

**Drilled Shaft  
Open Hole - Fall Protection &  
Operating Procedures & Policy**

**2019**

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## **Square B, LLC Safety Mission:**

To provide a safe and healthful work environment for employees, customers, and visitors, Square B, LLC. treats workplace safety as a top priority. All employees have the responsibility of implementing, administering, monitoring, and evaluating the safety program. The safety program's success depends upon the alertness and personal commitment of everyone.

Periodic safety audits will be undertaken to determine the feasibility of providing additional safeguards, safety devices or procedures to make the workplace as safe as possible. Square B, LLC. will undertake the responsibility of educating employees about workplace hazards they may encounter, and the proper and safe methods of performing job tasks.

All field employees are required to wear personal protective equipment (PPE) as set forth in this document when working at any SBL job site, shop areas, or the shop yard Square B, LLC. provides information to employees about workplace safety and health issues through regular internal communication channels such as Jobsite Safety Meetings, Monthly Safety Meetings, bulletin board postings, memos, and other verbal or written communications. Failure to attend regularly scheduled safety meetings may jeopardize your eligibility to work. Some of the best safety improvement ideas come from employees. Those with ideas, concerns, or suggestions for improved safety in the workplace are encouraged to raise them with their Supervisor or the Management. Reports and concerns about workplace safety issues may be made anonymously if the employee wishes. All reports can be made without fear of reprisal.

Each employee is expected to obey safety rules and to exercise caution in all work activities. Employees must immediately report any unsafe condition to the appropriate Supervisor. Employees who violate safety standards, cause hazardous or dangerous situations, or who fail to report hazardous or dangerous situations when appropriate, may be subject to disciplinary action, up to and including termination of employment.

# **GENERAL SAFETY RULES & REGULATIONS**

In the case of accidents that result in an injury, employees must immediately notify their Supervisor or another member of Management, complete an accident report, and turn it in to the Administration Office within 24 hours or by the following Monday morning, whichever comes first place. These accident reports are necessary to comply with laws and to initiate insurance and workers' compensation benefit procedures. Failure to comply with these directions could result in a delay or denial of the employee's benefits.

Square B, LLC. is fully aware that a stringent program of safety and accident prevention is essential to the successful completion of construction work, for economic reasons as well as health and humanitarian considerations. The health, welfare, and safety of Square B, LLC.'s employees is the prime objective for all projects. The following rules will not cover all hazards with which employees will be faced in the course of their work. Specific hazards will require special attention. Employees must always work as carefully and safely as possible. Any employee found to be in violation of the safety program will be subject to disciplinary action. All employees must be properly trained on all PPE and assistive devices.

- Report any unsafe conditions to your Supervisor immediately.
- Obey all safety and warning signs.
- A general condition of good housekeeping must always be maintained.
- Proper personal protective equipment (PPE) must always be worn.
- All injuries, no matter how minor, must be reported to your Supervisor immediately.
- Riding a crane or any other type of hoisting equipment not approved as a man hoist is prohibited.
- All hoisting slings and cables must be inspected by a qualified person before each use.
- No controlled substances of any kind are to be brought onto the job.
- Anyone found under the influence of any controlled substance or alcohol will be terminated.
- Any alcohol being transported must be packaged and not present in the truck cab.
- Fighting, horseplay, or practical jokes will not be tolerated.

- Stealing will not be tolerated.
- Hand tools must be kept in good working condition defective tools are to be taken out of services tagged and replaced.
- All equipment must be properly tagged and shut off when being lubricated, refueled, or adjust
- Gasoline must only be stored in metal fire safety cans and placed in a designated area
- Compressed gas cylinders must be in an upright position, secured at all times properly capped and stored in a designated area when not in use or being transported.
- Propane tanks must be secured with ratchet straps during transportation.
- All excavations must be properly dug, shored, and barricaded.
- Be alert for fires and have portable fire extinguishers readily available appropriately stationed.
- Back up alarms must be kept operative.
- Barricade the rear swing area, pinch zones, and crush zones of the drill rig and machinery that presents swing hazards.
- Do not walk under hoisted loads. Tag lines are always to be used
- No employee is to enter any pier or excavation without authorization from the Supervisor, who is to follow the "Procedures for Entering a Drilled Shaft".
- Machine safety guards covering rotating, turning, or moving parts must be in place and secured, at all times, when the machine is running.
- Ensure that all underground utilities have been located before digging.
- The use of Cell Phones or Bluetooth devices while operating any piece of equipment is strictly prohibited and grounds for immediate termination



**Equal Opportunity:** Applicants will be hired based on experience, training, personal background, and the potential for growth to build the best possible staff for the continued success of the Square B, LLC. SBL provides equal employment opportunity to all employees and applicants, regardless of race, religion, color, sex, age, national origin, veteran status, disability, or any other legally protected status, whether under state, federal, or local law or ordinance. It is the intent of Management that an equal opportunity will be provided in recruiting, hiring, testing, promotions, wages, benefits, and other privileges, terms, and conditions of employment. Square B, LLC. is a violence free workplace.

**Immigration Law Compliance** Square B is committed to employing only United States citizens and aliens who are authorized to work in this country. Square B, LLC. does not unlawfully discriminate based on citizenship or national origin.

In compliance with the Immigration Reform and Control Act of 1986, each new employee, as a condition of employment, must complete the Employment Eligibility Verification Form I-9 and present documentation establishing identity and employment eligibility. Re-verification to continue employment will be required should an employee's work authorization expire.

**Employment Status** It is the intent of Square B, LLC. to clarify the definitions of employment classifications so that the employees understand their employment status and benefit eligibility. These classifications do not guarantee employment for any specified period of time. Accordingly, the right to terminate the employment relationship at will and at any time is retained by both the employee and Square B, LLC. These categories apply to hourly and salaried employees. Employment status is designated as follows:

**Probationary** employees are those associates whose performance is being evaluated to determine whether further employment in a specific position with Square B, LLC. is appropriate. Employees who satisfactorily complete this introduction period of ninety (90) days will then be notified of their new employment classification. Associates in a probationary status are not eligible for SBL benefits.

**Part-time** employees are those who are not in a probationary or full-time status and who are regularly scheduled to work a part-time schedule of less than 30 hours per week. Part-time employees are not eligible for Taylor Ridge Drilled Foundation, Inc. Benefits.

**Regular full-time** employees are those who are not in a probationary or part-time status and who are regularly scheduled to work a full-time schedule of 40 or more hours per week and are eligible for overtime pay.

**Salaried** employees are those who are compensated at a weekly rate and are expected to work 40 or more hours per week and are not eligible for overtime pay.

**Hourly** employees are those who are compensated at an hourly rate and are eligible for overtime pay.

**Authorized Equipment Operator** A majority of the equipment required to complete our work will require either a specific license or specialized training prior to its operation. The company safety director is the only person authorized within our company to authorize and certify operators. **DO NOT UNDER ANY CIRCUMSTANCE OPERATE** any heavy equipment or vehicles without the safety director's express written authorization and issuance of certification.

**Authorized Motor Vehicle Drivers** Due to the extensive travel and the need to transport equipment, Square B, LLC. Requires all employees to have and maintain a valid driver's license. A valid driver is a condition of your employment.

All drivers must have the appropriate license for the vehicle driven. In addition, a Motor Vehicle Report (MVR) needs to be obtained prior to any employee driving any SBL vehicle.

**Revocation, Suspension Major Violations** If your license becomes revoked, suspended or you receive a major violation such as a DUI, DWI, Reckless Driving or have an at fault accident in a company owned or non-company owned vehicle while employed by SBL you are required to immediately inform your supervisor of the situation. Under no circumstance are you permitted to drive a company vehicle until a decision is made and notification is written is given to you by the company's safety director.

**Cellular Phone Use** The use of handheld cell phone while driving a SBL vehicle is strictly prohibited. (See – Cellular/Mobile Telephones)

**Vehicle Seat Belt Usage** SBL recognizes that seat belts are extremely effective in preventing injuries and loss of life. We care about our employees and want to make sure that no one is injured or killed in a tragedy that could have been prevented by the use of seat belts. Our policy required that seat belts be used by both drivers and passengers while traveling on official company

business, on company owned or leased property and while on project owned property. Employees are strongly encouraged to use their seat belts off the job as well. The purpose of this policy is to establish mandatory belt use as an organizational priority and designate responsibility for implementation and enforcement. Failure to do so is grounds for immediate termination of employment.

**Equipment Seat Belt Usage** Seat belt usage is mandatory while operating any heavy equipment on company or customer owned or leased properties. Square B has a zero tolerance for those refusing to or found not to be wearing their seat belt. Violators will be dealt with swiftly and is grounds for immediate termination of employment.

**General Public/Worker Relations** Square B, LLC. operates on the basis that every individual deserves to be treated with respect, courtesy, tact, and consideration. Therefore, we expect our employees to treat fellow employees, customers, and the general public accordingly. You should be aware of, and sensitive to, any behaviors that may be offensive to others. If you observe, or are the object of, such unprofessional conduct you are responsible to report it to your Supervisor or Management.

**Harassment** Square B, LLC. is committed to providing a work environment that is free of discrimination and unlawful harassment. Actions, words, jokes, or comments based on an individual's sex, race, ethnicity, age, religion, or any other legally protected characteristic will not be tolerated.

**Sexual Harassment** (both overt and subtle) is a form of employee misconduct that is demeaning to another person, undermines the integrity of the employment relationship, and is strictly prohibited. Any employee who feels they have been subjected to sexual or other unlawful harassment should promptly report the matter to his/her Supervisor. If the Supervisor is unavailable or the employee believes it would be inappropriate to contact that person, the employee should immediately contact the SBL President.

**Reporting** Harassment Employees can raise concerns and make reports without fear of reprisal. Any Supervisor who becomes aware of possible sexual or other unlawful harassment should promptly advise the President, who will handle the matter in a timely and confidential manner. Sexual harassment, as defined in this policy includes, but is not limited to, sexual advances, verbal, visual, or physical conduct of a sexual nature, or requests for sexual favors. Anyone engaging in

sexual or other unlawful harassment will be subject to disciplinary action, up to and including termination of employment.

