



CONCRETE CUTTING

Potential Hazards

1. noise (hearing loss)
2. cuts/laceration/amputation
3. flying objects/eye injury
4. electrical shock
5. repetitive strain injuries
6. respiratory illness

Personal Protective Equipment Required

- | | | |
|-----------------|--------------------|-----------------|
| Hard hat | CSA Boots | Eye protection |
| Hand protection | Hearing protection | Skin protection |
| Mask/respirator | | (clothing) |

PRELIMINARY ACTIVITIES

Where multiple trade activity is scheduled, the general contractor is to review in advance the priority of work and schedule the appropriate time frame to allow each trade to complete their scope of work. Prior to any work commencing supervisors must conduct a hazard assessment of all applicable work areas. Any hazards that are found during the hazard assessment must be addressed prior to any work commencing.

HAND-HELD SAWING

Hand-held saws are more prone to potentially fatal kick-back, push-back and pull-in movements.

Fuel-driven saws are more likely to cause a build-up of hazardous fumes in enclosed spaces (eg in cold stores or low lying areas such as pits). Electrical, compressed air or hydraulically-driven saws should be used in these situations.

Note: Never use hand-held saws for inverted cutting.

PREPARATION

1. Make sure all drill areas have been scanned for electric cables.
2. Check all electrical equipment has current safety tags.
3. Suspend all electric cables safely above floor or ground level.
4. Check all mechanical parts for loose components.
5. Ensure there is a hand-hold for the operator's non-trigger hand and there are suitable grips for both right and left handed operators.
6. Use a saw that is light and practicable for the type of work, to reduce the risk of strain injury.
7. Ensure the blade is appropriately guarded.
8. Use balanced equipment with anti-vibration hand-grips that are comfortable to use and provide sufficient support so the operator's hands aren't placed in dangerous positions near the blade or vibrate unnecessarily.
9. Use correct diamond cutting blade or abrasive disc for the material being cut, as recommended by the manufacturer, so the operator does not have to force the cut (some concrete cutting blades are not designed to cut steel).
10. For horizontal cutting, use a saw that is capable of cutting right-to-left as well as left-to-right without having to reposition the blade or guard.
11. Ensure an automatic cut-off switch is fitted and no modifications have been made from the saw's original manufactured form.
12. If pipes are to be cut, ensure that they are properly supported and chocked to prevent the pipe from moving and the saw cut from closing in on the blade.
13. Set the work piece at a suitable height for cutting (approximately waist height).
14. Inform others at the workplace that cutting is about to begin.
15. Barricade the area with appropriate signs warning of noise and drilling.
16. Ensure any person assisting the operator is positioned so they are not in any danger from sudden saw movements or ejecting material.
17. Carry out fuelling with the saw turned off and well away from ignition sources such as hot exhausts.
18. Check the cutting area has a clear and level working surface.
19. Ensure the cutting area is well ventilated.
20. Collect all slurry with a wet and dry vacuum cleaner and dispose of it safely.
21. Suspend all electric cables safely above the floor or ground level.



22. Ensure the operator and others stand away from the path of the blade when starting the machine and the blade is not touching any object.
23. Use the handles (rather than the belt guard) to support the equipment.

OPERATION

1. Mark the cut line with a waterproof crayon or permanent marker.
2. When cutting, stand with one foot firmly in front of the other, with the body balanced and the back close to vertical.
3. Maintain an upright posture with both feet flat on the ground.
4. Don't cut above shoulder height – use a safe platform or scaffold if required.
5. When cutting horizontally across a wall, the operator's hands should be at waist level.
6. Operate cutting and drilling equipment away from combustible material, fumes, wet slurry and electrically powered equipment.
7. Make the first cut about 25–50mm deep to enable a straight cut.
8. Use sufficient water or coolant to suppress dust and cool the blade.
9. If cutting a pipe, ensure cutting always takes place in the lower quadrant of the blade.
10. Don't force the machine; let the machine do the work.
11. Stop work immediately if any fault in the blade or machine is detected.

CUTTING SLABS ON THE GROUND AND ROAD SAWING

PREPARATION

1. Establish an exclusion zone around the work area.
2. Place bunding around the cutting area to contain excess water and slurry.
3. Secure the area to be cut.
4. Pre-mark the cut line with a waterproof crayon or permanent marker pen.
5. Measure the length of cut that needs to be made.
6. Select the correct saw blade diameter to suit the requirements of the cut and technical conditions.
7. Carry out a pre-start check in accordance with manufacturer's instructions.
8. Lift the blade off the ground before starting or stopping the machine.

OPERATION

9. Fit all blades with guards before starting the machine – refer to the appropriate training manual or manufacturer's guide.
10. Ensure sufficient amounts of water are used while operating.
11. Cut in a straight line.
12. Saw only as deep as the job specifications and conditions require.
13. When using concrete saws, lower the blade into the cut slowly and proceed to cut forward.
14. Use consistent pressure that does not force the blade to 'climb' out of the cut.
15. To avoid overworking the saw, set engine revolutions to the cutting speed recommended by the manufacturer for the material.

