a test result other than negative will not be permitted to work after the test report and will not receive any compensation. Individuals hired under emergency circumstances that required the individual to work before the test results were available will receive pay for hours worked prior to the test result. If, however, that initial positive test is subsequently reported as a negative test result the individual will be returned or permitted to begin work, provided the original position offered is still available. Under such circumstances the individual will receive "show-up time" pay for reporting for the test, in accordance with any applicable collective bargaining agreement, but will not be entitled to any other compensation for time missed due to the initial non-negative test result.

2. TESTS

- a. *Drug Testing:* Conducted by analyzing an employee's urine sample or saliva sample, if necessary. The initial screening test may be performed in-house by trained personnel or by approved clinics or medical providers. If test results are positive or "non-negative," a portion of the sample will be sent off to an approved laboratory for a confirmed result. All urine samples collected under this program shall be analyzed by a NIDA/ SAMSHA certified laboratory and shall include an initial Enzyme Multiplied Immunoassay Screening test and a Gas Chromatography/ Mass Spectrometry (GC/MS) confirmation test with all positive test results interpreted by a licensed Medical Review Officer (MRO). The substances that will be tested for are: amphetamines, cannabinoids, cocaine, opiates, phencyclidine (PCP), methamphetamines, methadone, propoxyphene, barbiturates, and benzodiazepines. If the test result is other than negative, the employee is removed from work and must comply with the Company's Reinstatement Procedures of this program in order to be reinstated, or is terminated.

If the employee is unable to supply a urine sample within 60 minutes, the collector may use a saliva test. If a positive or non-negative saliva test is received, the employee must then provide a urine sample.

- b. *Alcohol Testing:* Conducted by analyzing an employee's breath. The screening test may be performed in-house by trained personnel or by approved clinics or medical providers. If the results are below 0.02, the test is negative.

If the test is performed in-house and the results are equal to or greater than 0.02, a confirmation test is required. The confirmation test is performed by a trained alcohol technician and approved testing equipment. If the confirmation test or initial test performed by a trained alcohol technician is below 0.02, the test is negative. If the confirmation test or initial test performed by a trained alcohol technician is at or between 0.02-0.039, the employee is removed from work until

the start of their next regularly scheduled shift (but not less than 24 hours following the administration of the test). If the confirmation test or initial test performed by a trained alcohol technician is 0.04 or greater, the employee is removed from work and must comply with the Company's Reinstatement Procedures of this program in order to be reinstated, or is terminated.

3. TYPES

- a. *Pre-Employment:* All employees will be drug tested after an offer of employment has been made and prior to beginning work. If emergency circumstances make pre-employment testing impractical, affected employees must be tested no later than 7 calendar days from the initial employment date.
- b. *Random:* Random drug testing will be conducted on a monthly basis at a rate of 5% of the total Company workforce. All employees are eligible. Selections will be made by an independent facility. An employee selected for random testing, as well as his or her supervisor, will be notified on the same day that the test is scheduled and within 2 hours of the scheduled testing. Random testing will also include alcohol testing of 1% of the total workforce.
- c. *Suspicion:* All employees will be subject to testing for all substances and/or alcohol in which an employee is acting in an abnormal manner which leads an owner or employer representative to believe that the employee may have used a controlled substance and/or alcohol. Suspicion can be based on specific personal observations that the owner or employer representative can document concerning the appearance, behavior, speech, or breath odor of the employee or based on information received from a person deemed reliable. Suspicion testing can also be administered if there is evidence that the employee has tampered with a previous test result.
- d. *Post-Accident/Incident:* All employees will be subject to testing for all substances and/or alcohol following an on-the-job injury requiring medical attention or following a potentially serious incident. This may include near misses in which safety precautions were violated, a potentially serious accident occurred where vehicles/equipment/property was damaged, or unusually careless acts were performed. Employees involved or that may have contributed in the incident are subject to this testing as well. If it is impossible or impractical, because of the physical condition of the individual(s) involved in the accident to give a urine, breath or blood sample, and if in subsequent medical treatment that person(s) blood or other bodily fluid will be drawn, then the blood or other bodily fluids may be analyzed for prohibited substances.
- e. *Return-to-Duty:* Return-to-duty testing is a one-time announced test that usually is used whenever an employee who has tested positive has completed the required treatment and is ready to return to the workplace. This type of testing will also be utilized for any employee absent for an extended period of time or not employed by the Company during the last 120 days. Return-to-duty testing will include all substances and/or alcohol.

- f. Follow-Up: Follow-up testing also is referred to as post-rehabilitation testing. This testing of all substances and/or alcohol follows an employee's return to the workplace after completing rehabilitation. It will be administered unannounced over a 12-month period at a rate of at least once a month from the date of his or her return to work.

Reinstatement Procedures

Any employee receiving a confirmed non-negative test result will be suspended without pay for a period of 30 days and may return to work under a final warning status after the following conditions have been satisfied:

- a. The employee submits a signed statement acknowledging the terms and conditions that apply for reinstatement and accepting that all costs associated with reinstatement are borne by the employee.
- b. Referred by the DPM to a substance abuse professional for assessment and recommendations.
- c. Documentation is supplied that the employee has completed a rehabilitation and counseling program and has tested negative during that period.
- d. Evidence is submitted of the employee's passing a Return to Duty test immediately prior to his or her return.
- e. The employee accepts the terms and conditions of Follow-Up testing (as described under the "Testing Procedures" portion of this Policy), and agrees that all costs associated with Follow-Up testing are borne by the employee.

Any employee who does not comply with a. - e. above or who violates this Policy a second time will be terminated immediately.

The option to participate in these Reinstatement Procedures will not be available, or may be withdrawn, if the individual was tested following an accident/incident involving either: 1) bodily injury that required lost-time from work or to non-employees or property damage where circumstances demonstrate that either recklessness or negligence was involved; 2) misconduct, which misconduct, in itself, would justify discipline; or 3) the case of any serious, egregious or pervasive conduct surrounding the incident giving rise to the testing.

Self-Identification

1. Any employee who voluntarily self-identifies as needing treatment and/or rehabilitation for alcohol or controlled substance abuse prior to investigation or detection of the

individual will be permitted to seek rehabilitation and/or treatment without such action serving as the basis for disciplinary action.

2. Such self-identification cannot be used as a means of avoiding a drug or alcohol test required under this Policy or as a means of avoiding disciplinary action based on the individual's actions prior to the self-identification.
3. The employee will not be permitted to perform work until the individual provides proof to the Company's satisfaction that the individual has been evaluated and has successfully completed education and/or treatment requirements.
4. The employee will be required to comply with the Reinstatement Procedures as a condition of the employee's return to work after the employee has successfully completed treatment. If, at any time throughout the following year, the employee tests positive or fails to comply with the Reinstatement Procedures, the employee shall be terminated.

Confidentiality of Records

All drug/alcohol-testing information, specifically relating to individuals, is confidential and will be treated as such by anyone authorized to review or compile program records.

All records and information of the personnel actions taken on employees with verified positive test results will be forwarded to the DPM and the Human Resource Generalist. Such shall remain confidential, appropriately safeguarded, allowing access only to authorized individuals who have a "need-to-know."

Compliance Requirements

An employee who refuses to submit to testing, adulterates or dilutes the specimen, substitutes the specimen with that from another person or provides a substitute for another employee, or refuses to cooperate in the testing process in such a way that prevents completion of the test, will be in violation of this policy and will face disciplinary action up to and including termination of employment. An employee that is arrested or criminally convicted of drug charges, while an employee of the Company, will be required to immediately leave the workplace and be subject to disciplinary action up to and including termination of employment. Under the Drug-Free Workplace Act, an employee who performs work for a government contract or grant must notify Artisan Contracting of a criminal conviction for drug-related activity occurring in the workplace.

Compliance with this General Drug and Alcohol Policy is a condition of employment. Each employee has an obligation to ensure that his or her fellow employees comply with the policy and must report any violations to his or her supervisor. Any employee who violates this policy and is not subject to the Reinstatement Procedures will be terminated immediately.

Employees violating this policy may also be subject to a reduction in Workers' Compensation benefits or a denial of such benefits when the violations leads to an otherwise compensable injury. All violations of this policy will subject an employee to termination, and may be deemed

misconduct for the purpose of Employment Security Benefits, subjecting the employee to a denial of Unemployment benefits.

Employees with questions on this policy or issues related to drug or alcohol use in the workplace should raise their concerns with their supervisor, the Safety Manager, or the Human Resource Generalist without fear of reprisal.



CELLULAR PHONE POLICY

Artisan Contracting, Inc. prohibits the use of cellular phones during working hours on all jobsites.

Supervisory personnel will be permitted to use cellular phones within reasonable, safe limits to accommodate the daily needs of the project site. If the supervisor has to leave the jobsite he/she may designate a worker to use their personal phone to fulfill any jobsite needs or emergencies.

Using a cellular phone while operating equipment or while laboring on a jobsite is not safe! Therefore, it will be considered a safety violation if anyone is observed using his or her cellular phone during working hours. If such a violation occurs, disciplinary action will be taken. Refer to the disciplinary policy in the Company/Employee handbooks.

Supervisory personnel are responsible for monitoring and enforcing this policy with all employees on the jobsite.

Calls may be made before and after scheduled work hours and on scheduled breaks. If a family member or someone else needs to contact you during scheduled working hours, please have them leave a message on your cellular phone, and you may return the call on break or after hours.

In case of emergency, please contact the main office toll-free at (573) 339-1103. The main office will contact the appropriate jobsite to get the message to you.

Thank you for your cooperation in keeping our jobs safe!