**Housekeeping and Cleanup** Work Site cleanup is to be done each day on a continuing and ongoing basis. The job is not complete at the end of the day until all tools have been stowed, the site has been checked for safety hazards, and all scrap, trash and loose debris have been sorted, stacked and secured. Vehicle and trailer cleanup are to be done on a continuing daily basis, with all tools returned to their respective places and properly organized for the next day's work.

**Personal Property Personal** property must be removed from all vehicles at night and on weekends. Square B, LLC. assumes no liability for personal belongings, tools, and equipment that may be left in company vehicles or trailers.

**Personnel Records** Square B, LLC. maintains a personnel file on each employee. The personnel file includes such information as the employee's job application, performance appraisals (done annually), wage increases, MVR's and other employment records. Personnel files are the property of Square B, LLC. and state law governs access to the information. Employees who wish to review their personnel file should contact their Supervisor. With reasonable advance notice, employees may review their personnel file in the SBL offices while in the presence of an individual appointed by SBL to maintain the files.

**Use of Company Vehicles** Operation of Square B, LLC vehicles is restricted to pre-approved drivers only. Employees may be required to use SBL vehicles for multiple days while away on SBL business. It is SBL policy that the vehicles are not to be used for personal business, and vehicle use is restricted to transportation to and from the jobsite. It is the responsibility of the entire crew to keep vehicles clean and free of rubbish.

**Work Week** The regular working schedule for Square B, LLC. is Monday through Friday. All employees are to report and be ready to work at the start of their scheduled time. There may be days when employees are requested, by their Supervisor, to start earlier than the normal start times or to work later than their normal finish times. Additionally, there may be times when you are requested to work weekend hours.

**Normal Work Schedule:** Start Time 7:00 am Unless noted Safety Meeting 10:15 am to 10:20 am  
Stop Time 3:30 pm or as determined by your supervisor

**Lunch Break** 12:00 pm to 12:30 pm (not paid) will fluctuate as dedicated by the workload schedule. All consideration will be given to afford crew a lunch break if you're your work activity required you to work through lunch period you will be paid accordingly If your crew all agrees to work through lunch, the work day will end at 3 pm.

**Breaks:** SBL allows for up to 3 – 15 min paid break per day which is to TBD by the crew leader. This is NOT requirement nor an entitlement

**Overtime** No overtime allowed without prior approval from management: (Carl Whittle, Jimmy Hurt or Jonny Neuvirth)

**Mobilization/Travel Compensation:** Employees driving their personal vehicle to the job site will not be reimbursed for fuel or any other related expense and will only be compensated if the job site is greater than 1 hour (50 miles) from SBL home office.

**Compensation** Employee's will be compensated at their agreed upon at hire per mile rate of pay.

**Non CDL Licensed Drivers:** Hourly rate divided by 65 multiplied by the number of miles driven

**CDL License Drivers:** will be compensated based on their regular and or overtime hourly rate when operating in CDL capacity. Travel not requiring a CDL will be paid by mile. Compensation per mile will be calculated by taken hourly rated divided by 50 multiplied by total number of miles driven.

**Non-Licensed Drivers:** Employees who do not posses a valid license or who are not approved by the company to drive will be paid at the rate of .12 per mile.

**Travel Less than 100 miles** SBL employees are expected to drive to the job site and be there by 7 am and ready to start. If the job site is over 100 miles the employee will have the option to drive the night prior and stay overnight. The company will burden lodging costs up to \$100 per night. Prior approval must be granted by your immediate supervisor.

**Travel Up to 50 miles:** travel will not be compensated for when traveling to and from and from the job site. this includes driving personal vehicle or SBL owned crew truck that are empty, pulling

an enclosed trailer, or empty flatbed trailer. Employees tasked with hauling a loaded SBL equipment will be paid at their normal rate of pay

**Violations:** All violation received including, speeding, turn signal, stop light, stop sign, and parking tickets received will be paid by the employee not SBL regardless of the vehicle being driven. This includes tolls any fine that is above stated toll rate and issued for failure to make payment per local jurisdiction rules laws and regulations.

**Smoking:** Square B, LLC. smoking is allowed only in designated areas only. Smoking is prohibited inside SBL vehicles, equipment, shop areas, storage areas, offices, and conference rooms. Furthermore, no smoking will be permitted on site unless customer approved and has an established designated smoking area. **\_DO NOT** smoke during any fueling operation or near any flammable materials or liquids in or near vehicles, equipment, shop areas, or storage areas.

# JOB DESCRIPTION & DUTIES

## Job Descriptions & Duties

### Laborer/Oilers

Activities may include handling power and manual tools, shoveling, raking, sawing and nailing, working at considerable heights above the ground (with 100% fall protection measures in place) and other job duties as assigned. Work requires alert individuals with good balance, stamina and physical strength. The laborer job requires lifting up to 50 pounds, stooping, carrying, and bending on a frequent basis. Environment is exclusively outside, thus the job often involves all weather extremes and ground conditions.

1. Square B has a designated safety supervisor/competent person for each project. This is usually the drill operator. Make sure you are aware of who this person is so you know who can answer safety related questions.
2. Make sure you are trained in the safe methods of drilled shaft operations and have read the SBL Handbook and attend all job meetings, safety orientations and daily and/or weekly safety meetings. Ask questions if you are unsure of any procedures
3. You are **NOT allowed** to operate a skid loader and/or forklift unless you have been certified and received written authorization from SBL.
4. Use caution when assisting with the loading and unloading of drill rig equipment. Be on the lookout for low clearance, soft soils, or any unsafe conditions while identifying locations for the drill rig, casing, tools, or any other equipment to be positioned onto the jobsite.
5. All equipment must be inspected and repaired prior to its use by a competent person. You may assist the competent person in this task. Help inspect ground conditions to insure adequate and level support for the drill dig.
6. Wear the personal protective equipment (PPE) that you have been issued. Hard hats, eye and ear protection, and gloves will protect you from injury, but only if you wear them correctly. **Steel toed** boots must always be worn at all time while on a SBL job site or property owned by SBL. SBL will reimburse up to \$225.00 per year for boots.



7. Before any drilling begins, check to ensure all underground utilities have been located and a utility miss dig ticket has been issued. Keep a watchful eye out for overhead power lines to ensure equipment maintains a minimum clearance distance of no less than 20 feet regardless of the stated MAD distances. Under no circumstance shall a piece of equipment be allowed to come within 20 feet of a power line. If conditions present that require equipment impede the minimum 20' clearance distance all work must cease until a written power encroachment plan is developed and a qualified dedicated spotter has been assigned to supervisor.
8. Be aware of which direction the rig will swing to cast off spoils. At no time should you or anyone inside of the drill hazard zone while the drill is operating. If entry is required, you must first make visual contact with the operator and be given verbal authorization before entering. Stay alert for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. The equipment operators may not see you due to poor visibility from inside the equipment. If assisting in rigging operations, be sure to use properly sized rigging for all loads. Never work under a suspended load. The use of tag lines to control suspended loads being hoisted mandatory.
9. Shafts 30 inches or greater in diameter and 6 feet or greater in depth require the use of fall protection by person that come within 6' of the shafts outer edge, Fall protection anchor device must be at least 8' from edge of shaft. Side angle is not to exceed more than 45% from center of anchor point to center of Harness D ring attachment point. **The drill operator is not to drill the shaft without the proper fall protection in place.**
10. Proper covers such as steel plating or sufficient wood covers must be installed and properly secured over any open shaft that is left uncompleted and or will be left unattended for any period of time. All shafts poured below grade may not be left open but must be backfilled with sand or spoils immediately after

11. If Concrete is to be placed directly from the mixer truck into the shaft it is imperative that the soil have sufficient bearing strength to support a fully loaded mixer truck. Do not adjust the chute while the truck is in motion or walk under the chute under any circumstance. A preassigned designated signal person must be used when backing trucks to the shaft and while truck is on project property. Wear eye protection, proper rubber hand and foot protecting when pouring concrete. If fresh concrete makes contact your skin or splashes in your eyes, wash eyes and or effective skin area immediately. If a concrete pump is being utilized to place concrete, make sure all those connections are sound, safety pinned, and have whip checks in place. The use of steel pipe at the discharge end of the hose is strictly prohibition. Only those appointed by the company safety director as being a qualified person shall be permitted to give signals to the pump operator.
  
12. Under no circumstance are you allowed to descend a drilled shaft. Only those that have been properly trained and have been issued the proper certification credentials and have a current fit test certification are permitted to make down hole entries

## Concrete Finishers/Form Setters:

Concrete Finishers / Form Setters prime responsibility will be to screed concrete according to elevations provided per specified depth. Ability to finish workable consistency, smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, roads, retaining walls, and curbs using a variety of hand and power tools. Align forms for sidewalks, curbs, or gutters; patch voids; use saws to cut expansion joints. May direct subgrade work, mixing of concrete and setting of forms.

1. Report all work safely violations and report any injury immediately
2. Set concrete forms to the desired slope and depth
3. Muck concrete, using rake or shovel to desire concrete depth
4. Ability to work with others to screed concrete
5. Monitor how wind, heat, or cold affect the curing of the concrete throughout the entire process
6. Produce quality work on concrete surfaces
7. Should be able to cut control joints, using straight edge and jointer
8. Signal truck driver to position truck to facilitate pouring concrete, and moving chute to direct concrete in forms
9. Apply curing and sealing compounds to concrete surfaces
10. Operate power vibrators to remove voids
11. Chip, scrape, and grind high spots, ridges, and rough projections to finish concrete, using pneumatic chisels, power grinders, and hand tools
12. Cut out damaged areas, drill holes for reinforcing dowels, using a hammer drill
13. Install imbeds (anchor bolts, steel plates, door sills, and other fixtures) as specified
14. Ability to stamp concrete surfaces to provide a decorative finish
15. Pour grade beams, columns, and pilasters
16. Operate power trowels
17. Any other duties as assigned
  
18. Square B has a designated safety supervisor/competent person for each project. This is usually the drill operator. Make sure you are aware of who this person is so you know who can answer safety related questions.