ROAD SAWING SUSPENDED SLABS

PREPARATION

1. Use a qualified person, such as a structural engineer, to determine the correct load bearing capacities of the slab.
2. Shut off, cap or otherwise control all electric, gas, water, sewer, steam and other service lines not required at or outside the building line, before any cutting commences.
3. Establish an exclusion zone around the work area.
4. Place bunding around the cutting area to contain excess water and slurry.
5. Secure the area to be cut.
6. Pre-mark the cut line with a waterproof crayon or permanent marker pen.
7. Measure the length of cut that needs to be made.
8. Select the correct saw blade diameter to suit the requirements of the cut and technical conditions.



9. Carry out a pre-start check in accordance with manufacturer's instructions.
10. Lift the blade off the ground before starting or stopping the machine.

OPERATION

1. Fit all blades with guards before starting the machine – refer to the appropriate training manual or manufacturer's guide.
2. Ensure sufficient amounts of water are used while operating.
3. Cut in a straight line.
4. Saw only as deep as the job specifications and conditions require.
5. When using concrete saws, lower the blade into the cut slowly and proceed to cut forward.
6. Use consistent pressure that does not force the blade to 'climb' out of the cut.
7. To avoid overworking the saw, set engine revolutions to the cutting speed recommended by the manufacturer for the material.

WALL SAWING/TRACK MOUNTING

PREPARATION

1. Establish a controlled method for removing waste blocks.
2. Establish an exclusion zone around the work area.
3. Place bunding around the cutting area to contain excess water and slurry.
4. Secure the area to be cut.
5. Pre-mark the cut line with a waterproof crayon or permanent marker pen.
6. Measure the length of cut that needs to be made, allowing extra track length for the saw head.
7. Drill bolt holes to fix tracks to the wall, using suitable drop-in steel anchors.
8. Select the correct saw blade diameter to suit the requirements of the cut and technical conditions.
9. Carry out a pre-start check in accordance with manufacturer's instructions.
10. Check the pressure on the hydraulic gauge.

OPERATION

1. Use sufficient water or coolant to suppress dust and cool the blade.
2. Stand away from the path of the blade when starting the machine.
3. Refer to the manufacturer's manual when determining the maximum saw blade.
4. When changing to a second blade, align the blade with the previous cut before cutting again.
5. To avoid overworking the saw, set engine revolutions to the cutting speed recommended by the manufacturer for the material.
6. In case of an emergency, turn off the main switch on the power unit – this is the quickest way to stop the blade and the power unit.
7. Use correct manual handling techniques when lifting the wall saw onto the rails (eg where practicable, use the track to move the saw head (otherwise, use team lifting).
8. Cordon off the area at the back of the wall where the blade comes out when cutting through to avoid injury to other people and damage to materials.
9. Use a spotter if necessary.
10. Ensure any person assisting the operator is positioned so they will not be exposed to danger from sudden saw movement, ejecting material, a dropped machine or falling off-cuts.
11. Turn off the power pack and remove the saw blade before lifting the cutting head from the rails.

WIRE SAWING

PREPARATION

1. Obtain approval from the site supervisor.
2. Mark out the cuts with a waterproof crayon or permanent marker.
3. Ensure the crane or lifting device is designed for the load and the weight of the concrete block does not exceed the maximum permitted floor loading.
4. Determine the cutting sequence and remove the structural components.
5. Secure the danger area.



6. Create drill holes for the passage of wire if necessary.

OPERATION

1. Position/mount the diamond wire saw.
2. Use anchoring elements appropriate for the base material to secure the wire saw and roller supports.
3. When mounting the rollers supports and diverting rollers, ensure that the diverting rollers are positioned at the entry and exit points to intercept the diamond wire at the end of cutting.
4. Connect the power supply.
5. Round off the corners.
6. Insert the diamond wire and grind in the wire manually.
7. Twist the diamond wire, join the wire together and align the guide rollers.
8. Install water supply and water lances.
9. Secure the concrete blocks that will be cut out to ensure they cannot overturn or fall out.
10. Allow the diamond wire to start up at low tension in order to avoid jamming, then increase the tension and wire speed.
11. Switch off and clean the diamond wire saw and roller supports.
12. Disconnect the wire and disassemble the diamond wire saw and roller supports.
13. Remove the concrete blocks.
14. Secure the opening.
15. Dispose of the sawing slurry.

CORING TECHNIQUES

PREPARATION

1. Ensure all drill areas have been scanned for electric cables.
2. Check all electrical equipment has current safety tags.
3. Suspend all electric cables safely above floor or ground level.
4. Check all mechanical parts for loose components.
5. Ensure the power supply is protected by a residual current device (RCD).
6. Erect barricades and clear no-entry signs to areas where drilling or coring is in progress and isolate the area below drill sites on horizontal slabs with either a spotter or danger signs.

OPERATION

1. Ensure holes have been marked and centres given with a waterproof crayon or permanent marker.
2. Secure the core drill with anchor bolts or in accordance with the manufacturer's specifications.
3. Ensure the drill machine is solidly fixed with no movement of the mast.
4. Attach the drill to the mast and make sure it is secure.
5. Start the drilling of all holes in low gear, stopping the motor before changing to a higher gear and operate the machine in accordance with the manufacturer's instructions.
6. Feed tap pressure water into the hole to bring up slurry and keep the hole saw bit cool.
7. Where possible, fit holes or fit safety covers over drilled core holes and attach warning signs if necessary.
8. Remove slurry and cores to prevent slip and trip hazards.
9. Never drill inverted holes using an electric drill unless the equipment is fitted with a specifically designed water collection ring – use hydraulically driven equipment as a safer alternative.