CONFINED SPACE ENTRY PROGRAM

1. Confined Space Entry Program

Policy and Procedures

- A. All confined spaces will be considered a hazardous environment until valid tests prove otherwise. Confined spaces can only be entered by authorized personnel.
- B. All confined spaces will be placarded with a sign "Confined Space—No Entry Without A Written Permit". In those cases where it is not possible to placard the space, it shall be identified by an equally effective means, i.e., work practice, safety rule, or documented job training.
- C. Any authorized entrant will be trained in the duties of the job and the hazards associated with the confined space. Training shall include the use of hazards associated with the confined space. Training shall include the use of proper personal protective equipment and its limitations, such as; respirators, gloves, decontamination procedures, heat stress symptoms, lifelines, harnesses, and rescue equipment.
- D. Equipment used by the entrant will be inspected by the user and the authorized person in charge of the entry prior to use. Repair or replacement will be made as needed to assure safe usage.
- E. All entries into confined spaces require a written permit to be issued by the ranking project supervisory person.
- F. Permits shall be of three types; pre-entry checklist, entry checklist, and hot work permit. Confined space permits shall be good for one shift only and must be revalidated if employees leave the space and wish to return, i.e., lunch or heat stress breaks, equipment failure, etc. Revalidate air sampling rechecks on back of permit.
- G. All entries into confined spaces shall be continuously monitored with an explosive gas measuring instrument. Toxics shall be continuously monitored to assure employees are not exposed above the PEL (Permissible Exposure Limit). If levels above the PEL are encountered, and cannot be controlled to assure compliance with the PEL, then appropriate respirators shall be used. If entry and work in the confined space is IDLH (Immediately Dangerous to Life or Health) or an unknown atmosphere exists, then entrant(s) shall be equipped with SCBA (Self Contained Breathing Apparatus) or equivalent, secured by a harness and lifeline to an outside stationary position and monitored by an attendant.
- H. Any oxygen deficient atmosphere or atmosphere 20 times the PEL for airborne contaminants is considered IDLH.

2. Definitions

- A. Attendant; A trained employee outside the permit entry confined space. The attendant acts as an observer of the authorized entrants within the permit entry confined space and remains in continuous, though not necessarily constant, communication with them. The attendant can immediately call rescue services if needed. The attendant does not enter the space unless replaced by another attendant. If necessary for attendant to enter confined space for rescue purposes, another attendant must be present.
- B. Authorized Entrant; A trained employee who is authorized by the entry supervisor to enter a permit entry confined space.
- C. Blanking or Blinding; The absolute closure of a pipe, line or duct, by fastening across it a solid plate or cap capable of withstanding the maximum upstream pressure.
- D. Confined Space; A tank, vessel, barge, silo, vault, manhole, pit, open-topped space, trench, pipeline, duct, sewer, tunnel, shaft, having limited means of egress, not designed for continuous human occupancy, and contains or may contain a hazardous atmosphere.
- E. Double Block and Bleed; Isolate a confined space from a line, duct or pipe by locking or tagging two closed in-line valves, and locking or tagging open to the outside atmosphere a drain or bleeding in the line between the two closed valves.
- F. Engulfment; Surrounding and effective capture of a person by finely divided particulate matter or a liquid.
- G. Entry Permit; Written authorization assuring safe employee entry into and work within a permit entry confined space for a specific date, time and number of employees.
- H. Entry; any action resulting in any part of an employee breaking the plane of any opening of the permit entry confined space, and include any ensuing work activities inside the confined space. This does not include space evaluation where an employee's hand or arm would break the plane of the opening during testing.
- I. Hazardous Environment or Atmosphere; An atmosphere presenting a potential for death, disablement, injury or acute illness from one or more of the following causes:
 - 1. Less than 19.5 percent or more than 23.5 percent oxygen;
 - 2. Flammable gas, or vapor, in excess of ten percent of its lower flammable limit(LFL) or lower explosive limit (LEL);
 - 3. An airborne combustible dust at a concentration that obscures vision at a distance of five feet or less;
 - 4. An atmospheric concentration that exceeds the listed numerical value of any toxic, corrosive, or asphyxiant substance listed in the TLV booklet (AGGIH) or the PEL (OSHA) that can reasonably be expected to be present;
 - 5. A biological, radiological hazard or that is otherwise known to the employer to present a safety or acute health hazard;
 - 6. Any condition immediately dangerous to life or health.
- J. Hot Work Permit; A written authorization to perform operations such as riveting, welding, cutting, burning, or heating that could provide a source of ignition causing the possibility of fire or explosion due to the presence of flammables.
- K. Immediately Dangerous to Life or Health; Any condition that poses an immediate threat to life, or which is likely to result in acute or immediate health effects.
- L. Inerting; Rendering the atmosphere of a confined space nonflammable, nonexplosive or otherwise chemically nonreactive by displacing or diluting the original atmosphere with steam or a nonreactive gas such as carbon dioxide (CO₂) or nitrogen dioxide (N₂) or argon. Oxygen level for an inerted space will be kept below eight percent oxygen.

- M. Isolation; Positively preventing any unwanted form of energy, or other agent with a serious potential for hazard, from entering the confined space by using such means as blanking, double block and bleed, or lockout/tagout.
- N. Line Breaking; The intentional opening in a permit entry confined space of a pipe, line or duct that is or has been carrying flammable, corrosive, or toxic material, inert gas, or carrying any fluid at a pressure or temperature capable of causing injury.
- O. Lockout/Tagout; Secure all energy at its lowest potential level, so there is no possibility of rotating parts, electrocution or flowing fluids with a one key padlock and location tag.
- P. Rescue Team; A group of two or more employees designated and trained to perform rescues from confined spaces in their workplace.
- Q. Non-permitted Condition; Any condition or set of conditions, the hazard potential for which exceeds the limits authorized by the entry permit
- R. Oxygen Deficient Atmosphere; An atmosphere containing less than 19.5 percent oxygen by volume.
- S. Oxygen Enriched Atmosphere; An atmosphere containing more than 23.5 percent oxygen by volume.
- T. Qualified Person; A person designated by Artisan Contracting, Inc. in writing, as capable (by education and/ or specialized training) of substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and / or protective action to ensure worker safety.

3. Hazards Related To Confined Space

A. Types of Hazards

1. Oxygen deficiency
2. Combustible/ flammable / explosive atmosphere
3. Toxic gases or vapors
4. Engulfment or entrapment
5. Physical hazards
 - a. grinding
 - b. agitators
 - c. steam
 - d. mulching
 - e. vibration
 - f. noise
 - g. heat stress
 - h. falling/ tripping
 - i. other moving parts
6. Corrosive chemical
7. Biologicals
8. Unknowns
 - a. electrical
 - b. rodents/ snakes/ spiders
 - c. lighting (poor visibility)
 - d. footing

B. 1. Previously stored products/ chemicals

2. Unexplained leaks/ spills (ex. C12 acetylene, ammonia, H2O)

3. Chemical reactions
 - a. manufacturing process
 - b. products stored
 - c. drying of paints
 - d. oxidation/ reduction
 - e. cleaning with acids/ solvents/ etc.
 - f. rusting/ decomposing/ fermentation
4. Operations accomplished within the confined space
 - a. welding
 - b. painting
 - c. mucking
 - d. scraping/ abrasive blasting
5. Inerting with nonflammable products (ex. CO₂, N₂, H₂O)

4. Entry Procedures (Eleven Basic Rules)

- A. Identify all confined space (CS) or potential CS with a sign, placard or equally effective means.
- B. No entry without a written permit from the designated Qualified Person.
 1. Permit is issued for a specific period, for a specific purpose and must be signed by the designated "Qualified Person" trained to issue such permits.
- C. Every entry will be continuously monitored for oxygen, LEL, and toxics.
- D. Ventilate at all times with approved air movers, if possible.
- E. Training required for all entrants including a pre-entry briefing.
- F. Personal protective equipment required by permit must be the proper type and must be inspected prior to use by permit issuer and user.
- G. Tests to be done prior to entry and recorded: oxygen between 19.5% and 23.5%; Lower Explosive Limit (LEL) or Lower Flammable Limit (LFL); Toxics, i.e., Carbon Monoxide (CO), Hydrogen Sulfide (H₂S), Carbon Dioxide (CO₂), solvents, etc.
- H. Rescue program and equipment checked out prior to entry.
- I. All potential energy zeroed out or eliminated, locked and tagged (electrical, mechanical, hydraulic, and pneumatic).
- J. Recordkeeping required for entry:
 1. Instrument readings
 2. Rescue training documented when, who, how, etc.
 3. Calibration of test equipment-dates, initials, etc.
 4. Records concerning inspections on ropes, harnesses, chains, SCBA's, tools, equipment, respirators, etc.
 5. Training of personnel
- K. All entrants will immediately evacuate the confined space when any entrant is alerted to 'nonpermitted conditions'.



EXCAVATION & TRENCHING

SCOPE

This program pertains to all company projects that require any excavations or trenches.

REFERENCES

29 CFR 1926.650, Subpart P - Excavations
Excavation Equipment Manufacturer Safety Procedures

RESPONSIBILITIES

It is the responsibility of each superintendent and supervisor to implement and maintain the procedures and steps set forth in this program. Each employee involved with excavation and trenching work is responsible to comply with all applicable safety procedures and requirements of this program.

DEFINITIONS

BENCHING - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels.

CAVE-IN - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by failing or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

COMPETENT PERSON - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

DURATION OF EXPOSURE - The longer an excavation is open, the longer the other factors have to work on causing it to collapse.

EXCAVATION - Any man-made cut, trench, or depression in an earth surface, formed by earth removal.

HAZARDOUS ATMOSPHERE - An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

PROTECTIVE SYSTEM - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.

SHIELD - A structure that is capable of withstanding the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. All shields must be in accordance with 29 CFR 1926.652(c)3 or (c)4.

SLOPING - A method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences such as soil type, length of exposure, and application of surcharge loads.

SURCHARGE LOADS - Generated by the weight of anything in proximity to the excavation, push starts for a cave-in (anything up top pushing down). Common surcharge loads:

- weight of spoil pile
- weight of nearby buildings, poles, pavement, or other structural objects.
- weight of material and equipment

TRENCH - A narrow excavation below the surface of the ground, less than 15 feet wide, with a depth no greater than the width.

UNDERMINING - Undermining can be caused by such things as leaking, leaching, caving or over-digging. Undermined walls can be very dangerous.

VIBRATION - A force that is present on construction sites and must be considered. The vibrations caused by backhoes, dump trucks, compactors and traffic on job sites can be substantial.