19. Make sure you are trained in the safe methods of drilled shaft operations and have read the SBL Handbook and attend all job meetings, safety orientations and daily and/or weekly safety meetings. Ask questions if you are unsure of any procedures
20. You are **NOT allowed** to operate a skid loader and/or forklift unless you have been certified and received written authorization from SBL.
21. Use caution when assisting with the loading and unloading of drill rig equipment. Be on the lookout for low clearance, soft soils, or any unsafe conditions while identifying locations for the drill rig, casing, tools, or any other equipment to be positioned onto the jobsite.
22. All equipment must be inspected and repaired prior to its use by a competent person. You may assist the competent person in this task. Help inspect ground conditions to insure adequate and level support for the drill dig.
23. Wear the personal protective equipment (PPE) that you have been issued. Hard hats, eye and ear protection, and gloves will protect you from injury, but only if you wear them correctly. **Steel toed** boots must always be worn at all time while on a SBL job site or property owned by SBL. SBL will reimburse up to \$225.00 per year for boots.
24. Before any drilling begins, check to ensure all underground utilities have been located and a utility miss dig ticket has been issued. Keep a watchful eye out for overhead power lines to ensure equipment maintains a minimum clearance distance of no less than 20 feet regardless of the stated MAD distances. Under no circumstance shall a piece of equipment be allowed to come within 20 feet of a power line. If conditions present that require equipment impede the minimum 20' clearance distance all work must cease until a written power encroachment plan is developed and a qualified dedicated spotter has been assigned to supervisor.
25. Be aware of which direction the rig will swing to cast off spoils. At no time should you or anyone inside of the drill hazard zone while the drill is operating. If entry is required, you must first make visual contact with the operator and be given verbal

authorization before entering. Stay alert for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. The equipment operators may not see you due to poor visibility from inside the equipment. If assisting in rigging operations, be sure to use properly sized rigging for all loads. Never work under a suspended load. The use of tag lines to control suspended loads being hoisted mandatory.

26. Shafts 30 inches or greater in diameter and 6 feet or greater in depth require the use of fall protection by person that come within 6' of the shafts outer edge, Fall protection anchor device must be at least 8' from edge of shaft. Side angle is not to exceed more than 45% from center of anchor point to center of Harness D ring attachment point. **The drill operator is not to drill the shaft without the proper fall protection in place**
27. Proper covers such as steel plating or sufficient wood covers must be installed and properly secured over any open shaft that is left uncompleted and or will be left unattended for any period of time. All shafts poured below grade may not be left open but must be backfilled with sand or spoils immediately after being poured. Any protruding objects from the shaft such as rebar or anchor bolts must be clearly marked and proper barricading set to warn unsuspecting persons of the possible hazard. The cover that is place over the open hole must be clearly marked "Open Hole".
28. If Concrete is to be placed directly from the mixer truck into the shaft it is imperative that the soil have sufficient bearing strength to support a fully loaded mixer truck. Do not adjust the chute while the truck is in motion or walk under the chute under any circumstance. A preassigned designated signal person must be used when backing trucks to the shaft and while truck is on project property. Wear eye protection, proper rubber hand and foot protecting when pouring concrete. If fresh concrete makes contact your skin or splashes in your eyes, wash eyes and or effective skin area immediately. If a concrete pump is being utilized to place concrete, make sure all those connections are sound, safety pinned, and have whip checks in place. The use of steel pipe at the discharge end of the hose is strictly

prohibition. Only those appointed by the company safety director as being a qualified person shall be permitted to give signals to the pump operator.

29. Under no circumstance are you allowed to descend a drilled shaft. Only those that have been properly trained and have been issued the proper certification credentials and have a current fit test certification are permitted to make down hole entries

## Drill/ Equipment Operator

Drill Operators will be tasked with leading crews in the construction of deep foundations. The driller will be performing large diameter drilling, earth retention and shoring. The driller will be working with the project managers to make sure each project is completed on time and properly. Drillers will also be responsible for some onsite repair and maintenance.

1. Square B has a designated safety supervisor/competent person for each project. This is usually the drill operator. Make sure you are aware of all safety procedures and operations as you may need to answer safety related questions as they arise at the job site.
2. As the competent person you must insure that all the others at the job site have been trained in the safe methods of drilled shaft operations and have read the SBL Handbook and attended all job meetings, safety orientations and daily and/or weekly safety meetings.
3. In order to operate a skid loader and/or forklift, you must be able to show proof of being certified to operate such equipment.
4. Transport drilling equipment on the road and jobsite properly. Perform pre-trip inspections and use caution when loading and unloading drill rig equipment. You must know the weights and heights of equipment, secure the load, and insure safe access and work area stability.
5. Ensure that all equipment has been inspected, documented and repaired prior to its use. Inspection and repairs are to only be done by a competent person. Damaged or otherwise faulty equipment must be repaired or replaced prior to its use. Equipment that is unrepairable must be taken out of service and properly tagged as such

6. Provide all personnel at the job site with the personal protective equipment (PPE) they will need (i.e., hard hats, eye and ear protection, gloves). Train them on the proper use and care of their PPE and enforce its use. Ensure that steel toed boots are being worn at all times on the job site.
7. Before any drilling begins, check to ensure all underground utilities have been located and a utility miss dig ticket has been issued. Keep a watchful eye out for overhead power lines to ensure equipment maintains a minimum clearance distance of no less than 20 feet regardless of the stated MAD distances. Under no circumstance shall a piece of equipment be allowed to come within 20 feet of a power line. If conditions present that require equipment impede the minimum 20' clearance distance all work must cease until a written power encroachment plan is developed and a qualified dedicated spotter has been assigned to supervisor.
8. Be aware of which direction the rig will swing to cast off spoils. At no time should you or anyone inside of the drill hazard zone while the drill is operating. If entry is required, you must first make visual contact with the operator and be given verbal authorization before entering. Stay alert for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. The equipment operators may not see you due to poor visibility from inside the equipment. If assisting in rigging operations, be sure to use properly sized rigging for all loads. Never work under a suspended load. The use of tag lines to control suspended loads being hoisted is mandatory.
9. Shafts 30 inches or greater in diameter and 6 feet or greater in depth require the use of fall protection by person that come within 6' of the shafts outer edge, Fall protection anchor device must be at least 8' from edge of shaft. Side angle is not to exceed more than 45% from center of anchor point to center of Harness D ring attachment point. **The drill operator is not to drill the shaft without the proper fall protection in place.**
10. Proper covers such as steel plating or sufficient wood covers must be installed and properly secured over any open shaft that is left uncompleted and or will



be left unattended for any period of time. All shafts poured below grade may not be left open but must be backfilled with sand or spoils immediately after being poured. Any protruding objects from the shaft such as rebar or anchor bolts must be clearly marked and proper barricading set to warn unsuspecting persons of the possible hazard. The cover that is place over the open hole must be clearly marked "Open Hole"

11. If Concrete is to be placed directly from the mixer truck into the shaft it is imperative that the soil have sufficient bearing strength to support a fully loaded mixer truck. Do not adjust the chute while the truck is in motion or walk under the chute under any circumstance. A preassigned designated signal person must be used when backing trucks to the shaft and while truck is on project property. Wear eye protection, proper rubber hand and foot protecting when pouring concrete. If fresh concrete makes contact your skin or splashes in your eyes, wash eyes and or effective skin area immediately. If a concrete pump is being utilized to place concrete, make sure all those connections are sound, safety pinned, and have whip checks in place. The use of steel pipe at the discharge end of the hose is strictly prohibition. A qualified person shall be the only one permitted to give signals to the pump operator.
12. Under no circumstance are you allowed to descend a drilled shaft. Only those that have been properly trained and have been issued the proper certification credentials and have a current fit test certification are permitted to make down hole entries.
13. You must conduct a job site safety/production meeting prior to drilling at any new job site and each Monday if the project was not completed in the previous week. Never allow anyone at your job site to become comfortable with the hazards associated with drilled shaft installation.
14. Proficient in safely loading and lashing downloads for transportation.
15. Unloading equipment and tools
16. Perform pre-trip inspection and make minor mechanical adjustments on equipment.

17. Fill out and turn in reports on equipment condition when returned from a job.
18. Operating hydraulic track drills.
19. Operates tools and equipment to perform support tasks for drilling operations.
20. Provides manual labor as needed specific to the task.
21. Coordinate with Project Managers on project needs.
22. Works harmoniously with peers, supervisors, and the public and complies with Inland's policies.
23. Willingness to travel in the Midwest & Southwest region
24. Flexibility to come in early and/or stay late to meet the demanding schedule of a service-based company. Skills, Knowledge, and
25. Understand the nature of foundation drilling.
26. Proper use and understanding of crane rigging and signaling.
27. Drill tools and equipment knowledge and selection
28. Excellent organizational skills.
29. Excellent communication skills.
30. Self-motivated and willing to challenge themselves.
31. Ability to be given instructions and see that task gets accomplished. License(s) or Certification(s) Required:
32. Valid CDL driver's license. • Medical Card.
33. Forklift certification is recommended but not required; in house training and certification may be available.
34. NCCCO Crane certification is preferred but not required

## Drill Tender

Tenders will assist the operator of the drill rig during installation drilled shaft foundation Drill Tenders are responsible for tool positioning and attachment to Kelly bar, rigging of reinforcing steel, flagging, trouble checking and maintenance tool, operating an acetylene-cutting torch, grinder, operating motorized equipment, assisting in the assembly, rigging and disassembly, fueling and greasing of equipment, working at considerable heights above the ground with 100% fall protection measures in place and other job duties as assigned. Work requires alert individuals with knowledge drill shaft installation procedures, good balance, stamina, and physical strength. The job requires lifting to 50 pounds, stooping, carrying, and bending on a frequent basis. Environment is exclusively outside, thus the job often involves all weather extremes and ground conditions.

