



# CSDA Best Practice

**Title:** Establishing and Maintaining the Work Area  
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## Introduction

Concrete sawing and drilling work areas are usually extremely busy places. These work areas often contain equipment and contractor personnel, with a consistent and high level of activity. Each person entering into a concrete sawing and drilling work area must exercise care for their own personal safety and that of others. They also must comply with basic safety standards, standards and requirements provided by rule or regulation, or by specific standards and protocols issued for the site. The following provisions are recommended but are not exclusive. None of them are necessarily required; adaptation to the specific site and activities may be appropriate or required by law or other authority. These suggestions are not intended to set a standard of conduct but are offered as guidance. Other authority may require certain equipment or procedures; any such directives will take precedence over these suggestions.

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### 1. Defining the Work Area

The work area should be defined in order to control access for safety and security purposes. This may be accomplished by determining the perimeter of the work area and setting up a barrier. Caution tape or hard barriers can be used to prevent unauthorized persons from entering the work area.

## 2. General Safety and Health

The following elements of safety and health should be considered when establishing a work area:

- Compliance with all applicable local, state and federal traffic and safety rules, regulations, codes and ordinances.
- Pedestrian through traffic is discouraged, but if it is necessary it should be separated.
- The work area should be kept clean and orderly.
- Debris and waste should be stored safely and removed from the work area when not needed.
- If feasible, cutting operations should be kept wet to prevent exposure to airborne silica.
- There should be adequate illumination in the work area.
- Floor openings should be covered or otherwise guarded.
- Smoking areas should be established, where applicable.
- Emergency telephone numbers and procedures should be posted for all employees to see.
- When not in use, equipment should be properly locked out to control hazardous electrical, hydraulic, pneumatic or gravitational energy.

### 2.1. Means of Egress

It is important for all employees to have a means of exiting the work area. The following should be considered when establishing means of egress from the work area:

- All exits should be clearly marked and include an exit sign illuminated by a reliable back-up light source.
- If a route to an exit is not immediate, directions should be marked with highly visible signs.
- Doors, passageways or stairways that are neither exits nor access to exits, and which could be mistaken for exits, must be appropriately marked. As an example, such points could be marked "NOT AN EXIT," "TO BASEMENT" or "STOREROOM."
- All exits should be kept free of obstructions.
- At least two means of egress should be provided.
- Exits should be sufficient to permit prompt escape in case of emergency.
- Exit doors should open with the direction of exit travel and without the use of a key, and without any special knowledge or effort.
- A safe gathering place should be assigned in the event of an evacuation. The location should be communicated to all.
- A headcount should be performed at the assigned gathering place following an evacuation of the work area.

### 2.2. Walkways

- Aisles and passageways should be kept clear.
- Wet surfaces should be covered with non-slip materials.
- Adequate headroom (or a warning) should be provided for the entire length of any aisle or passageway.
- Guardrails should be provided wherever aisle or walkway surfaces are elevated more than 30 inches above any adjacent floor or the ground.
- Bridges should be provided over conveyors and similar hazards.

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### 3. Personal Protective Equipment

Employers should provide personal protective equipment (PPE) to employees and ensure its use. PPE is worn to minimize exposure to a variety of hazards. The following should be provided for sawing and drilling operations in the work area. In most cases, these items should be in place at all times while in the work area.

- A highly visible, reflective safety vest
- Steel-toed safety boots
- Hard hats
- Eye protection
- Hearing protection
- First aid supplies
- Protective gloves
- Respirators, where required

For more information on PPE, refer to CSDA Toolbox Safety Tip (TST) #165.

### 4. Stairways and Ladders

All ladders should be maintained and in good condition. The joints between the rungs and side rails should be tight and all hardware and fittings should be securely attached. Movable parts should operate freely without binding or undue play.

Ladders should always extend at least 3 feet above the elevated surface. Metal ladders should not normally be permitted and may be prohibited by other rules. Ladders should be used only for their intended purpose and inspected before each use. Damaged or modified ladders should be removed from service.

For more information on ladder safety, refer to CSDA TST #142 or OSHA/CSDA Alliance Best Practice CSDA-OBP-1006.

### 5. Elevated Surfaces and Scaffold

Scaffolding forms and temporary structures maybe necessary to support people and material in the renovation or selective demolition of buildings and other structures. Serious injury or death can result if sawing and drilling contractors fail to comply with all applicable safety requirements when erecting, using or dismantling scaffolding. The following should be considered when using scaffolding in the work area:

- Aerial lifts must be operated and inspected by a competent person.
- Signs must be posted, showing elevated surface load capacity.
- Surfaces elevated more than 30 inches above the floor or ground should be provided with standard guardrails.
- Elevated surfaces (beneath which people or machinery could be exposed to falling objects) must be provided with standard 4-inch toe boards.
- Means of access and exit must be provided to elevated storage and work surfaces.
- Required headroom provided.
- Material on elevated surfaces should be piled, stacked or racked in a manner to prevent it from tipping, falling, collapsing, rolling or spreading.
- Dock boards or bridge plates should be used when transferring materials between docks and trucks or rail cars.