HAZARDS

One of the reasons the company requires a competent person on-site during excavation & trenching are the numerous potential hazardous that may be encountered or created. Hazards include:

- Electrocution
- Gas Explosion
- Entrapment
- Struck by equipment
- Suffocation

Hazard Controls

Before any work is performed and before any employees enter the excavation, a number of items must be checked and insured:

- Before any excavation, underground installations must be determined. This can be accomplished by either contacting the local utility companies or the local "one-call" center for the area. All underground utility locations must be documented on the proper forms. All overhead hazards (surface encumbrances) that create a hazard to employees must be removed or supported to eliminate the hazard.
- If the excavation is to be over 20 feet deep, it must be designed by a registered professional engineer who is registered in the state where work will be performed.
- Adequate protective systems will be utilized to protect employees. This can be accomplished through sloping, shoring, shielding, or benching.
- The worksite must be analyzed in order to design adequate protection systems and prevent cave-ins.
- Workers must be supplied with and wear any personal protective equipment deemed necessary to assure their protection.
- All spoil piles will be stored a minimum of two (2) feet from the sides of the excavation. The spoil pile must not block the safe means of egress.
- If a trench or excavation is 4 feet or deeper, stairways, ramps, or ladders will be used as a safe means of access and egress. For trenches, the employee must not have to travel any more than 25 feet of lateral travel to reach the stairway, ramp, or ladder.
- No employee will work in an excavation where water is accumulating unless adequate measures are used to protect the employees.
- A competent person will inspect all excavations and trenches daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift. The competent person must take prompt measures to eliminate any and all hazards.
- Excavations and trenches 4 feet or deeper that have the potential for toxic substances or hazardous atmospheres will be air tested at least daily. If the atmosphere is inadequate, protective systems will be utilized.
- If work is in or around traffic, employees must be supplied with and wear orange reflective vests. Signs and barricades must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.

COMPETENT PERSON RESPONSIBILITIES

The OSHA Standards require that the competent person must be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authorization to take prompt corrective measures to eliminate them and, if necessary, to stop the work.

A competent person is required to:

- Have a complete understanding of the applicable safety standards and any other data provided.
- Assure the proper locations of underground installations or utilities, and that the proper utility companies have been contacted.
- Conduct soil classification tests and reclassify soil after any condition changes.
- Determine adequate protective systems (sloping, benching, shoring, or shielding systems) for employee protection.
- Conduct all air monitoring for potential hazardous atmospheres.
- Conduct daily and periodic inspections of excavations and trenches.
- Approve design of structural ramps, if used.

EXCAVATION SAFETY PLAN

An excavation safety plan is required in written form. This plan is to be developed to the level necessary to insure complete compliance with the OSHA Excavation Safety Standard and state and local safety standards.

Excavation safety plan factors:

- Utilization of the local one-call system
- Determination of locations of all underground utilities
- Consideration of confined space atmosphere potential
- Proper soil protection systems and personal protective equipment and clothing
- Determination of soil composition and classification
- Determination of surface and subsurface water

- Depth of excavation and length of time it will remain open
- Proper adherence to all OSHA Standards, this excavation and trenching safety program, and any other coinciding safety programs.

SOIL CLASSIFICATION AND IDENTIFICATION

The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consist of four categories: Stable rock, Type A, Type B, and Type C. Stability is greatest in stable rock and decreases through Type A and B to Type C, which is the least stable. Appendix A of the Standard provides soil mechanics terms and types of field tests used to determine soil classifications.

Stable rock is defined as natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Type A soil is defined as:

- Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (TSF) or greater.
- Cemented soils like caliche and hardpan are considered Type A.

Soil is NOT Type A if:

- It is fissured.
- The soil is subject to vibration from heavy traffic, pile driving or similar effects.
- The soil has been previously disturbed.
- The material is subject to other factors that would require it to be classified as a less stable material.
- The exclusions for Type A most generally eliminate it from most construction situations.

Type B soil is defined as:

- Cohesive soil with an unconfined compressive strength greater than .5 TSF, but less than 1.5 TSF.
- Granular cohesionless soil including angular gravel, silt, silt loam, and sandy loam.
- The soil has been previously disturbed except that soil classified as Type C soil.
- Soil that meets the unconfined compressive strength requirements of Type A soil, but is fissured or subject to vibration.
- Dry rock that is unstable.

Type C soil is defined as:

- Cohesive soil with an unconfined compressive strength of .5 TSF or less.
- Granular soils including gravel, sand and loamy sand.

- Submerged soil or soil from which water is freely seeping.
- Submerged rock that is not stable.

Soil Test & Identification

The competent person will classify the soil type in accordance with the definitions in Appendix A on the basis of at least one visual and one manual analysis. These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on a number of criteria: the cohesiveness, the presence of fissures, the presence and amount of water, the unconfined compressive strength, the duration of exposure, undermining, and the presence of layering, prior excavation and vibration.

The cohesion tests are based on methods to determine the presence of clay. Clay, silt, and sand are size classifications, with clay being the smallest sized particles, silt intermediate and sand the largest. Clay minerals exhibit good cohesion and plasticity (can be molded). Sand exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amounts of all three types and water.

When examining the soil, three questions must be asked: Is the sample granular or cohesive? Fissured or non-fissured? What is the unconfined compressive strength measured in TSF?

Methods of testing soils:

- Visual test: If the excavated soil is in clumps, it is cohesive. If it breaks up easily, not staying in clumps, it is granular.
- Wet manual test: Wet your fingers and work the soil between them. Clay is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.
- Dry strength test: Try to crumble the sample in your hands with your fingers. If it crumbles into grains, it is granular. Clay will not crumble into grains, only into smaller chunks.
- Pocket penetrometer test: This instrument is most accurate when soil is nearly saturated. This instrument will give unconfined compressive strength in tons per square foot. The spring-operated device uses a piston that is pushed into a coil up to a calibration groove. An indicator sleeve marks and retains the reading until it is read. The reading is calibrated in tons per square foot (TSF) or kilograms per cubic centimeter.
- Thumb penetration test: The competent person attempts to penetrate a fresh sample with thumb pressure. If the sample can be dented, but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is Type C. Type B can be penetrated with effort and molded.
- Shearvane: Measures the approximate shear strength of saturated cohesive soils. The blades of the vane are pressed into a flat section of undisturbed soil, and the knob is turned slowly until soil failure. The dial is read directly when using the standard vane. The results will be in tons per square foot or kilograms per cubic centimeter.

The competent person will perform several tests of the excavation to obtain consistent, supporting data along its depth and length. The soil is subject to change several times within the scope of an excavation and the moisture content will vary with weather and job conditions. The

competent person must also determine the level of protection based on what conditions exist at the time of the test, and allow for changing conditions.

EXCAVATION PROTECTION SYSTEMS

The three basic protective systems for excavations and trenches are sloping and benching systems, shoring, and shields.

The protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied to or transmitted to the system. Every employee in an excavation shall be protected from cave-ins by an adequate protective system.

Exceptions to using protective system:

- Excavations are made entirely in stable rock
- Excavations are less than 5 feet deep and declared safe by a competent person

SLOPING AND BENCHING SYSTEMS

There are four options for sloping:

- Slope to the angle required by the Standard for Type C, which is the most unstable soil type.
- The table provided in Appendix B of the Standard may be used to determine the maximum allowable angle (after determining the soil type).
- Tabulated data prepared by a registered professional engineer can be utilized.
- A registered professional engineer can design a sloping plan for a specific job.

Sloping and benching systems for excavations five (5) to twenty (20) feet in depth must be constructed under the instruction of a designated competent person.

Sloping and benching systems for excavations greater than twenty (20) feet must be designed and stamped by a registered professional engineer.

Sloping and benching specifications can be found in Appendix B of the OSHA Standard (Subpart P).

SHORING SYSTEMS

Shoring is another protective system or support system. Shoring utilizes a framework of vertical members (uprights), horizontal members (whales), and cross braces to support the sides of the excavation to prevent a cave-in. Metal hydraulic, mechanical or timber shoring is common examples.

The different examples of shoring are found in the OSHA Standard under these appendices:

- APPENDIX C - Timber Shoring for Trenches

- APPENDIX D - Aluminum Hydraulic Shoring for Trenches
- APPENDIX E - Alternatives to Timber Shoring

SHIELD SYSTEMS (*Trench Boxes*)

Shielding is the third method of providing a safe workplace. Unlike sloping and shoring, shielding does not prevent a cave-in. Shields are designed to withstand the soil forces caused by a cave-in and protect the employees inside the structure. Most shields consist of two flat, parallel metal walls that are held apart by metal cross braces.

Shielding design and construction is not covered in the OSHA Standards. Shields must be certified in design by a registered professional engineer and must have either a registration plate on the shield or registration papers from the manufacturer on file at the jobsite office. **ANY REPAIRS OR MODIFICATIONS MUST BE APPROVED BY THE MANUFACTURER.**

SAFETY PRECAUTIONS FOR SHIELD SYSTEMS

- Shields must not have any lateral movement when installed.
- Employees will be protected from cave-ins when entering and exiting the shield (examples - ladder within the shield or a properly sloped ramp at the end).
- Employees are not allowed in the shield during installation, removal, or during any vertical movement.
- Shields can be 2 ft. above the bottom of an excavation if they are designed to resist loads at the full depth and if there are no indications of caving under or behind the shield.
- The shield must extend at least 18 inches above the point where proper sloping begins (the height of the shield must be greater than the depth of the excavation).
- The open end of the shield must be protected from the exposed excavation wall. The wall must be sloped, shored, or shielded. Engineer designed end plates can be mounted on the ends of the shield to prevent cave-ins.

PERSONAL PROTECTIVE EQUIPMENT

It is company policy to wear a hard hat, safety glasses, and work boots on the jobsite. Because of the hazards involved with excavations, other personal protective equipment may be necessary, depending on the potential hazards present (examples -goggles, gloves, and respiratory equipment).

INSPECTIONS

Daily inspection of excavations, the adjacent areas and protective systems shall be made by the competent person for evidence of a situation that could result in a cave-in, indications of failure of protective systems, hazardous atmospheres or other hazardous conditions.

- All inspections shall be conducted by the competent person prior to the start of work and as needed throughout the shift.

- Inspections will be made after every rainstorm or any other increasing hazard.
- All documented inspections will be kept on file in the jobsite safety files and forwarded to the Safety Director weekly.
- A copy of the Daily Excavation Inspection form is located at the end of this program.