1. Square B has a designated safety supervisor/competent person for each project. This is usually the drill operator. Make sure you are aware of who this person is so you know who can answer safety related questions.
2. Trained in the safe methods of drilled shaft operations and have read the SBL Handbook and attend all job meetings, safety orientations and daily and/or weekly safety meetings. Ask questions if you are unsure of any procedure
3. Use caution when assisting with the loading and unloading of drill rig equipment. Be on the lookout for low clearance, soft soils, or any unsafe conditions while identifying locations for the drill rig, casing, tools, or any other equipment to be positioned onto the jobsite.
4. All equipment must be inspected and repaired prior to its use by a competent person. You may assist the competent person in this task. Help inspect ground conditions to insure adequate and level support for the drill dig.
5. Wear the personal protective equipment (PPE) that you have been issued. Hard hats, eye and ear protection, and gloves will protect you from injury, but only if you wear them correctly. Steel toed boots must always be worn at all time while on a SBL job site or property owned by SBL. SBL will reimburse up to \$225.00 per year for boots.

6. Before any drilling begins, check to ensure all underground utilities have been located and a utility miss dig ticket has been issued. Keep a watchful eye out for overhead power lines to ensure equipment maintains a minimum clearance distance of no less than 20 feet regardless of the stated MAD distances.
7. Under no circumstance shall a piece of equipment be allowed to come within 20 feet of a power line. If conditions present that require equipment impede the minimum 20' clearance distance all work must cease until a written power encroachment plan is developed and a qualified dedicated spotter has been assigned to supervisor.
8. Be aware of which direction the rig will swing to cast off spoils. At no time should you or anyone inside of the drill hazard zone while the drill is operating. If entry is required, you must first make visual contact with the operator and be given verbal authorization before entering. Stay alert for auxiliary equipment such as assist cranes, loaders, backhoes, skid steers, or others that may be working near the drilled shafts. The equipment operators may not see you due to poor visibility from inside the equipment. If assisting in rigging operations, be sure to use properly sized rigging for all loads. Never work under a suspended load. The use of tag lines to control suspended loads being hoisted mandatory.
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10. Under no circumstance are you allowed to descend a drilled shaft. Only those that have been properly trained and have been issued the proper certification credentials and have a current fit test certification are permitted to make down hole entries

# OSHA

## OSHA

One of the increasingly important functions of the Project Staff is implementation of OSHA requirements. An OSHA Officer may wish to visit the Project at any time. Legally, the Project Staff may require the Compliance Officer to produce a search warrant to inspect the construction site for violations. However, **THIS IS NOT the policy of Square B, LLC**. Generally, the Compliance Officer will be less likely to “nit-pick” if he/she has the cooperation of the Project Staff. The Safety Director should be notified immediately that an OSHA inspection is taking place. If an OSHA Inspector should appear for an inspection, the following procedures should be followed.

- Welcome the inspector, verify credentials, and determine then if the
- Inspection is a result of a complaint or just a general inspection.
- Brief inspector on JSA and insure they have proper PPE to enter the site.
- Contact the Office for instructions.
- Document Inspectors full name and contact information
- Accompany the inspector on the inspection of the job site. Be sure to take notes during the inspection. Be 100% cooperative with the inspector at all times. Take photos yourself and request that copies of photos and/or videos taken by OSHA be forwarded to the Safety Director.
- Relay the initial findings to the Safety Director as soon as possible.
- Correct what you can immediately.
- **DO NOT volunteer information or give answer to questions that you do not know**
- Ask if any citations may possibly be issued; if yes, correct all deficiencies immediately and do not hesitate to ask the OSHA inspector for input on the correction method

**OSHA 10 Certification** All employees who work in the field and or shop must have completed the 10-hour OSHA training and possess a current 10-hour OSHA card. OSHA does not require that the card be renewed, but you may be requested to do so by SBL. If the employee cannot produce a card, SBL's insurance company will provide the training. The employee's time for this training will be paid.

**OSHA 30 Certification:** All employees in a supervisor position must have completed and issued a certification as proof of training. OSHA does not require that the card be renewed, but you may be requested to do so by SBL. If the employee cannot produce a card, SBL's insurance company will provide the training. The employee's time for this training will be paid. At least 1-person site must have a OSHA 30 certification.



## Training Guidelines in OSHA Standards

Type of Activity/Training	29 CFR 1910 General Industry	29 CFR 1926 Construction	Who Receives	Frequency
Accident Prevention Signs and Tags	145	200	All	Initial / Periodic
Bloodborne Pathogens	1030		People with occupational exposure	Initial / Annual
Compressed Gas Safety	101		Employees using compressed gases	Initial
Confined Space	146	26(6)	Authorized entrants / attendants. Rescue Personnel	Initial / Periodic Initial / Annual
Control of Hazardous Energy (Lockout / Tagout)	147	407,432	Employees who may service or maintain equipment	Initial / Periodic
Crane, Derrick and Hoist Safety	Subpart N	550	Employees using/operating applicable equipment	Initial / Regularly thereafter
Emergency Action Plan	38	35	All	Initial / Periodic Change in Plan
Fall Protection	66 App C	501-503	All exposed workers	Initial / Periodic New Hazard or Equipment
Fire Prevention Plan	38		All	Initial / Periodic
Hazard Communication	1200		All who may be exposed to hazardous chemicals	Initial / Periodic New Hazard
Hearing Protection	95	52	Employees working in high noise areas	Initial / Annual
Job Hazard Analysis	Subpart I, App B		Employees exposed to workplace hazard	Initial / New Hazards
Ladder Safety	25, 26, 27	1053	Employees using applicable ladders	Initial / Change in Equipment
Medical Services and First Aid	151	Subpart D	First aid providers and any other	Every 2 years for providers; every 1 year for others

Type of Activity/Training	29 CFR 1910 General Industry	29 CFR 1926 Construction	Who Receives	Frequency
			employee	
New Employee Orientation			All	Initial
Personal Protective Equipment	132	Subpart E	Employees required to use PPE	Initial / Change in work place PPE use
Portable Fire Extinguishers	157		Employees with extinguishers in their work area	Initial / Annual
Powered Industrial Trucks	178	602 D	All designated Operators of forklifts	Initial / Every 3 years
Respiratory Protection	134	103	All employees required to wear a respirator of any type	Initial / Annual / New Hazard
Scaffold User Safety	134	103	All employees required to build or work on scaffolds	Initial
Storage and Handling of LP Gases	110	153	All personnel who perform installation, removal, operation, or maintenance	Initial / Periodic
Storage of Flammable and Combustible Liquids	106	152	Employees who handle, store, or dispense these products	Initial / Periodic
Trenching		Subpart P	All employees who work in excavations	Initial / Periodic
Violence in the Workplace (recommended)	General Duty Clause		Any	Initial
Welding	253	Subpart J	All employees who perform welding / cutting operations	Initial / Periodic

# **WORKING WITH ENERGIZED POWER LINES**

## Overhead Power Lines

The Supervisor must determine the voltage of any power line which will be in the proximity of the drill before drilling can commence. If the utility owner or utility operator is contacted allow 2 working days for a response. If the supervisor is unsure then he/she will contact the appropriate party for clarification. Assume all lines are energized regardless of what you may think.

**OUR STANDARD OPERATING PROCEDURE WHEN WORKING IN AROUND ENERGIZED CONDUCTORS REGARDLESS OF THE KV SIZE IS TO MAINTAIN A MIN OF 20' OF CLEARANCE AT ALL TIMES. IF THE TASK AT HAND REQUIRES A CLOSER APPROACH DO NOT PROCEED CONTACT SBL MANAGEMENT TO ASSIST WITH PROVIDING THE PROPER SUPERVISION AND OVERSIGHT.**

Use Table below to determine the equipment's Minimum Approach Distance

<b>Voltage</b>	<b>Minimum Clearance Distance</b>
Up to 50 kV	10 feet
Above 50-200 kV	15 feet
Above 200-350 kV	20 feet
Above 350-500 kV	25 feet
Above 500-750 kV	35 feet
Above 750-1000 kV	45 feet
Above 1000 kV	(As established by the utility owner/ operator or registered professional engineer who is a qualified person with respect to electrical power trans- mission and distribution)

If the drill rig is going to operate within 20' of an overhead power line up to 350 kV do the following:

Either:

- Mark boundaries at or outside the MAD with flags or range limit/range control warning devices. The operator must not operate the equipment beyond those boundaries

-Or-

- Define the work zone as an area 360° around the equipment, up to the equipment's maximum working radius for the actual work.

If any part of the equipment will come within 20 feet of the power line, there are three options:

- Option 1: The line may be de-energized and grounded – confirm with utility owner/operator.
- Option 2: Maintain the 20-foot clearance or implement the measures below.
- Option 3: Maintain the MAD identified in Table A below.