For more information on scaffold safety, refer to CSDA TST #105-A or OSHA/CSDA Alliance Best Practice CSDA-OBP-1005.

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## 6. Floor and Wall Openings, Demolition

The following should be considered when creating floor or wall openings in the work area:

- Floor openings should be guarded by a cover, a guardrail or equivalent on all sides except at an entrance to stairways or ladders.
- Toe boards should be installed around the edges of permanent floor opening where persons may pass below the opening.
- Skylight screens should be constructed and mounted so that they will withstand a load of at least 200 pounds.
- Grates or similar type covers over floor openings, such as floor drains, should be designed so that foot traffic or rolling equipment will not be affected by the grate spacing.
- Unused portions of service pits and pits not in use should either be covered or protected by guard rails or equivalent.

## 7. Fall Protection

Guardrails are used to protect people from falling into floor openings or open-sided floors. Guardrails can be found around elevator shafts, pits, duct chases and platforms, and must be capable of withstanding, without failure, a force of at least 200 pounds applied in any outward or downward direction. For further information, refer to OSHA Standard 1926.500, 1926.501, 1926.502 and 1926.503 or visit [www.osha.gov](http://www.osha.gov).

Personal fall arrest systems should be inspected prior to every use. Damaged or modified components should be removed from service. Personal fall arrest components should be in working condition and free from visible damage. Personal fall arrest systems that have been subject to impact loading should be immediately removed from service and inspected by a qualified personal.

Personal arrest systems consist of:

- Body harnesses
- Deceleration devices
- Lanyards
- Connectors
- Anchorage
- A rescue plan

For more information on fall protection, refer to CSDA TST #111.

## 8. Electrical Safety

Electricity is widely recognized as a potential workplace hazard, exposing sawing and drilling operators to electric shock, burns, fires, and explosions. Working in a work area around electrical conductors and equipment can be particularly dangerous, because electrical energy often cannot be sensed until contact is made. Here are some examples of how electrical hazards can be reduced in the work area:

- Use electrical power drops.
- Provide protection for cable runs to avoid being driven over by vehicular traffic.
- Use GFCI 120V systems.
- Check electrical cords for signs of fraying or broken insulation.
- Electric tools and equipment should be grounded or double insulated.

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- Ground connections must be clean and tight.
- Motors should be clean and kept free of excessive grease and oil.
- Portable lights should be equipped with proper guards.

For more information on electrical safety, refer to OSHA/CSDA Alliance Best Practice CSDA-OBP-1004.

## 9. Fire Protection and Prevention

Fire extinguishers for the work area should be available in adequate numbers and be the correct type. Extinguishers should be secured during transport. They should also be inspected monthly for general condition and operability, and inspections should be noted on the inspection tag. Fire extinguishers should be recharged regularly and the safety pin should be in place. Extinguishers should not obstruct walkways or doors.

Other things to be considered:

- Use the type of fire extinguisher that corresponds to the type of material burning.
- Never use an extinguisher that contains water or foam on an electrical fire.
- Know where extinguishers are located and how to use them. Follow the directions printed on the label.
- Keep the area around the fire extinguisher clear for easy access.
- Treat extinguishers like work tools and take care of them.
- Never remove inspection tags from extinguishers.
- Have extinguishers inspected as and when required.
- Report any defective or suspect extinguishers to your supervisor so they can be replaced or repaired immediately.

## 10. Hand and Power Tools

Many sawing and drilling contractors use hand-held tools for cutting concrete and other masonry. Severe injuries can occur when using this type of equipment if not handled correctly. It is important for sawing and drilling operators to observe specific safety requirements for each type of tool used. Operators should consider the following:

- When using electric hand power tools, make sure electrical equipment such as cords and generators are in good operating condition and use ground fault circuit interrupters (GFCI). When using hydraulic tools, make sure all lines and fittings are in good condition and hoses are not leaking.
- Inspect the backside of the work area. Make sure there are no obstructions such as electrical or gas lines. If unable to inspect the area, get assurances there are no hazards before starting work.
- Form a stable base when performing cutting work.
- Do not perform cutting work while on ladders or scaffolding.
- Keep hands clear of all moving parts while the tool is running.
- Where applicable, make sure the tool has an air filter that is in good working order to prevent dust build-up in the motor.
- Switch off the motor and disconnect the plug before carrying out any maintenance or inspections. Any tools that are unfit for use should be removed from site.

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## 11. Motor Vehicles and Mechanized Equipment

Sawing and drilling contractors can often operate in large work areas where it is necessary to have vehicles travel through the area where operators are using heavy equipment. Whether an operator is responsible for a vehicle or piece of equipment, or whether they are working around work area traffic or heavy equipment, it is important to be aware of potential hazards.