TRAINING

The competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply (examples Hazard Communication, Confined Space, and Respiratory Protection), and must demonstrate a thorough understanding and knowledge of the programs and the hazards associated.

All other employees working in and around the excavation must be trained in the recognition of hazards associated with trenching and excavating.



FALL PROTECTION PLAN

OSHA Fall Protection Standard 29 CFR 1926 Subpart M shall be strictly adhered to. No person or work operation is exempt from this standard. This includes structural steel connectors, and scaffold erectors. Fall protection is required 100 percent of the time, whether employees are climbing, traveling, or working:

- Body Harnesses, Lanyards, and Lifelines shall be used in accordance with OSHA Standard 1226.502 (d), with the following exceptions:
 1. Full body harnesses shall be used in lieu of safety belts.
 2. Only lanyards with shock absorbers and double-locking snap hooks shall be used.
 3. At least two lanyards shall be used to provide 100 percent fall protection when employees are moving around obstructions, connection points or other similar items.
 - Guardrail Systems and their use shall comply with OSHA Standard 1926.502 (b), with the following exception:
 1. Manila, plastic, or synthetic rope shall not be used as guardrails because of the requirements set forth in OSHA Standard 1926.502 (B)(4).
 - Training shall be provided to each employee who might be exposed to fall hazards.
 1. The training program shall be taught by a competent person and shall meet the requirements specified in 29 CFR 1926.503.
- (1) Fall protection is required 100 percent of the time when an employee is exposed to the dangers of a fall of 3 feet or greater. 100 percent fall protection is required whether climbing, traveling from point A to point B, connecting structural steel, or erecting scaffolds or other temporary platforms. No employee or work operation is exempt from the 100 percent fall protection requirement.
- (2) When not protected by any other means of fall protection, such as safety nets or scaffold with proper guardrails, employees shall use full body harnesses, lanyards with a deceleration device, double-locking snap hooks, and an adequate anchorage capable of supporting 5,000 pounds. To achieve 100 percent fall protection, employees may need to

use a double lanyard system and/or vertical or horizontal lifelines, retractable lifelines, or other such approved devices.

- (3) Employees shall rig fall arrest equipment so that they can neither free fall more than 6 feet, nor contact any lower object. Anchorage points for fall arrest equipment shall be capable of supporting a shock load and located above the employee's body harness attachment point where practicable. Anchorage points shall be independent of any anchorage being used to support or suspend scaffolds or other platforms.
- (4) When vertical lifelines are used, each employee shall be protected by a separate lifeline. The lifeline shall be properly weighted at the bottom and terminated to preclude a device such as a rope grab from falling off the line.
- (5) Horizontal lifelines should be limited to two persons at one time between supports. Horizontal lifelines shall be designed, installed, and used under the supervision of a qualified person. The horizontal lifeline shall be designed to maintain a safety factor of at least two.
- (6) Prior to each use, employees shall visually inspect all fall arrest equipment for cuts, cracks, tears, or abrasions, undue stretching, overall deterioration, mildew, operational defects, heat damage, or acid or other corrosion. Equipment showing any defect shall be withdrawn from service.
- (7) All fall arrest equipment subjected to impacts caused by a free fall or by testing shall be removed from service.
- (8) Employees should store all fall arrest equipment in a cool, dry place not subjected to direct sunlight.
- (9) Employees shall not use fall arrest equipment until they have been properly trained in its use.
- (10) Foremen shall ensure fall protection is available and used as required for all employees they are responsible for.
- (11) Fall arrest equipment shall not be used for any other purpose, such as tow ropes or hoist lines.
- (12) Proper guardrails shall be installed on open sides of all walkways and runways where the fall distance exceeds 3 feet.
- (13) Proper guardrails shall be installed on all open-sided floors where the fall distance exceeds 3 feet.
- (14) All floor openings or floor holes shall be protected by guardrails or hole covers. If hole covers are used, they shall be strong enough to support the maximum intended load, secured against displacement, and properly labeled. If the cover is subject to vehicular

traffic, it shall be capable of supporting at least two times the axle load of the largest vehicle expected to cross over.

- (15) When operating a scissor lift work platform, the lift shall have guardrails on all open sides and the door access chains or rail in place.
- (16) Employees operating aerial lifts shall wear a body harness and lanyard attached to the aerial lift. Employees shall not attach the lanyard to an independent structure.
- (17) Employees riding in a crane-suspended work platform shall wear a body harness and lanyard attached to the grab rail of the platform.
- (18) Employees working on rebar cages shall wear a body harness and lanyard or a positioning device attached to a body belt when exposed to a fall of 3 feet or greater. Position devices shall be rigged to prevent a free fall greater than 24 inches.
- (19) Stairs, ladders, or ramps shall be provided for all accessways where there is a change in elevation greater than 19 inches.
- (20) When guardrails are used for fall protection, they shall consist of a top rail, intermediate rail, and toeboard. The top rail shall have a vertical height of 42 inches, the midrail shall be at 21 inches, and the toeboard 4 inches. When wood railings are used, the post shall be of at least 2 x 4 stock spaced not to exceed 8 feet, the top rail shall be of at least 2 x 4 stock, and the intermediate rail shall be of at least 1 x 6 stock. If pipe is used, it shall be at least 1 ½ inch nominal diameter. If structural steel is used, it shall be of 2 x 2 x 3/8 inch angles or equivalent. If wire rope is used, it shall have a diameter of at least ½ inch and shall be stretched out to allow no more than a 3 inch deflection.
- (21) Guardrail systems shall be constructed so that when a 200 pound force is applied in a downward direction, it will not deflect to a height less than 39 inches.
- (22) If wire rope is used for top rails, it shall be flagged at no more than 6 foot intervals with high visibility material.
- (23) Manila or synthetic rope shall not be used as guardrails.
- (24) Employees shall not stand or sit on guardrails.
- (25) Subcontractors shall comply with 29 CFR 1926.500-503 Subpart M requirements as well as any additional requirements Artisan Contracting may call for. They will also be subject to a “three-strike rule”, 1st warning = immediate Foreman/Superintendent is informed, 2nd warning = President/Owner of company is informed, 3rd warning = termination.



HOT WORK SAFETY PROCEDURES

Purpose

Welding and Hot Work, such as brazing, cutting or grinding present a significant opportunity for fire and injury. All precautions of this program must be applied prior to commencing any welding or hot work by company employees or contractors. Reference: OSHA 29 CFR 1910.252

Responsibilities

Management

- Provide training for all employees whose tasks include heat, spark or flame producing operations such as welding, brazing, cutting or grinding.
- Develop and monitor effective hot work procedures
- Provide safe equipment for hot work
- Provide proper and effective PPE for all hot work

Supervisors

- Monitor all hot work operations
- Ensure all hot work equipment and PPE are in safe working order
- Allow only trained and authorized employees to conduct hot work
- Ensure permits are used for all hot work outside authorized areas

Employees

- Follow all hot work procedures
- Properly use appropriate hot work PPE
- Inspect all hot work equipment before use
- Report any equipment problems
- Do not use damaged hot work equipment

Definitions

Welding/Hot Works Procedures: any activity which results in sparks, fire, molten slag, or hot material which has the potential to cause fires or explosions.

Examples of Hot Works: Cutting, Brazing, Soldering, Thawing Pipes, Torch Applied Roofing, Grinding and Welding.

Special Hazard Occupancies: Any area containing Flammable Liquids, Dust Accumulation, Gases, Plastics, Rubber and Paper Products.

Hazards

- Fires & Explosions
- Skin burns
- Welding "flashburns"
- Respiratory hazards from fumes & smoke

Training

Training shall include:

- Review of requirements listed in OSHA 1910.252
- Use of Hot Works Permit System
- Supervisor Responsibilities
- Fire Watch Responsibilities - specifically, the fire watch must know:
 1. That their ONLY duty is Fire Watch
 2. When they can terminate the watch
 3. How to use the provided fire extinguisher
 4. How to activate fire alarm if fire is beyond the incipient stage
- Operator Responsibilities
- Contractors Responsibilities
- Documentation requirements
- Respirator Usage requirements
- Fire Extinguisher training

Hot Works Procedures

OSHA 29 CFR 1910.252 required fire prevention actions for welding/hot works.

Where practicable all combustibles shall be relocated **at least 35 feet** from the work site. Where relocation is impractical, combustibles shall be protected with flame proof covers, shielded with metal, guards, curtains, or wet down material to help prevent ignition of material.

Ducts, conveyor systems, and augers that might carry sparks to distant combustibles **shall be protected or shut down.**

Where cutting or welding is done near walls, partitions, ceilings, or a roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

If welding is to be done on a metal wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation of heat. **Where combustibles cannot be relocated on the opposite side of the work, a fire watch person shall be provided on the opposite side of the work.**

Welding shall not be attempted on a metal partition, wall, ceiling or roof having a covering nor on walls having combustible sandwich panel construction.

Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by combustion.

Cutting or welding shall not be permitted in the following situations:

- In areas not authorized by management.
- In sprinkled buildings while such protection is impaired.
- In the presence of potentially explosive atmospheres, e.g.. a flammable
- In areas near the storage of large quantities of exposed, readily ignitable materials.
- In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot works will be conducted. *All dust accumulation should be cleaned up following the housekeeping program of the facility before welding/hot works are permitted.*

Suitable extinguishers shall be provided and maintained ready for instant use.

A cutting/welding permit will be issued on all welding or cutting outside of the designated welding area.

Welding & Hot Work fire prevention measures

A designated welding area should be established to meet the following requirements:

- a. Floors swept and clean of combustibles within 35 ft. of work area.
- b. Flammable and combustible liquids and material will be kept 35 ft. from work area.
- c. Adequate ventilation providing 20 air changes per hour, such as a suction hood system should be provided to the work area.
- d. At least one 10 lb. dry chemical fire extinguisher should be within access of the 35 ft. of work area.
- e. Protective dividers such as welding curtains or non-combustible walls will be provided to contain sparks and slag to the combustible free area.

Requirements for welding conducted outside the designated welding area.