If Option 2 or Option 3 are to be used the following procedure must be followed:

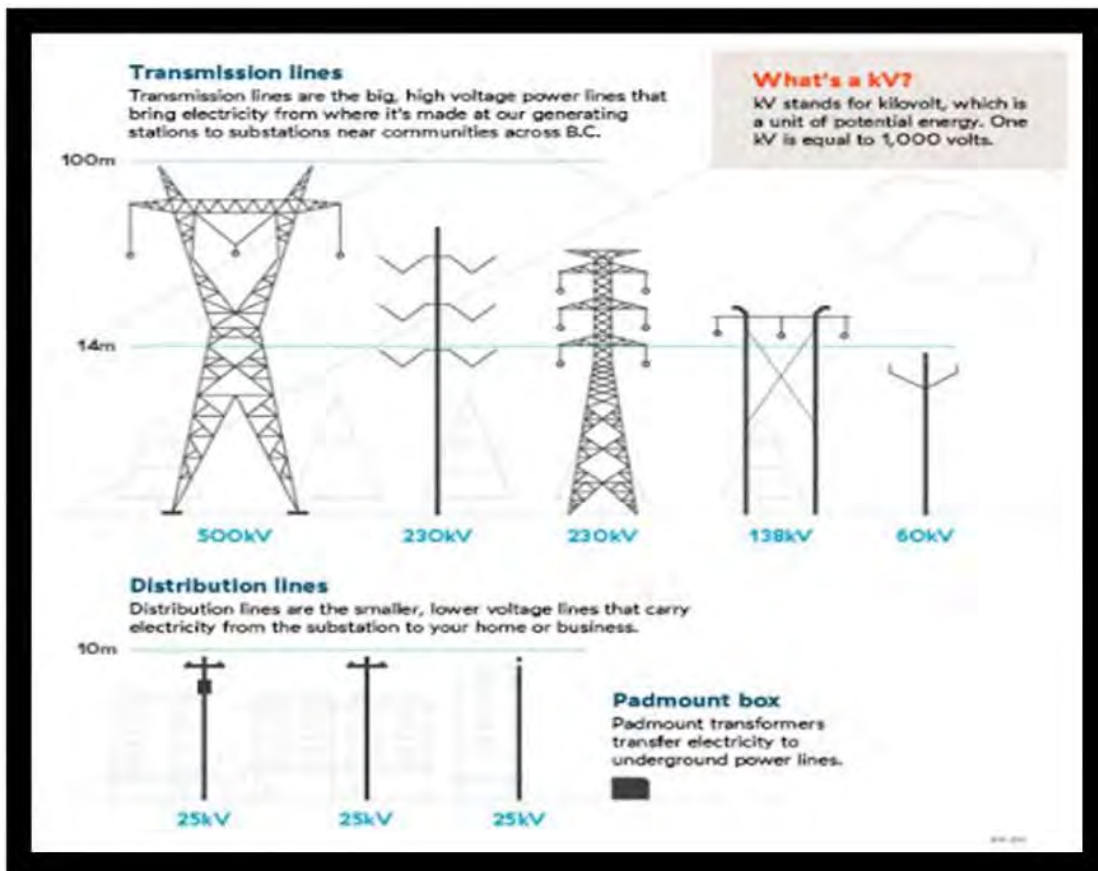
Conduct a planning with the operator and other workers who will be in the area to review the location of the power line(s), and steps that will be implemented to prevent encroachment.

ONLY Non-conductive tags lines may be used.

- Erect an elevated warning line, barricade, or line of signs, in view of the operator.
- The warning line must have flags or similar high-visibility markings at 20 feet from the power line if using Option (2) or at the Minimum Approach Distance under the table below if using Option (3).
- .If the operator is unable to see the warning line, a dedicated spotter must be used who is in continuous contact with the operator and the Use proximity alarm set to give sufficient warning to prevent encroachment.

Dedicated spotter must:

- Be positioned to effectively gauge the clearance distance.
- Use equipment that enables the dedicated spotter to communicate directly with the operator.
- Give timely information to the operator so that the required clearance distance can be maintained.
- Use a device that can automatically warn the operator when to stop movement, such as a range-control warning device that is set to give the operator sufficient warning to prevent encroachment.
- Use a device that automatically limits range of movement.
- Use an insulating link/device that is installed at a point between the end of the load line (or below) and the load.



# **WORKING ALONE**

## Staying Safe

There are some rare instances when routine shop work is done by one person although there is always at least one person in the office who is aware of the situation. There are many steps which are taken to help ensure the safety of the lone worker:

### **He must:**

- Assess the hazards of the workplace.
- Talk to office personnel about the work to be undertaken.
- Assess the risk and avoid having working alone whenever possible.
- If a job has a recognized risk he should wait until another worker is present.
- The worker should check-in prior to commencing the work and make sure that regular contact is kept with others.
- Office personnel should account for people (visually or verbally) while they are working by making periodic trips to shop areas.
- Schedule higher risk tasks to be done only when another worker capable of helping is present.

## CHECK-IN PROCEDURE

It is important that a check-in procedure be in place. A verbal check-in is adequate which will alert office personnel that the shop worker should be occasionally be accounted for by a visual check. The shop worker will have his cell phone on and with him at all times and will be another source of checking in.

When an employee is traveling to a job site the Project Manager will know the following details:

- Destination
- Estimated time of arrival
- Job site contact information



# **ENVIROMENTAL WORKING HAZARDS**

## Heat & Cold Stress

### Preventing Heat-Related Illnesses – Heat Stress

When the body heats up faster than it can cool itself, mild to severe illnesses may develop. It is important to recognize the symptoms of heat related illnesses and understand how to prevent, control, and respond to their effects.

Air temperature, humidity and clothing can increase the risk of developing heat related illnesses. So can the age, gender, weight, physical fitness, nutrition, alcohol or drug use, or pre-existing diseases like diabetes. How can heat related illnesses be controlled or prevented?

- Drink water – Drink small amounts of water frequently, about a cup every 15 to 20 minutes. Alcohol increases the loss of body fluids.
- Limit exposure time and (or) temperature. - Try to schedule hot jobs for cooler times of the day or cooler seasons of the year.
- Take rest breaks in cool areas - Add more workers to reduce workload if possible or reduce the hours worked each day.
- Acclimatization – Gradually adapting to the heat will reduce the severity of heat stress.
- Engineering controls – Mechanize heavy jobs or increase air movement with fans or coolers.
- Wearing loose, lightweight clothing – Clothing can affect heat buildup.
- Salt tablets should NOT be used – Taking salt tablets can raise blood pressure, cause stomach ulcers, and seriously affect workers with heart disease.

Someone with a mild reaction to heat may have a rash called “prickly heat” or painful muscle spasm, called heat cramps, during or after activity. A mild reaction may also include fatigue or dizziness. You may notice a change in physical or mental performance and an increase in accidents.

- Excessive sweating
- Cold, moist, pale, or flushed skin
- Thirst
- Extreme weakness or fatigue
- Headache and (or) nausea
- Lack of appetite
- Rapid weak pulse
- Giddiness

**If these symptoms are not properly treated, the victim may collapse.**

Anyone with mild or moderate symptoms should be moved to a cool, shaded place with circulating air. They should lie down and, if conscious, be given small sips of cool water at frequent intervals. If symptoms continue, a doctor should be called

In severe cases of heat illness, a heat stroke may result. The victim's face is flushed red and their skin is hot and dry with NO sweating. They develop a severe headache with deep breathing. They have a very high fever and may become delirious. They may become unconscious, have convulsions, or lapse into a coma. This condition is fatal unless emergency medical treatment is obtained. Immediately call for medical help. In the meantime, get them out of the hot environment, loosen clothing, and pour water over the entire body. Try to get air circulating around the body.

Recognizing the warning signs and symptoms of heat-related illnesses and using preventive and control measures can reduce the frequency and severity of heat illness while increasing worker productivity.

## Preventing Cold-Related Illnesses

Working in the cold for prolonged periods of time can cause many physical problems. One should take precautions to prevent cold stress in the workplace. There are several types of cold stress from which a person can suffer.

### Types of Cold Stress

**Hypothermia** is the most common type of cold stress. Hypothermia occurs when the body's temperature drops from a prolonged exposure in a cold environment. The body store energy and that is what keeps it warm at first. But as the body is exposed to cold it burns the stored energy faster than it can be replaced. As a result the body's temperature drops below normal.

Symptoms of Hypothermia are:

- A slowed heart beat
- Irregular breathing
- Drowsiness
- Feelings of extreme exhaustion
- Memory lapse
- Difficulty speaking

If someone is suspected of suffering from hypothermia, medical attention should be called for immediately. The victim should be kept in a warm room and any wet clothing should be removed. The victim should be wrapped in a blanket and given something warm to drink such as hot tea. This will help to raise the body temperature.

**Frostbite** is the second most common form of col stress. Is it caused by the body literally beginning to freeze and usually starts in the toes or fingers. These are the body parts which lose heat the fastest. In severe frostbite cased the tissue may become permanently damaged and have to be amputated to stop the spread of dead tissue.

There are several symptoms of frostbite:

- 1 - Numbness of the area.
- 2 - Tingling or aching feelings.
- 3 - Blueish waxy skin.

If someone is showing signs of frostbite call for medical help as soon as possible. The victim should try not to use the area of the body which is suffering from frostbite. For example, if it is the hands, do not use them to touch things or pick up objects. For the feet, do not continue to walk on them as it could cause more damage. Use warm water to help restart circulation. NEVER rub the area as it could cause the frostbite to spread. Never use a fireplace, stove or other hear source to warm up. Since the skin is numb the victim may get too close to the heat and cause burns.

## *How to Prevent Cold Stress*

There are simple ways to prevent cold stress while working. Working safely should be emphasized and it is extremely important to wear the right protective gear.

- Wear insulated work boots and wool socks.
- Never wear tight clothing. Room should be allowed to let air circulate.
- Keep a change of socks and other dry clothing in order to switch if something become wet.
- Wear gloves and insulated head covering under hardhat..
- Keep warm by drinking hot liquids such as tea, coffee, or hot chocolate.
- Eat something warm for lunch to help warm the body's core temperature.
- Take frequent breaks in warm areas such as the crew truck or a job trailer.

# **LOCK OUT & TAG OUT PROCEDURE**

## Lock Out / Tag Out

The purpose of this policy is to ensure that prior to beginning an inspection, any maintenance, or repairs on a piece of equipment in which there is a risk of the discharge of stored energy, the source of that energy be in a zero energy state.