Equipment should be properly guarded to maintain the safety of operators and other workers nearby. Blade guards should be in place during operation. Compressed gas cylinders should be examined regularly for defects, deep rusting and leaks. Any cylinders that are deemed unfit for use should be removed from the work area.

In most fatal accidents involving forklifts, the operator is the one who is killed. Many of these accidents may be avoided as long as safe driving skills are understood and practiced. There are many safety areas for concrete sawing and drilling contractors to consider when operating forklifts. It is recommended that employers and workers comply with OSHA regulations, maintain equipment, consider the following measures to help prevent injury.

### Pedestrian Safety

- Be aware of pedestrians and give them the right-of-way.
- Do not allow anyone to walk, stand or ride on or under the forks.
- Do not allow a person to get between the forklift and a hard surface like a wall, table, bench or any other fixed object.
- Use a horn, mirrors or flash the lights to indicate a presence to others.

### Parking

- Do not park on an incline.
- Turn the engine off when the forklift is unattended or refueling and do not smoke around a forklift.

### Driving

- Do not operate a forklift unless trained and deemed competent by an employer.
- Maintain awareness at all times.
- Always use a seatbelt and keep arms, legs, head and feet inside the forklift when driving.
- Never drive with the forks up or use the forklift to push other vehicles.
- Do not jump from an overturning, sit-down type forklift. Stay with the truck, holding on firmly and leaning in to the opposite direction of the overturn.
- Use extreme caution on grades or ramps. On grades, tilt the load back and raise it only as far as needed to clear the road surface.
- Do not handle loads that are heavier than the weight capacity of the forklift.
- Operate the forklift at a speed that will permit it to be stopped safely; remember it will take a forklift traveling at 10 mph at least 22 feet to come to a full stop on a dry surface.
- When dismounting from a forklift, set the parking brake, lower the forks or lifting carriage and neutralize the controls.
- A supervisor should be told of any damage or problems that occur to a forklift.

For more information on forklift safety, refer to CSDA TST #195.

## 12. Materials, Occupational Health and Environmental Controls

Material Safety Data Sheets (MSDS) contain important information concerning the nature, composition and safe handling of chemicals, materials and products. By law, these documents must be supplied when requested.

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A MSDS is a written document that provides employees, product users and emergency personnel with information and procedures needed for handling and working with chemicals, materials and products. A MSDS outlines the physical and chemical properties of a chemical and/or material, describes potential hazards associated with the substance (health, storage cautions, flammability, radioactivity), prescribes emergency actions and provides spill and clean-up information. The document also includes manufacturer identification, address, MSDA date and emergency telephone numbers. MSDS information must be maintained at each job or in company vehicles so that employees may have access to review them at any time.

Sawing and drilling operators should consider air quality when performing cutting work in confined spaces. The availability of clean, breathable air is required for any operator to complete his or her work safely. Confined spaces that have poor air quality, or are not properly ventilated, can lead to operator illness or death. In this regard and in general, CSDA recommends the use of electric saws when working inside.

- Ensure that the correct length of ducting is in place when using ventilation equipment.
- Ensure there are no kinks in the ducting.
- Consider using multiple blowers with shorter ducting lengths if adequate ventilation cannot be supplied by one unit.
- Perform a site survey to determine how ventilation equipment will be powered.
- Be aware that some confined spaces or work areas may have restrictions on exhaust fumes.
- Appropriate operator training on confined spaces is essential before performing sawing or drilling work. In addition, the person responsible for safety in the work area should also have received formal confined space training.

Hazard communication is the process of inspecting the work area for all possible hazards. Operators must practice hazard communication every day, in every work area to prevent accidents and ensure a safe work environment. When inspecting a work area, operators should ask themselves:

- Where am I working?
- What hazards are present?
- How can they hurt me?
- How can I protect myself?

For more information on hazard communication, refer to CSDA TST #123.

### 13. Excavations

To avoid injuries and citations arising from unsafe trenching and excavations, follow these rules:

- All trenches must be approved by a competent person who knows trenching and excavation standards. A competent person should have the authority to shut down a job that appears to be unsafe.
- A protective system must be used in all excavations that are 5 feet deep or greater, except for excavations in “stable rock.”
- Any excavation that is greater than 20 feet deep must include a protective system designed by an engineer.
- Operators working in trenches must be aware of changes in weather and vehicle traffic near the trench.

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- Operators working in trenches must have means of access and egress. Egress must extend 3 feet above the trench.
- A ladder must be placed every 25 feet of trench length.
- There are three different types of protective systems. Sloping involves cutting back the trench wall at an angle inclined away from the excavation. Shoring requires installing aluminum, hydraulic, or other types of supports to prevent soil movement and cave-ins. Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins.
- OSHA requires that trenches and excavations are inspected by a competent person daily before workers enter, and whenever there is a change in conditions.
- Keep heavy equipment away from trench edges and do not work under raised loads.
- Test for low oxygen, hazardous fumes and toxic gases where necessary.

For more information on trenching and excavation safety, refer to CSDA TST #113-A.

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