- a. Portable welding curtains or shields must be used to protect other workers in the welding area.
- b. A hot works permit must be completed and complied with prior to welding operation.
- c. Respiratory protection is mandatory unless an adequate monitored air-flow away from the welder and others present can be established and maintained.
- d. Plastic materials shall be covered with welding tarps during welding procedures

Welding Standard Operating Procedures

The following pages list the *Welding Standard Operating Procedures* (SOP) and are applicable for all electric and gas welding. These SOPs are to be posted at each Designated Welding & Hot Work Area for quick reference and review.

SOP - Electric Welding

Perform Safety Check on all equipment

Ensure fire extinguisher is charged and available

Ensure electrical cord, electrode holder and cables are free from defects (no cable splices are allowed within 10 feet of the electrode holder).

Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.

Ensure the welding unit is properly grounded.
All defective equipment must be repaired or replaced before use.

Remove flammables and combustibles

No welding is permitted on or near containers of flammable material, combustible material or unprotected flammable structures.

Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby (Do not block emergency exits or restrict ventilation)

Ensure Adequate Ventilation and Lighting

Execute Hot Work Permit procedures

Set Voltage Regulator

No higher than the following for:

Manual Alternating Current Welders - 80 volts

Automatic Alternating Current Welders - 100 volts

Manual or automatic Direct Current Welders -100 volts

Uncoil and spread out welding cable

To avoid overheating, ensure proper contact of work leads and connections, remove any metal fragments from magnetic work clamps (to avoid electric shock do not wrap welding cables around a body part and avoid welding in wet conditions)

Perform final fire watch and terminate permit.

SOP: Gas Welding

Perform Safety Check on all equipment

Ensure tanks have gas and fittings are tight

Ensure fire extinguisher is charged and available

Ensure hoses have no defects

Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.

All defective equipment must be repaired or replace before uses.

Remove flammables and combustibles

No welding is permitted on or near containers of flammable material, combustible material or unprotected flammable structures.

Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby (Do not block emergency exits or restrict ventilation)

Ensure Adequate Ventilation and Lighting

Execute Hot Work Permit procedures

Open Valves on Oxygen and Gas tanks to desired flow

Shut Tank Valves & relieve hose pressure. Store hoses

Perform final fire watch and terminate permit.



HAZARDOUS ENERGY CONTROL PLAN

SCOPE

This procedure establishes the requirements to be followed for the locking, tagging, and trying to prevent injury by the accidental startup of power equipment, the inadvertent opening of valves in pipes, or the energizing of electric circuits. NO work is to be done on any operable equipment until its operation is prevented by this procedure.

1. General

- a. Danger tags and locks shall be used only to prohibit operation of a valve, switch, or piece of powered equipment when or if property damage could result from the operation.
- b. Only the standard OSHA approved danger tags will be used by personnel.
- c. When tags are used, they will be filled out in the spaces provided to indicate a description of the equipment and/or the circuit number involved, the date, signature, company name, and employee phone number. Tags will be attached securely along with a lock.
- d. Tags are never to be used alone.
- e. No device shall be operated with a tag and lock attached, regardless of circumstances.
- f. Locks and tags should be placed by each craftsman, except in a complex lockout situation when the superintendent will supervise the lockout.
- g. Remember: NO ONE CAN REMOVE THE LOCK AND TAG EXCEPT THE PERSON WHO SIGNED IT!!

NOTE: No person shall remove another's lock and tag except in the following circumstances. A company superintendent, after assuring that the system or circuit is safe and after consulting with the responsible craft supervisor, may remove or authorize removal of one's lock and tag if the owner is not on site.

2. Construction Equipment or Facilities

a. Procedures for locking out

1. Appropriate craft representative de-energizes, locks, tags, and “tries” the system, assuring beforehand that everyone is accounted for and in a safe location, to assure power is disconnected and it is safe for other trades to work.
2. Personnel of other crafts performing work place their locks and tags. Where several craftsmen are involved, the foreman may place a lockout hasp on the equipment in order to account for more locks. Or they may choose to utilize a lock-box in which holds the key(s) that unlock the supervisor’s lock on the breaker. Once the key(s) are placed in the box, all personnel shall place a personal lock along with a tag with their name and contact # listed. If any employee does not have a personal lock they may be issued a company lock or a zip-tie.
 - ***Zip-ties are not allowed on breakers themselves, only on lock-boxes and hasps that contain the supervisor’s individual lock.***
3. Personnel remove individual locks and tags as work is completed. The superintendent is the last to remove his lock and tag, prior to re-energizing the system.

3. Locks

- a. Only individually keyed locks will be used. The key will remain in possession of the person placing the lock.
- b. The duplicate key of the locks will be kept in the possession of the superintendent/site safety supervisor inside the field office.

4. Warning

Any person removing another’s lock and tag without authorization, will be subject to disciplinary action up to and including termination from the site.



RESPIRATORY PROTECTION PLAN

Permissible practice.

(a)(1)

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

(a)(2)

Respirators shall be provided by Artisan Contracting, Inc. when such equipment is necessary to protect the health of the employee. Artisan Contracting, Inc. shall provide the respirators which are applicable and suitable for the purpose intended. Artisan Contracting, Inc. shall be responsible for the establishment and maintenance of a respiratory protection program which shall include the requirements outlined in paragraph (c) of this section.

(b) Definitions. The following definitions are important terms used in the respiratory protection standard in this section.

Air-purifying respirator means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF) [Reserved]

Atmosphere-supplying respirator means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator means a respirator intended to be used only for emergency exit.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) [Reserved].

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.

Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT) means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

This section means this respiratory protection standard.

Tight-fitting facepiece means a respiratory inlet covering that forms a complete seal with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly seated to the face.

(c) *Respiratory protection program.*

(c)(1)

In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by Artisan Contracting, Inc., Artisan shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. Artisan Contracting, Inc. shall include in the program the following provisions of this section, as applicable:

(c)(1)(i)

Procedures for selecting respirators for use in the workplace;

(c)(1)(ii)

Medical evaluations of employees required to use respirators;

(c)(1)(iii)

Fit testing procedures for tight-fitting respirators;

(c)(1)(iv)

Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;

(c)(1)(v)

Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;

(c)(1)(vi)

Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;

(c)(1)(vii)

Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;

(c)(1)(viii)

Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and

(c)(1)(ix)

Procedures for regularly evaluating the effectiveness of the program.

(c)(2)

Where respirator use is not required:

(c)(2)(i)

Artisan Contracting, Inc. may provide respirators at the request of employees or permit employees to use their own respirators, if Artisan Contracting, Inc. determines that such respirator use will not in itself create a hazard. If Artisan Contracting, Inc. determines that any voluntary respirator use is permissible, Artisan shall provide the respirator users with the information contained in Appendix D to this section ("Information for Employees Using Respirators When Not Required Under the Standard"); and

(c)(2)(ii)

In addition, Artisan Contracting, Inc. must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user. Exception: Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).

(c)(3)

Artisan Contracting, Inc. shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

(c)(4)

Artisan Contracting, Inc. shall provide respirators, training, and medical evaluations at no cost to the employee.

(d) Selection of respirators.

General requirements.

(d)(1)(i)

Artisan Contracting, Inc. shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

(d)(1)(ii)

Artisan Contracting, Inc. shall select a NIOSH-certified respirator. The respirator shall be used in compliance with the conditions of its certification.

(d)(1)(iii)

Artisan Contracting, Inc. shall identify and evaluate the respiratory hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where Artisan cannot identify or reasonably estimate the employee exposure, Artisan shall consider the atmosphere to be IDLH.

(d)(1)(iv)

Artisan Contracting, Inc. shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

(d)(2) Respirators for IDLH atmospheres.

(d)(2)(i)

Artisan Contracting, Inc. shall provide the following respirators for employee use in IDLH atmospheres:

(d)(2)(i)(A)

A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or

(d)(2)(i)(B)

A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

(d)(2)(ii)

Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

(d)(2)(iii)

All oxygen-deficient atmospheres shall be considered IDLH. Exception: If Artisan Contracting, Inc. demonstrates that, under all foreseeable conditions, the oxygen concentration can be

maintained within the ranges specified in Table II of this section (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.

(d)(3) *Respirators for atmospheres that are not IDLH.*

(d)(3)(i)

Artisan Contracting, Inc. shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

(d)(3)(i)(A)

Assigned Protection Factors (APFs) [Reserved]

(d)(3)(i)(B)

Maximum Use Concentration (MUC) [Reserved]

(d)(3)(ii)

The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

(d)(3)(iii)

For protection against gases and vapors, Artisan Contracting, Inc. shall provide:

(d)(3)(iii)(A)

An atmosphere-supplying respirator, or

(d)(3)(iii)(B)

An air-purifying respirator, provided that:

(d)(3)(iii)(B)(1)

(1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

(d)(3)(iii)(B)(2)

If there is no ESLI appropriate for conditions in the workplace, Artisan Contracting, Inc. implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. Artisan Contracting, Inc. shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

(d)(3)(iv)

For protection against particulates, Artisan Contracting, Inc. shall provide:

(d)(3)(iv)(A)

An atmosphere-supplying respirator; or

(d)(3)(iv)(B)

An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

(d)(3)(iv)(C)

For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

TABLE I. -- Assigned Protection Factors [Reserved]

Altitude (ft.)	Oxygen deficient Atmospheres (% O ₂) for which the employer may rely on atmosphere-supplying respirators
Less than 3,001	16.0–19.5
3,001–4,000	16.4–19.5
4,001–5,000	17.1–19.5
5,001–6,000	17.8–19.5
6,001–7,000	18.5–19.5
7,001–8,000 ¹	19.3–19.5

¹Above 8,000 feet the exception does not apply. Oxygen-enriched breathing air must be supplied above 14,000 feet.

(e) Medical evaluation.

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this paragraph specifies the minimum requirements for medical evaluation that employers must implement to determine the employee's ability to use a respirator.

(e)(1) General.

Artisan Contracting, Inc. shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. Artisan Contracting, Inc. may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

(e)(2) Medical evaluation procedures.

(e)(2)(i)

Artisan Contracting, Inc. shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

(e)(2)(ii)

The medical evaluation shall obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of this section.

(e)(3) Follow-up medical examination.

(e)(3)(i)

Artisan Contracting, Inc. shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.