Stored energy sources include:

- Electrical
- Hydraulic (Fluid/Liquid)
- Pneumatic (Air)
- Mechanical (Flywheels/Springs)
- Mechanical (Gravity)



In the case of Square B, LLC. the means of controlling against the discharge of energy will take one of two (2) forms:

- Energy Isolating Device – A mechanical device which physically prevents the transmission or release of hazardous energy, including:
  - A manually operated circuit breaker
  - Manually disconnecting the battery
  - A disconnect switch
  - A line valve
  - Blocking
  - Unplugging the device
- Operation Device – A key, switch, or button that is expressly intended for starting the piece of equipment.



Zero Energy State means that the piece of equipment has been purged of and (or) blocked from the discharge of stored energy in any way.



# **EQUIPMENT INSPECTION & MAINTENANCE**

## **Inspection**

Every piece of equipment used at a job site or in the shop is required to be inspected prior to it being operated. There will only be one person designated to carry out that inspection. In the case of drilling or support equipment the person conducting the inspection will have the key to the piece of equipment on his person at all times during the inspection and he is the only one on the job site or in the shop who is authorized to start that piece of equipment.

Tools with an electrical plug can simply be unplugged in order to render them at a zero-energy state. All tools will be unplugged before they are inspected and when changing blades, bits, or tooling.

## **Maintenance**

Any piece of equipment used at a job site or in the shop which requires maintenance is required to be put into a zero-energy state prior to the commencement of the maintenance operation.

There will be one person designated to oversee the maintenance operation. The person who is in charge of the work will have the key to the piece of equipment on his person at all times during the work and he is the only person on the job site or in the shop who is authorized to start that piece of equipment after the maintenance is completed.

It is his responsibility to ensure that the disconnect switch is the proper position or disconnect the battery as needed. All hydraulics should be lowered to the ground or blocked as to prevent any movement during operations. The only person who can re-engage the disconnect or reconnect the battery is the on one who has been designated to be in charge.

## Repairs

Any piece of equipment used at a job site or in the shop which is in need of repair is required to be put into a zero-energy state prior to the commencement of the repair operations.

There will be one person designated to be in charge of the repair operation. The person who is in charge of the work will have the key to the piece of equipment on his person at all times during the work and he is the only one on the job site or in the shop who is authorized to start that piece of equipment after the maintenance is completed.

It is his responsibility to insure that the disconnect switch is the proper position or disconnect the battery as needed. All hydraulics should be lowered to the ground or blocked as to prevent any movement during operations. If the hydraulic system is to be breached in any way, it is the responsibility of the person in charge to ensure that the hydraulic pressure has been neutralized prior to it being accessed. The only person who can re-engage the disconnect or reconnect the battery is the one who has been designated to be in charge.

## Training

All shop employees will receive training during orientation on this policy for the expressed purpose of ensuring awareness of who is authorized to carry out inspections, maintenance operations, and repair operations, and what each participant's responsibilities include and do not include.



**TAKE CARE OF  
THIS EQUIPMENT  
IF IT DOESN'T WORK  
... NEITHER DO YOU**

# **DRILLED SHAFT OPERATING PROCEDURE**

## DRILLING OPERATING PROCEDURE

The following procedure is to be followed and placed into action on all shafts exceeding 30" in Diameter and are greater than 6' in depth

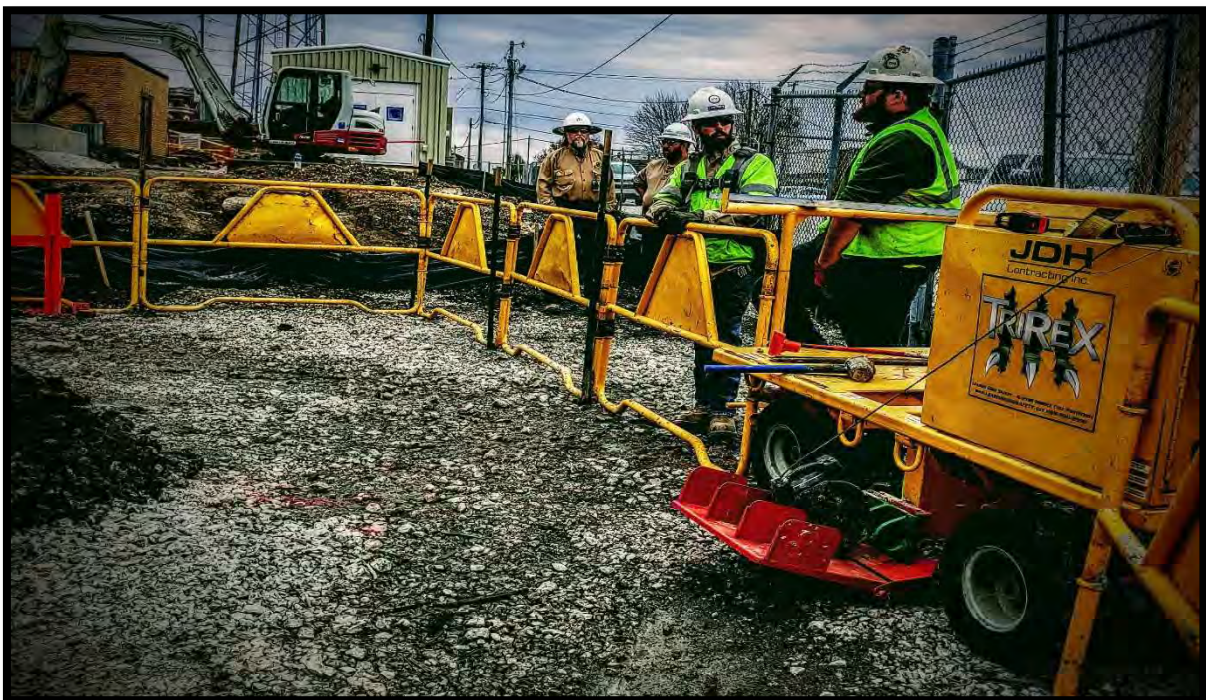
- Locate drill site and confirm structure number. Verify the presence of a current Underground Utility Locate Ticket. Survey the area to identify and confirm the presence of any potential underground and/or overhead encumbrances that could impact the job set-up. Confirm the presence of any known or suspected underground utility.
- Evaluate the work area ground conditions and surrounding environment. Ensure adequate ground stability where equipment will be stationed or positioned.
- A specific Job Briefing or Job Task Safety Analysis (JTSA) for drilled holes must be completed. Roles and responsibilities of all crew members will be listed on the form. Updated Job Briefings or Job Task Safety Analysis (JTSA) must be completed any time the working conditions or job activities change in a significant way from the original plan.
- Perform and document all necessary equipment inspections.
- Position digger/drill rig and all other associated equipment at the designated drill location. A minimum of 1 qualified spotter is to be used at all times while the drill is traversing
- Prior to start-up of the drill rig, effectively place a warning line system around the drill rig operating hazard zone
- All employees must wear a Class 2 reflective vests around the drilling operation. Warning line system can be established by using

Restricted Access Zone System (RAZ) must be set around the entire drill operating zone to control unauthorized access.

Open Excavation Protection System (OEPS) must also be established to protect from both unauthorized access and to alert of an open shaft posing fall hazards. Protect must be set up before drill shaft reaches six (6) foot in depth. This includes when casing is being installed

### Hard Barricades Setup (OEPS SYSTEM)

- An Open Excavation Protection System (OEPS) a required on all drilled shafts that exceed 30" in diameter and deeper than 6'. The OEPS is to remain in place during all drilling phases including setting rebar cage, anchor bolts, concrete forms and placement of concrete Once concrete is within 6' of the working surface fall protection is not required. Casing, if installed, extending above ground level is not an acceptable substitute for barricade nor is it negate the use for fall protection.





- There are two types of barrier systems available. One is a semi-circular ½ round barricade, and the other is a (4) sided, square system designed specifically for the open shaft excavation industry. SBL utilizes the 4-panel system Keep in mind



that regardless of type used the barricade is to be placed no closer than 6' from the edge of hole and must be capable of withstanding 250lbs of downward lateral force.

- The barricade should be placed in a manner that will prevent unauthorized access to the shaft from at least (3) sides whilst allowing the drill rig to swing out of the remaining opening to spin off spoil material.

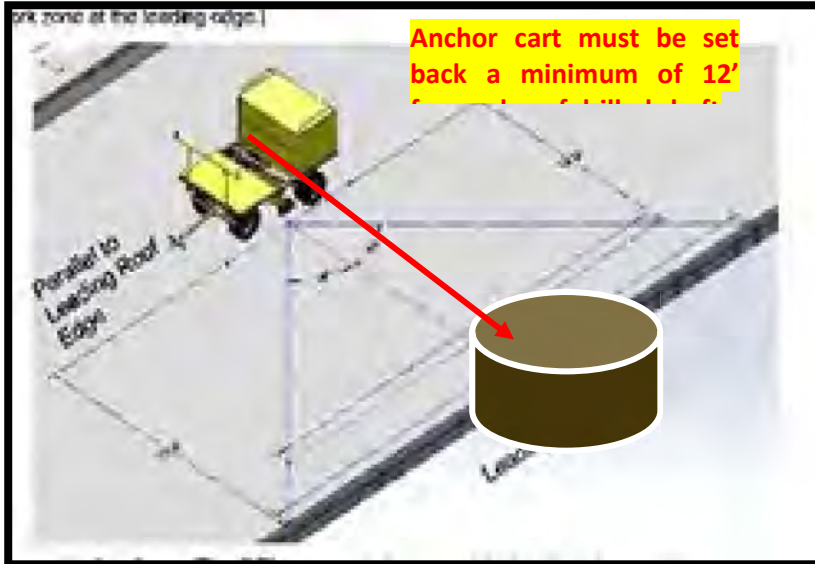
- If a shaft has been completed and the barricade is to be moved, the hole must be proper covered with a piece of ¾" plywood, a street plate, or a crane mat in order to prevent anyone from falling into the shaft.

### Hard Barricade Warning Signage

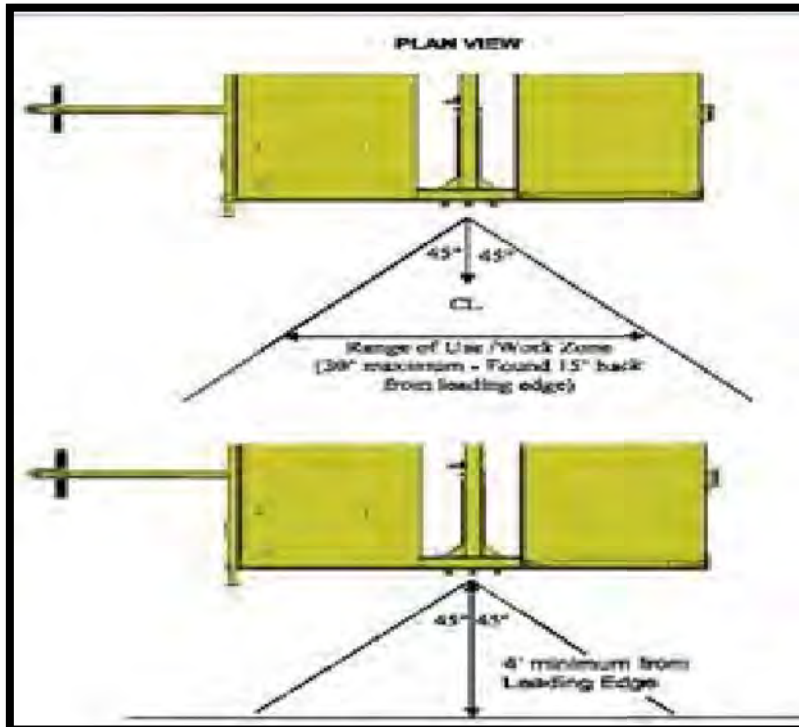
- At minimum of 2 warning signs, identical to the signs shown here shall be placed in a conspicuous location on the hard barrier in an effort to alert the unaware of open hole and heavy equipment hazards that are present and to make clear of the restricted areas that can only accessed by authorized personnel.



- Fall Protection Anchor Set Up (OEPS SYSTEM )** Anchorage Point SBL utilizes is an engineered fall protection cart manufactured by Raptor Safety. Cart is to be set no closer than 12' from the leading edge of the drilled shaft and position so as when in use workers do not extend past the 45-degree angle from center of attachment point in either direction.



point in either direction. See included drawings For complete information refer the fall protection equipment detail on page



## Soft Barricade (RAS System)

- Temporary barrier will be established by using red pennant flagging in combination with orange reflective cones, Cones must be a minimum of at 39" in height are to be used to cordon off the drill hazard zone and swing area. The area designated to be flagged off is normally dictated by the distance the drill can potentially throw spoil and rock material when the spin off gear is engaged This distance is usually no less than 60 radius feet measured from the center axis of the drill rig Cone must be orange in color with a minimum of 39" tall and supported by a rubber base that is no less than 12lbs. Cones are to be spaced ever 6-10 feet and flagging is to free from sun fade tears to pennant flags. A designated controlled access point must be established that will allow skid operator the ability to access the drill zone area when removing spoil becomes necessary. This path is to clear of obstacles and well defined and soft barricade off. At least 1 monitor will be required to provide operator backup assistance and to prevent unauthorized access into this area.





## Personnel Entering the (RAZ) or (OEPS) Zone

- Employees periodically are required to take depth measurements during the drilling process.
- When it becomes necessary to enter inside the RAZ, to take measurements, employees are required to wear a full---body harness and be tied off to a suitable anchorage utilizing a self---retracting lifeline
- The ground conditions around the hole should be evaluated by a competent person to determine if extra footing (mats, boards, etc.) needs to be in place for the person evaluating the hole.
- There should be enough anchorages to NOT allow the self-retracting lifeline **to cross over the hole.**
- Only authorized employees are permitted to be in the area during drill operations.
- **No employee can enter within the RAZ while the auger is rotating.**
- No one shall enter within the RAZ system without having received a job briefing on the work being performed, properly equipped with wear all appropriate personal protective equipment (PPE) and have received the required training.
- Entering to perform tasks such as setting the rebar cage, setting the direct embed poles, setting forms, pouring concrete, placing anchor bolts, etc. The ground conditions around the hole should be evaluated to determine if extra footing (mats, boards, etc.) needs to be in place for the person working around the drilled hole.

Employees that enter inside the RAZ are required to wear a full body harness and be tied off to a suitable anchorage utilizing a leading edge self-retracting lifeline. There should be a sufficient number of anchorages to NOT allow the self---retracting lifeline to cross over the hole.

# **OPEN SHAFT FALL PROTECTION**

## Person Fall Protection Equipment (OEPS System)

**Leading Edge SRL** A leading edge SRL is a self-retracting lifeline manufactured specifically, to meet the ANSI Z359. To meet this standard, a leading edge SRL will be made of stronger cable, will feature more wear-resistant components, and will include a robust energy absorbing technology integrated into the lifeline.

- Leading Edge type SRL' are required for all SBL projects do to the fact that because of the high frequency steel casing is utilized while installing drilled shafts and the potential this casing has to sever the SRL cable is a extremely high in causing catastrophic fail in the event of a fall and a non-leading edge type SRL was being utilized at the time
- SRL's designed for leading edge application (LE) will only be allowed on SBL projects. SRL must be properly identified as "leading edge" and clearly legible on the manufactures label.
- User must inspect prior to each use and the beginning of each shift. Inspection is to be documented.
- Monthly inspection is required by a competent person. Inspection is to document and kept as part of the permanent records
- Inspection by the manufacture must be performed annually. Only factory authorized personnel are permitted to make repair to SRL's.
- All defective SRL's are to be take out of service immediately properly tagged and sent to the home office for repair or replacement.

**GUARDIAN**  
FALL PROTECTION

**HALO CABLE SRL-LE**  
SELF-RETRACTING LIFELINE

**FEATURES & BENEFITS**

- Designed specifically for Leading Edge (LE) work.
- Carabiner included
- Integrated shock absorber
- Durable, non-corrosive components

**SWIVEL TOP**  
Prevents all rotation

**DEFINABLE ALUMINUM HOUSING**  
Prevented for harsh work environments

**WORKER LIFELINE**  
Resists cuts & abrasions

**SHOCK PULSE**  
80% less of coverage than other SRLs

**INDICATING SNAP HOOK**  
Shows if SRL has been inspected by Inspector

**SERIAL:**  
PART #10920

**SPECIFICATIONS**

<b>STANDARDS:</b> OSHA 1926 Subpart M & 1910 ANSI Z359.14-14 & A10.52-12	<b>PERFORMANCE:</b> <b>LE SRL:</b> - Max. Arrest Force: 1,000 lbs. - Max. Arresting Distance: 1,000 ft. - Fall Clearance: 17' - 21' <b>Non-LE SRL:</b> - Max. Arrest Force: 1,000 lbs. - Max. Arresting Distance: 50' - Fall Clearance: 14' - Class B SRL	<b>WORKER CAPACITY:</b> <b>LE SRL:</b> 130-310 lbs. <b>Non-LE SRL:</b> 130-420 lbs.
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## Anchorage Point (OEPS System)

- Tired Fall Protect Car MODEL R2000-0115 by RAPTOR SAFETY is the only approved anchorage point permitted SBL projects. Rated to accommodate 2 users



simultaneously. Meets or Exceeds OSHA 1926.502 fall arrest anchor systems standards. Cart is to be inspected daily and documented on the inspection daily report prior to use each day and at every shift change. A qualified person must perform a weekly inspect and document. Inspection forms are to be kept inside of cart box sealed in the mounted weatherproof container that is mounted on the inside door. Annual inspection must be performed by manufacture for recertification. *Operation and Inspection example forms are attached here within. .*

- **The use of any others means other than the Raptor Tired fall cart for anchorage points such as equipment and vehicles is strictly prohibited.**
- Check for loose, bent or damaged parts, including talon and claw tips.
- Check welded connections for distortion, cracks, or other damage.
- Check Tie-off Rings for distortion or damage
- Check cables for rusting and/or wear before each use – DO NOT use if cable and cable connections have been damaged
- All labels must be present and fully legible. (Copies of all labels are attached at the back of this section for accurate inspection.)
- Check for corrosion on entire unit.
- Check Safety Cable Ring Attachment plate for freedom of movement.
- Check Engagement Arm for freedom of movement.
- Check that the Engagement Arm Locking Mechanism is in the proper spring-loaded position.
- Contact Leading Edge Safety, LLC at 1-888-990-2990 for replacement parts.
- **IMPORTANT: IF THIS UNIT HAS BEEN USED IN A FALL ARREST:** The bronze bushings located at the pin connection where the Engagement Arm is attached to the frame MUST be replaced regardless of the magnitude of the previous fall.

## Full Body Harness (OEPS System)

- The full body safety harness is a key part of an active fall arrest system. The **harness** serves two purposes, first, distributing **fall** forces safely across a worker's body in the event of a free **fall**, and second, providing freedom of movement sufficient to allow the worker to effectively perform his or her job.
- It is imperative that your harness fits correctly
- Leg straps should be snug Back D-Ring between shoulder blades and Rescue D ring located on the front also referred to as a positioning D ring should be between your nipples.
- The body harness should be removed from service and replaced if there are any signs of wear or damage. Harness is to be stored properly in an appropriate manner as to minimize exposure to moisture, dirt and sunlight when not in use.