(e)(3)(ii)

The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

(e)(4) *Administration of the medical questionnaire and examinations.*

(e)(4)(i)

The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

(e)(4)(ii)

Artisan Contracting, Inc. shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

(e)(5) *Supplemental information for the PLHCP.*

(e)(5)(i)

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

(e)(5)(i)(A)

(A) The type and weight of the respirator to be used by the employee;

(e)(5)(i)(B)

The duration and frequency of respirator use (including use for rescue and escape);

(e)(5)(i)(C)

The expected physical work effort;

(e)(5)(i)(D)

Additional protective clothing and equipment to be worn; and

(e)(5)(i)(E)

Temperature and humidity extremes that may be encountered.

(e)(5)(ii)

Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

(e)(5)(iii)

Artisan Contracting, Inc. shall provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

Note to Paragraph (e)(5)(iii): When the employer replaces a PLHCP, the employer must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically reevaluated solely because a new PLHCP has been selected.

(e)(6) *Medical determination.*

In determining the employee's ability to use a respirator, Artisan Contracting, Inc. shall:

(e)(6)(i)

Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

(e)(6)(i)(A)

Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;

(e)(6)(i)(B)

The need, if any, for follow-up medical evaluations; and

(e)(6)(i)(C)

A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

(e)(6)(ii)

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, Artisan Contracting, Inc. shall provide a PAPR if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then Artisan is no longer required to provide a PAPR.

(e)(7) *Additional medical evaluations.*

At a minimum, Artisan Contracting, Inc. shall provide additional medical evaluations that comply with the requirements of this section if:

(e)(7)(i)

An employee reports medical signs or symptoms that are related to ability to use a respirator;

(e)(7)(ii)

A PLHCP, supervisor, or the respirator program administrator informs Artisan Contracting, Inc. that an employee needs to be reevaluated;

(e)(7)(iii)

Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or

(e)(7)(iv)

A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

(f) *Fit testing.*

Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This paragraph specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

(f)(1)

Artisan Contracting, Inc. shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.

(f)(2)

Artisan Contracting, Inc. shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

(f)(3)

Artisan Contracting, Inc. shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

(f)(4)

If after passing a QLFT or QNFT, the employee subsequently notifies the employer, program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator facepiece and to be retested.

(f)(5)

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in Appendix A of this section.

(f)(6)

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

(f)(7)

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.

(f)(8)

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

(f)(1)(8)(i)

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.

(f)(1)(8)(ii)

Quantitative fit testing of these respirators shall be accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.

(f)(1)(8)(iii)

Any modifications to the respirator facepiece for fit testing shall be completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.

(g) *Use of respirators.*

Artisan Contracting, Inc. has established and implemented procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in facepiece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres or in interior structural firefighting situations.

(g)(1) *Facepiece seal protection.*

(g)(1)(i)

Artisan Contracting, Inc. shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

(g)(1)(i)(A)

Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

(g)(1)(i)(B)

Any condition that interferes with the face-to-facepiece seal or valve function.

(g)(1)(ii)

If an employee wears corrective glasses or goggles or other personal protective equipment, Artisan Contracting, Inc. shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

(g)(1)(iii)

For all tight-fitting respirators, Artisan Contracting, Inc. shall ensure that employees perform a user seal check each time they put on the respirator using the procedures in Appendix B-1 or procedures recommended by the respirator manufacturer that Artisan demonstrates are as effective as those in Appendix B-1 of this section.

(g)(2) *Continuing respirator effectiveness.*

(g)(2)(i)

Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, Artisan Contracting, Inc. shall reevaluate the continued effectiveness of the respirator.

(g)(2)(ii)

Artisan Contracting, Inc. shall ensure that employees leave the respirator use area:

(g)(2)(ii)(A)

To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or

(g)(2)(ii)(B)

If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or

(g)(2)(ii)(C)

To replace the respirator or the filter, cartridge, or canister elements.

(g)(2)(iii)

If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, the employer must replace or repair the respirator before allowing the employee to return to the work area.

(g)(3) *Procedures for IDLH atmospheres.*

For all IDLH atmospheres, Artisan Contracting, Inc. shall ensure that:

(g)(3)(i)

One employee or, when needed, more than one employee is located outside the IDLH atmosphere;

(g)(3)(ii)

Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;

(g)(3)(iii)

The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;

(g)(3)(iv)

Artisan Contracting, Inc. or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;

(g)(3)(v)

Artisan Contracting, Inc. or designee authorized to do so by Artisan, once notified, provides necessary assistance appropriate to the situation;

(g)(3)(vi)

Employee(s) located outside the IDLH atmospheres are equipped with:

(g)(3)(vi)(A)

Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either

(g)(3)(vi)(B)

Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or

(g)(3)(vi)(C)

Equivalent means for rescue where retrieval equipment is not required under paragraph (g)(3)(vi)(B).

(h) *Maintenance and care of respirators.*

Artisan Contracting, Inc. will provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees.

(h)(1) *Cleaning and disinfecting.*

Artisan Contracting, Inc. shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. Artisan shall ensure that respirators are cleaned and disinfected using the procedures in Appendix B-2 of this section, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

(h)(1)(i)

Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;

(h)(1)(ii)

Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals;

(h)(1)(iii)

Respirators maintained for emergency use shall be cleaned and disinfected after each use; and

(h)(1)(iv)

Respirators used in fit testing and training shall be cleaned and disinfected after each use.

(h)(2) Storage.

Artisan Contracting, Inc. shall ensure that respirators are stored as follows:

(h)(2)(i)

All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

(h)(2)(ii)

In addition to the requirements of paragraph (h)(2)(i) of this section, emergency respirators shall be:

(h)(2)(ii)(A)

Kept accessible to the work area;

(h)(2)(ii)(B)

Stored in compartments or in covers that are clearly marked as containing emergency respirators; and

(h)(2)(ii)(C)

Stored in accordance with any applicable manufacturer instructions.

(h)(3) Inspection.

(h)(3)(i)

Artisan Contracting, Inc. shall ensure that respirators are inspected as follows:

(h)(3)(i)(A)

All respirators used in routine situations shall be inspected before each use and during cleaning;

(h)(3)(i)(B)

All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use; and

(h)(3)(i)(C)

Emergency escape-only respirators shall be inspected before being carried into the workplace for use.

(h)(3)(ii)

Artisan Contracting, Inc. shall ensure that respirator inspections include the following:

(h)(3)(ii)(A)

A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and

(h)(3)(ii)(B)

A check of elastomeric parts for pliability and signs of deterioration.

(h)(3)(iii)

In addition to the requirements of paragraphs (h)(3)(i) and (ii) of this section, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Artisan Contracting, Inc. shall determine that the regulator and warning devices function properly.

(h)(3)(iv)

For respirators maintained for emergency use, the employer shall:

(h)(3)(iv)(A)

Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and

(B) Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

(h)(4) *Repairs.*

Artisan Contracting, Inc. shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

(h)(4)(i)

Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;

(h)(4)(ii)

Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

(h)(4)(iii)

Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

(i) Breathing air quality and use.

Artisan Contracting, Inc. will provide employees using atmosphere-supplying respirators (supplied-air and SCBA) with breathing gases of high purity.

(i)(1)

Artisan shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

(i)(1)(i)

Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen; and

(i)(1)(ii)

Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

(i)(1)(ii)(A)

Oxygen content (v/v) of 19.5-23.5%;

(i)(1)(ii)(B)

Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;

(i)(1)(ii)(C)

Carbon monoxide (CO) content of 10 ppm or less;

(i)(1)(ii)(D)

Carbon dioxide content of 1,000 ppm or less; and

(i)(1)(ii)(E)

Lack of noticeable odor.

(i)(2)

Artisan Contracting, Inc. shall ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.

(i)(3)

Artisan Contracting, Inc. shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

(i)(4)

Artisan Contracting, Inc. shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

(i)(4)(i)

Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);

(i)(4)(ii)

Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and

(i)(4)(iii)

The moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.

(i)(5)

Artisan Contracting, Inc. shall ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:

(i)(5)(i)

Prevent entry of contaminated air into the air-supply system;

(i)(5)(ii)

Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature;

(i)(5)(iii)

Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.

(i)(5)(iv)

Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

(i)(6)

For compressors that are not oil-lubricated, the employer shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

(i)(7)

For oil-lubricated compressors, the employer shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

(i)(8)

Artisan Contracting, Inc. shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

(i)(9)

Artisan Contracting, Inc. shall use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

(j) *Identification of filters, cartridges, and canisters.*

Artisan Contracting, Inc. shall ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

(k) *Training and information.*

Artisan Contracting, Inc. will provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. Artisan Contracting, Inc. will also provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

(k)(1)

Artisan Contracting, Inc. shall ensure that each employee can demonstrate knowledge of at least the following:

(k)(1)(i)

Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

(k)(1)(ii)

What the limitations and capabilities of the respirator are;

(k)(1)(iii)

How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

(k)(1)(iv)

How to inspect, put on and remove, use, and check the seals of the respirator;

(k)(1)(v)

What the procedures are for maintenance and storage of the respirator;

(k)(1)(vi)

How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

(k)(1)(vii)

The general requirements of this section.

(k)(2)

The training shall be conducted in a manner that is understandable to the employee.

(k)(3)

Artisan Contracting, Inc. shall provide the training prior to requiring the employee to use a respirator in the workplace.

(k)(4)

An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

(k)(5)

Retraining shall be administered annually, and when the following situations occur:

(k)(5)(i)

Changes in the workplace or the type of respirator render previous training obsolete;

(k)(5)(ii)

Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

(k)(5)(iii)

Any other situation arises in which retraining appears necessary to ensure safe respirator use.

(k)(6)

The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

(l) Program evaluation.

Artisan Contracting, Inc. will conduct evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

(l)(1)

Artisan Contracting, Inc. shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

(l)(2)

Artisan Contracting, Inc. shall regularly consult employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed include, but are not limited to:

(l)(2)(i)

Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);

(l)(2)(ii)

Appropriate respirator selection for the hazards to which the employee is exposed;

(l)(2)(iii)

Proper respirator use under the workplace conditions the employee encounters; and

(l)(2)(iv)

Proper respirator maintenance.

(m) Recordkeeping.

Artisan Contracting, Inc. will establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist Artisan in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

(m)(1) Medical evaluation.

Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020.

(m)(2) Fit testing.

(m)(2)(i)

Artisan Contracting, Inc. shall establish a record of the qualitative and quantitative fit tests administered to an employee including:

(m)(2)(i)(A)

The name or identification of the employee tested;

(m)(2)(i)(B)

Type of fit test performed;

(m)(2)(i)(C)

Specific make, model, style, and size of respirator tested;

(m)(2)(i)(D)

Date of test; and

(m)(2)(i)(E)

The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

(m)(2)(ii)

Fit test records shall be retained for respirator users until the next fit test is administered.

(m)(3)

A written copy of the current respirator program shall be retained by Artisan.

(m)(4)

Written materials required to be retained under this paragraph shall be made available upon request to affected employees and to the Assistant Secretary or designee for examination and copying.

Fit Testing Procedures (Mandatory)

Artisan Contracting, Inc. shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - (a) Position of the mask on the nose
 - (b) Room for eye protection
 - (c) Room to talk
 - (d) Position of mask on face and cheeks
7. The following criteria shall be used to help determine the adequacy of the respirator fit:

- (a) Chin properly placed;
- (b) Adequate strap tension, not overly tightened;
- (c) Fit across nose bridge;
- (d) Respirator of proper size to span distance from nose to chin;
- (e) Tendency of respirator to slip;
- (f) Self-observation in mirror to evaluate fit and respirator position.

8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.

9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

14. Test Exercises. (a) The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject shall perform exercises, in the test environment, in the following manner:

- (1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
- (2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- (3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
- (4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- (5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

- (6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
 - (7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
 - (8) Normal breathing. Same as exercise (1).
- (b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

B. Qualitative Fit Test (QLFT) Protocols

1. General

(a) Artisan Contracting, Inc. shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.

(b) Artisan Contracting, Inc. shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Isoamyl Acetate Protocol

Note: This protocol is not appropriate to use for the fit testing of particulate respirators. If used to fit test particulate respirators, the respirator must be equipped with an organic vapor filter.

(a) Odor Threshold Screening

Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

(1) Three 1 liter glass jars with metal lids are required.

(2) Odor-free water (e.g., distilled or spring water) at approximately 25 deg. C (77 deg. F) shall be used for the solutions.

(3) The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution shall be prepared at least weekly.

(4) The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.

(5) The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only one day.

(6) A test blank shall be prepared in a third jar by adding 500 cc of odor-free water.

(7) The odor test and test blank jar lids shall be labeled (e.g., 1 and 2) for jar identification. Labels shall be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.

(8) The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

(9) The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

(10) If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.

(11) If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

(b) Isoamyl Acetate Fit Test

(1) The fit test chamber shall be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber shall be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.

(2) Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.

(3) After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

(4) A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.

(5) Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.

(6) Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.

(7) If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

(8) If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (b) (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.

(9) If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.

(10) When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.

3. Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Taste threshold screening.

The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.

(1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

(2) The test enclosure shall have a 3/4-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

(3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.

(4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

(5) The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b)(5) below) in 100 ml of distilled water.

(6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.

(7) Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.

(8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

(9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

(10) The test conductor will take note of the number of squeezes required to solicit a taste response.

(11) If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.

Note to paragraph 3. (a): If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.

(12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

(14) The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Saccharin solution aerosol fit test procedure.

(1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

(2) The fit test uses the same enclosure described in 3. (a) above.

(3) The test subject shall don the enclosure while wearing the respirator selected in section I. A. of this appendix. The respirator shall be properly adjusted and equipped with a particulate filter(s).

(4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

(5) The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.

(6) As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes the sweet taste of saccharin.

(7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.

(8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.

(9) Every 30 seconds the aerosol concentration shall be replenished using one half the original number of squeezes used initially (e.g., 5, 10 or 15).

(10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.

(11) If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

(12) Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

4. Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol

The Bitrex™ (Denatonium benzoate) solution aerosol QLFT protocol uses the published saccharin test protocol because that protocol is widely accepted. Bitrex is routinely used as a taste aversion agent in household liquids which children should not be drinking and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Taste Threshold Screening.

The Bitrex taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of Bitrex.

(1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

(2) The test enclosure shall have a $\frac{3}{4}$ inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

(3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is

instructed to report when he/she detects a bitter taste

(4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the Threshold Check Solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

(5) The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water.

(6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.

(7) An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.

(8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

(9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

(10) The test conductor will take note of the number of squeezes required to solicit a taste response.

(11) If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.

(12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

(14) The nebulizer shall be thoroughly rinsed in water, shaken to dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Bitrex Solution Aerosol Fit Test Procedure.

(1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

(2) The fit test uses the same enclosure as that described in 4. (a) above.

- (3) The test subject shall don the enclosure while wearing the respirator selected according to section I. A. of this appendix. The respirator shall be properly adjusted and equipped with any type particulate filter(s).
- (4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
- (5) The fit test solution is prepared by adding 337.5 mg of Bitrex to 200 ml of a 5% salt (NaCl) solution in warm water.
- (6) As before, the test subject shall breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex.
- (7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.
- (8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.
- (9) Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).
- (10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of Bitrex is detected. If the test subject does not report tasting the Bitrex, the test is passed.
- (11) If the taste of Bitrex is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

5. Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

(a) General Requirements and Precautions

- (1) The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
- (2) Only stannic chloride smoke tubes shall be used for this protocol.
- (3) No form of test enclosure or hood for the test subject shall be used.

(4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

(5) The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

(b) Sensitivity Screening Check

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

(1) The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(2) The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

(3) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

(c) Irritant Smoke Fit Test Procedure

(1) The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

(2) The test subject shall be instructed to keep his/her eyes closed.

(3) The test operator shall direct the stream of irritant smoke from the smoke tube toward the faceseal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

(4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.

(5) The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.

(6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.

(7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

(8) If a response is produced during this second sensitivity check, then the fit test is passed.

C. Quantitative Fit Test (QNFT) Protocols

The following quantitative fit testing procedures have been demonstrated to be acceptable: Quantitative fit testing using a non-hazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; Quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

Artisan Contracting, Inc. does not have the instrumentation nor the know-how to perform this test.

User Seal Check Procedures (Mandatory)

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

I. Facepiece Positive and/or Negative Pressure Checks

A. Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the

facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. Manufacturer's Recommended User Seal Check Procedures

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that Artisan Contracting, Inc. demonstrates that the manufacturer's procedures are equally effective.

Respirator Cleaning Procedures (Mandatory)

These procedures are provided for employer use when cleaning respirators. They are general in nature, and Artisan Contracting, Inc. as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B- 2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth in Appendix B- 2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

I. Procedures for Cleaning Respirators

A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure- demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,

2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,

3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

E. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

F. Components should be hand-dried with a clean lint-free cloth or air-dried.

G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

H. Test the respirator to ensure that all components work properly.

OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): Yes / No

Artisan Contracting, Inc. must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, Artisan or your supervisor must not look at or review your answers, and Artisan must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____

2. Your name: _____

3. Your age (to nearest year): _____

4. Sex (circle one): Male / Female

5. Your height: _____ ft. _____ in.

6. Your weight: _____ lbs.

7. Your job title: _____

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____

9. The best time to phone you at this number: _____

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes / No

11. Check the type of respirator you will use (you can check more than one category):

a. _____ N, R, or P disposable respirator (filter-mask, non- cartridge type only).

b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes / No

If "yes," what type(s): _____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes/No
2. Have you ever had any of the following conditions?
 - a. Seizures (fits): Yes/No
 - b. Diabetes (sugar disease): Yes/No
 - c. Allergic reactions that interfere with your breathing: Yes/No
 - d. Claustrophobia (fear of closed-in places): Yes/No
 - e. Trouble smelling odors: Yes/No
3. Have you ever had any of the following pulmonary or lung problems?
 - a. Asbestosis: Yes/No
 - b. Asthma: Yes/No
 - c. Chronic bronchitis: Yes/No
 - d. Emphysema: Yes/No
 - e. Pneumonia: Yes/No
 - f. Tuberculosis: Yes/No
 - g. Silicosis: Yes/No
 - h. Pneumothorax (collapsed lung): Yes/No
 - i. Lung cancer: Yes/No
 - j. Broken ribs: Yes/No
 - k. Any chest injuries or surgeries: Yes/No
 - l. Any other lung problem that you've been told about: Yes/No
4. Do you currently have any of the following symptoms of pulmonary or lung illness?
 - a. Shortness of breath: Yes/No
 - b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
 - c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
 - d. Have to stop for breath when walking at your own pace on level ground: Yes/No
 - e. Shortness of breath when washing or dressing yourself: Yes/No
 - f. Shortness of breath that interferes with your job: Yes/No
 - g. Coughing that produces phlegm (thick sputum): Yes/No
 - h. Coughing that wakes you early in the morning: Yes/No
 - i. Coughing that occurs mostly when you are lying down: Yes/No
 - j. Coughing up blood in the last month: Yes/No
 - k. Wheezing: Yes/No
 - l. Wheezing that interferes with your job: Yes/No
 - m. Chest pain when you breathe deeply: Yes/No
 - n. Any other symptoms that you think may be related to lung problems: Yes/No
5. Have you ever had any of the following cardiovascular or heart problems?

- a. Heart attack: Yes/No
- b. Stroke: Yes/No
- c. Angina: Yes/No
- d. Heart failure: Yes/No
- e. Swelling in your legs or feet (not caused by walking): Yes/No
- f. Heart arrhythmia (heart beating irregularly): Yes/No
- g. High blood pressure: Yes/No
- h. Any other heart problem that you've been told about: Yes/No

6. Have you ever had any of the following cardiovascular or heart symptoms?

- a. Frequent pain or tightness in your chest: Yes/No
- b. Pain or tightness in your chest during physical activity: Yes/No
- c. Pain or tightness in your chest that interferes with your job: Yes/No
- d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
- e. Heartburn or indigestion that is not related to eating: Yes/ No
- f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you currently take medication for any of the following problems?