## Harness Inspection Storage & Care

- Inspect each strap of the body harness by bending. Watch for frayed edges, broken fibers, pulled stitches, cuts, burn marks, or chemical damage. Special attention should be given to the attachment of buckles and D-rings to the strap webbing.
- Rivets should be tight and unmovable with fingers. Bent rivets will fail under stress. Rivet base and outside rivet burr should be flat against the webbing material. Special attention should also be given to the condition of the D-ring rivets.
- Buckle tongues should be free of distortion in shape and motion. Check for distortion or sharp edges. Inspect the friction buckle for distortion. The outer bars and center bars must be straight.
- Inspect the D-ring for cracks and other defects. Check for distortion, cracks, breaks, and rough or sharp edges. The D-ring should move freely.
  - Inspect the keeper (latch) to ensure that it seals into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. The thimble must

be unmovable in the eyes of the splice and the splice should have no loose or cut strands. The edges must be free of sharp edges, distortion, or cracks. Inspect the shock-absorbing lanyard by slowly rotating it so the entire circumference is checked along its entire length paying special attention to the factory spliced ends for defects or weakness

- **Storage** areas should be clean, dry, and free of exposure to fumes or corrosive elements. Harnesses should only be stored in areas where there is not exposure to excessive heat or direct sunlight
- **Cleaning** methods established by the manufacturer must be followed for all the components. Generally, the following would apply for body harnesses:
  - Wipe off surface dirt with a sponge dampened in plain water. Use soap and water to clean as needed.
  - Wipe the belt dry and hang it freely to dry. Do not leave in an area of excessive heat or exposed to long periods of sunlight

**General guidelines for proper body harness fit include:**

- The body harness type and size must meet the specific physical needs of the user (male/female, small/medium/large etc.)
- Manufacturer's specifications for proper fit are to be followed.
- Shoulder, thigh, buttock, and chest straps should fit snugly enough that it is slightly difficult to slide the hand underneath.
- Loose strap ends should be folded back under to prevent them from catching while in use.



- D-ring should be placed between shoulder blades and chest straps should be positioned across the mid-chest area.

## HOW TO PROPERLY DON, ADJUST, AND INSPECT A FULL BODY HARNESS

# FULL BODY HARNESS 101

### DONNING THE HARNESS

**1** **UNTANGLE AND VISUALLY CHECK HARNESS**  
Guide the harness by the dorsal D-ring and follow the chest strap to untangle. Carefully look over the harness webbing for abrasions, the hardware for excessive wear, and the Impact Indicators to ensure it hasn't been in a fall.

**2** **DON THE HARNESS**  
Fit your arms through the shoulder straps like a jacket. Don't secure the chest strap yet.

**3** **ADJUST FROM THE BOTTOM UP**  
The side pelvic straps should meet just below your tailbone. Raise or lower this using torso adjusters, usually above the waist belt.

**4** **CONNECT & ADJUST LEG STRAPS**  
These should be snug, but not overly tight. You should be able to slide 2 or 3 fingers between your leg and the strap.

**5** **CONNECT & ADJUST CHEST STRAP & WAIST BELT**  
Waist belt should be snug, but not too tight or too loose. The chest strap should rest directly across your chest cavity. Not too high, not too low, but right to the mid-stitch to keep you safe.

### TYPES OF CONNECTORS

**STANDARD BUCKLES**  
Easy operation, cannot slip once in position.

**RATCHET CONNECTORS**  
Easiest operation, but can occasionally require readjustment.

**FRICTION STRAP CONNECTORS**  
Cheapest option, hardest to use and adjust properly.

**DORSAL CONNECTION**  
This D-ring is found on all ANSI harnesses. It's used for fall arrest and should be placed directly between the shoulder blades.

**CHEST STRAP**  
Lower harnesses have another D-ring here. It's the only other connection point which can be used for fall arrest. Sit-on a collar choker system. Unlike the Dorsal D, fall distance must be limited to 2 feet or less.

**WORK POSITIONING**  
Side D-rings are used for work positioning. Never fall arrest.

**SEAT SLING**  
A seat is a common feature on lower harnesses, and if you're working in suspension, you'll be glad you have one. Look for features like additional load hooks or suspension reinforcement. D-slips can be connected using a spreader bar.

### INSPECTING THE HARNESS

Visually inspect these key areas of the harness every time, prior to beginning work. If you find any of these problems, take the harness out of service.

**Webbing:**  
Cuts, tears, excess abrasion, holes, discoloration, UV damage, frayed damage, wetting (alg, chemical damage), hard spots.

**Connectors:**  
Damaged stitching, broken threads, pulls and loose stitches, missing acetone.

**Latching:**  
Deliberately, corrosion and rust, zipper ricks and drops, excess wear, proper operation.

**Impact Indicators:**  
Deployed impact indicators, broken D-ring plates, deformed goosenecks.

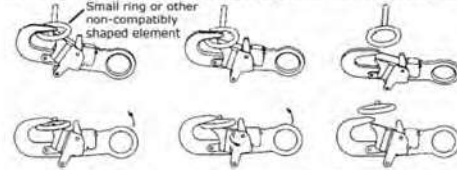
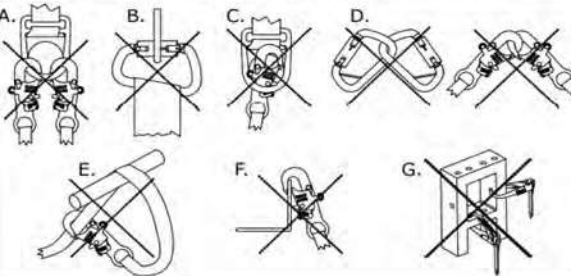
**Labels:**  
Missing, faded, date of manufacture, expiration tag, model, serial, warnings.

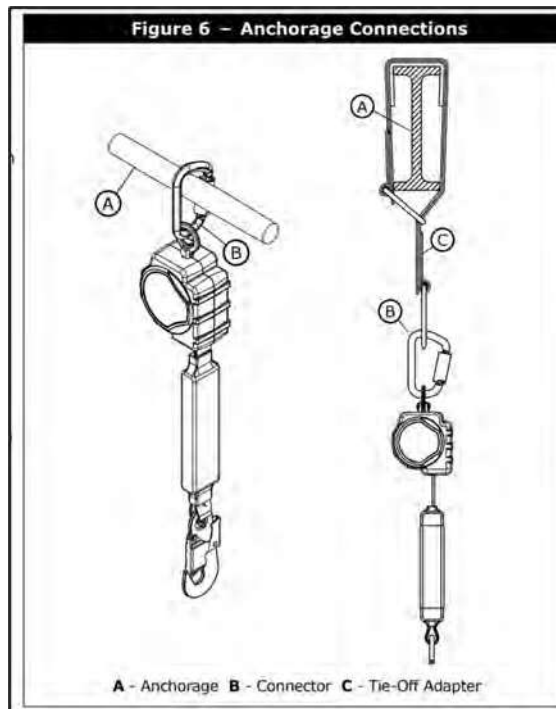
## ConnectiNG SRL and Cart Anchorage Point

- Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their sizes and shapes do not cause their gate mechanisms to inadvertently open regardless of how they become oriented.
- Connectors (hooks, carabiners, and D-rings) must be capable of supporting at least 5,000 lbs. (22.2 kN). Connectors must be compatible with the anchorage or other system components. Do not use equipment that is not compatible. Noncompatible connectors may unintentionally disengage
- Connectors must be compatible in size, shape, and strength. Self-locking snap hooks and carabiners are required by ANSI Z359 and OSHA. 2.16
- Making Connections: Snap hooks and carabiners used with this equipment must be self-locking. Ensure all connections are compatible in size, shape and strength.
- Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked. Use only as specified in each product's user's instructions.
- Do not connect snap hooks and carabiners: to a D-ring to which another connector is attached. In a manner that would result in a load on the gate.
- Large throat snap hooks should not be connected to standard size D-rings or similar objects which will result in a load on the gate if the hook or D-ring twists or rotates, unless the snap hook complies with ANSI Z359.1-2007 or ANSI Z359.12 and is equipped with a 3,600 lb (16 kN) gate.
- Check the marking on your snap hook to verify that it is appropriate for your application.
- In a false engagement, where features that protrude from the snap hook or carabiner catch on the anchor, and without visual confirmation seems to be fully engaged to the anchor point. To each other Directly to webbing or rope lanyard or tie-back (unless the manufacturer's instructions for both the lanyard and connector specifically allows such a connection). F. To any object which is shaped or dimensioned such that the snap hook or carabiner will not close and lock, or that roll-out could occur. G. In a manner that does not allow the connector to align properly while under load





Figure 4 – Unintentional Disengagement	Figure 5 – Inappropriate Connections
<p>If the connecting element to which a snap hook (shown) or carabiner attaches is undersized or irregular in shape, a situation could occur where the connecting element applies a force to the gate of the snap hook or carabiner. This force may cause the gate (of either a self-locking or a non-locking snap hook) to open, allowing the snap hook or carabiner to disengage from the connecting point.</p>  <p>Small ring or other non-compatible shaped element</p> <p>Force is applied to the Snap Hook.</p> <p>The Gate presses against the Connecting Ring.</p> <p>The Gate opens allowing the Snap Hook to slip off.</p>	 <p>A. B. C. D. E. F. G.</p>



## **Fall Protection - Training**

All training in the use of the fall protection systems described in this manual will be documented and those documents will be by the Safety Director. Training will include the dates of the training, the topics covered, and the names of all personnel who attended the training.

New Employees with work responsibilities which may require the use of fall protection devices will receive training as part of their 8-hour orientation. This training will be documented as described above.

Site Specific Training will take place each job site as part of the Job-Site Analysis planning. The specific type of fall protection to be used will be discussed before the commencement of any drilling operations.

New Hazard Training will take place if and when it is discovered that the program may have gaps which have to be specifically addressed.

New Equipment Training will be undertaken if the equipment being introduced to the work site is significantly different than what is currently being used. This training may be done formally or as part of a Site-Specific Training.

## The Training Regime will at a minimum includes

- The nature of fall hazards in a typical work situation
- The correct procedures for erecting, maintaining, disassembling, and inspecting the various types of Fall Protection Equipment being used.
- The correct fit, maintenance, and use of the Personal Fall Arrest
- System components if being used.
- Rescue procedures in the event of a fall

# Rescue Plan