- a. Breathing or lung problems: Yes/No
- b. Heart trouble: Yes/No
- c. Blood pressure: Yes/No
- d. Seizures (fits): Yes/No

8. If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

- a. Eye irritation: Yes/No
- b. Skin allergies or rashes: Yes/No
- c. Anxiety: Yes/No
- d. General weakness or fatigue: Yes/No
- e. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently): Yes/No

11. Do you currently have any of the following vision problems?

- a. Wear contact lenses: Yes/No
- b. Wear glasses: Yes/No
- c. Color blind: Yes/No
- d. Any other eye or vision problem: Yes/No

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

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No
If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them: _____

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

- a. Asbestos: Yes/No
- b. Silica (e.g., in sandblasting): Yes/No
- c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
- d. Beryllium: Yes/No
- e. Aluminum: Yes/No
- f. Coal (for example, mining): Yes/No
- g. Iron: Yes/No
- h. Tin: Yes/No
- i. Dusty environments: Yes/No
- j. Any other hazardous exposures: Yes/No

If "yes," describe these exposures: _____

4. List any second jobs or side businesses you have: _____

5. List your previous occupations: _____

6. List your current and previous hobbies: _____

7. Have you been in the military services? Yes/No
If "yes," were you exposed to biological or chemical agents (either in training or combat):
Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No
If "yes," name the medications if you know them: _____

10. Will you be using any of the following items with your respirator(s)?
a. HEPA Filters: Yes/No
b. Canisters (for example, gas masks): Yes/No
c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:
a. Escape only (no rescue): Yes/No
b. Emergency rescue only: Yes/No
c. Less than 5 hours per week: Yes/No
d. Less than 2 hours per day: Yes/No
e. 2 to 4 hours per day: Yes/No
f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:
a. Light (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average
shift: _____ hrs. _____ mins.

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

b. Moderate (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average
shift: _____ hrs. _____ mins.

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

c. Heavy (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____ hrs. _____ mins.

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

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment: _____

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the second toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the third toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

The name of any other toxic substances that you'll be exposed to while using your respirator:

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):



INCENTIVE PROGRAM

THINK SAFETY – A SAFETY MESSAGE TO ALL NEW EMPLOYEES

Artisan Contracting, Inc. makes every effort to provide the safest possible work environments for our employees. Cooperation amongst all employees practicing principles of safe operation is the key to the success of the company safety program.

People make mistakes, and on a construction job, mistakes can be dangerous. Giving safety a very high priority encourages safety conscious employees and safer projects. This can be accomplished through an extensive program to promote safety on and off the job.

It is our intention to establish a program that shares the benefits of working safely and rewards and recognizes employees for their efforts in complying with and promoting our safety program.

Safety Shoe Program

Artisan Contracting, Inc. recommends that all employees wear steel toe safety shoes on the job sites. To help ensure this, the company agrees to reimburse each employee \$75 towards a new pair of steel toe safety shoes, or \$110 towards steel toe boots with metatarsal protection. An employee becomes eligible for this benefit after he/she has worked 90 days for Artisan Contracting. After the first pair, the employee is thus eligible for a new pair 12 months after the date of purchase, and so on. If, however, an employee purchases a pair of steel toe safety shoes for under the \$75/\$110 reimbursement amount, he/she will only receive a reimbursement of the exact dollar amount spent. Please give a receipt or a copy of the receipt to your supervisor or safety manager.

Safety Eyewear Program

Artisan Contracting, Inc. will reimburse any employee for the purchase of prescription safety glasses. A statement from your eye doctor must be submitted which clearly indicates that the glasses are required and meet the ANSI Z87.1 safety standards and have permanent side shields. A receipt or copy of should be turned into your supervisor or safety manager. Reimbursements are good once every 12 months.

Single Vision \$ 75.00

Bifocals	\$100.00
Trifocals	\$120.00

Full-Body Harness Program

Artisan Contracting, Inc. will reimburse an employee \$50.00 towards a full-body harness of his/her choice. The employee will then have full ownership of that harness and it should not be loaned out to anyone else. Each employee will become eligible for this benefit after 90 days of employment. This benefit will be good for one harness every 24 months. The employee may order his/her harness through the Safety Manager, or may make a direct retail purchase (receipt should be submitted to the Cape office). The company will supply lanyards. This reimbursement is only good for direct employees of Artisan Contracting, Inc.



Employee Safety Reward Program

I. SCOPE

To provide incentives for safe work practices through recognition and awards.

II. GENERAL

Awards of recognition for employee safe work behavior is established and judged by the Safety Director. Employees will be evaluated based on individual and job site performance records for the month.

III. REQUIREMENTS

A. Eligibility

Applicable to all personnel actively engaged in field operations.

B. Target

1. No lost time, restricted duty, or recordable accidents at job site.
 - a. Recordable: An occupational death, illness, or injury that involves loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid. Medical treatment does not include:
 1. Visits to a physician or other licensed health care professional solely for observation or counseling;
 2. The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops).
 - b. First aid: Involves treatment of only minor injuries that do not ordinarily require medical care and is limited to one-time treatment and follow up observation (e.g., an employee twists an ankle and goes to an E.R. for x-rays and observation, the x-rays come back negative and the doctor applies an elastic bandage for support and issues the employee to come back next week for follow-up. This is not a recordable as long as the doctor does not require time away from work or restricted duty).
2. No major safety infractions at job site (three minors equal a major).
 - a. Major: An act that could cause serious harm or possibly even death to yourself or a co-worker.
 - b. Minor: An act not serious enough to cause an injury to yourself or a co-worker. One that constitutes only a reminder.
 1. Wearing of hard hat, safety glasses, vest, ear plugs, etc.

2. Proper paperwork is completed on a daily basis (equipment inspections, competent person inspections, Tool Box Talks).
3. After a second warning, the Safety Director will alert the Superintendent and the rest of the job site that the warned individual has no more chances. It is then up to everyone on the jobsite to assure this individual is not found out of compliance again, or else everyone associated with that job site the day of the third warning will not receive any points for that month.
3. Mechanics will be evaluated as a separate crew. Their actions will not effect the job site but rather their own crew.

C. Reward

The individual is awarded one point for each 8 hours worked, providing the individual and job site worked without an infraction or a recordable accident during his/her stay at that particular job site (e.g., 58 hrs. = 7.25 pts.). The individual will receive his/her points attached to his/her check at the beginning of the following month. Points can be redeemed at any time throughout the year for promotional items associated with this program. A flyer showing all available items will be mailed to each worker. All points must be redeemed by the end of February of the following year. Carry-over of points to the following year is not permissible. If a job site records a recordable injury or receives an infraction notice, then everyone associated with that job site, on that particular day, will not receive any points for the whole month. It will be an all or nothing policy.

At the end of the year, each employee that has gone the entire year without a recordable accident will receive bonus points equivalent to 5% of his/her total hours worked.

IV. GOALS

We have several goals in all of this:

1. To keep our injury rate at the lowest possible;
 2. To help increase our overall hazard awareness;
 3. To help strengthen teamwork in all that we do;
 4. To improve communication amongst all employees;
 5. Most of all, so that each employee has a hand in assuring their fellow co-worker's safe return home at the end of the day.
- **Anyone found not reporting an injury in order to receive points will automatically forfeit that months point total.**
 - **This program is subject to revision at any time.**



SAFETY TEAM GUIDELINES

A. SCOPE

To assist in the development of an interdependent safety culture that involves all employees.

B. MEMBERSHIP

Membership shall be chosen in view of the duties and responsibilities of the committee. A chairman and secretary shall be appointed and committee members selected according to their position, knowledge, abilities and interest in promoting safety. Members shall serve a one-year term with no limit to the number of years he or she may serve. Team members shall have the authority to make decisions directly related to safety issues in the field. The Safety Manager will act as liaison between the safety team, upper management, and field personnel.

C. PERSPECTIVE

An efficient Safety Team is an important part of the loss control program. It can help reduce the costs of operation and produce many other positive effects, such as:

- Increase safe production.
- Serve as leaders in the safe production process by communicating safety to all employees.
- Monitor workplace conditions and behaviors.
- Facilitate employee loyalty and cooperation and enhance employee satisfaction.
- Reduce the occurrence, frequency and severity of accidents.
- Evaluate accident/incident occurrences for the purpose of providing management with recommended countermeasures for prevention.
- Ensure that the company maintains compliance with government standards and regulations.

D. ACTIVITIES

The Safety Team shall meet once per quarter to accomplish its goals and objectives.

The Safety Team activities will include, but are not limited to, the following:

- Review all accident/incident report forms for the previous quarter.
- Review immediate actions taken to prevent accident recurrences.
- Participate in accident/incident investigations.
- Develop and implement specific accident prevention activities.
- Develop new methods/activities to integrate hazard control and safety into the day-to-day activity of all personnel.
- Establish and promote a system for handling employee safety suggestions.
- Routine evaluations of the new employee orientation and safety training programs and suggestions for improvement.
- Participate in routine or random jobsite safety inspections.
- Develop new or revise existing safety rules and procedures as necessary.
- Participate in safety training activities.
- Act as a consultative body for the company regarding safety issues and loss control problems.

E. MEETING AGENDA

Effective safety meetings require thorough planning and effort. Notices of meeting reminders will be sent to each member of the committee one week prior to the meeting date. The meeting should follow a standard agenda, including:

- I. Call to order
 - a. Roll call by secretary
 - b. Introduction of any visitors/speakers in attendance
- II. Review
 - a. Minutes of previous meeting should be reviewed and approved.
 - b. Unfinished business from previous meeting should be revisited and resolved.

- III. Activities
 - a. Accident/Incident forms for the previous quarter should be reviewed with an aim towards preventing recurrences.
 - b. Jobsite inspections, training programs, safety suggestions, and other activities should be discussed.
- IV. New Business
 - a. Any new safety issues or suggestions should be introduced to the team.
 - b. Appropriate assignments/tasks should be given to team members.
- V. Adjournment
 - a. Set time, date and location of the next meeting.
 - b. Dismissal

Meeting minutes should be taken, prepared, and circulated by the secretary and approved by the chairman. Committee members, the Safety Manager and upper management should receive copies of the meeting minutes. A copy of the minutes should also be posted on the employee bulletin board. The Safety Manager should maintain a copy of the meeting minutes for a period of one year.