GRINDING

Potential Hazards

1. flying objects
2. hearing loss (noise)
3. exposure to chemicals
4. respiratory disease
5. cuts/lacerations/amputations

Personal Protective Equipment Required

Hard hat	CSA Boots	Eye protection
Hand protection	Hearing protection	Skin protection
Respirator/mask	Face protection	(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.

DO'S:

1. Wear goggles for all grinding machine operations.
2. Check grinding wheels for cracks before mounting.
3. Use proper wheel guards on all grinding machines.
4. Barrier or enclosure systems are required to restrict access to the work area.
5. Local exhaust ventilation (LEV)—use concrete grinders with HEPA vacuum attachments.
6. Always handle and store wheels in a careful manner.
7. Visually inspect all wheels before mounting for possible damage or cracks.
8. Make sure operating speed of machine does not exceed speed marked on the wheel.
9. Check mounting flanges for equal and correct diameter (should be 1/3 diameter of the wheel and relieved around the arbor hole). Refer to ANSI B7.1 Table 14
10. Adjust proper cup guard so that it is between the operator and the wheel. Set the "skirt" guard to within 1/8 inch of the cup wheel's rim (grinding surface).Use mounting blotters that are supplied with wheels.
11. Always use safety guard that covers a minimum of ½ the grinding wheel. Refer to ANSI B7.1
12. Allow newly mounted wheels to run at operating speed, with guard in place, for at least one minute before grinding.
13. Turn off coolant before stopping wheel to avoid creating an out-of balance condition.
14. Clamp or secure all work-pieces before grinding.
15. Grind only on a cup wheel's rim.
16. Avoid bumping or striking the wheel onto any surface. Hard impacts can damage the wheel and cause it to break.
17. Feed the wheel into the work-piece at an even speed. Attempting to grind too fast will cause excessive strain on the wheel and may result in breakage.
18. Stop grinding and investigate any unusual sounds, vibrations, or anything that appears abnormal.
19. Keep hands and other body parts clear of the grinding wheel and spark stream.
20. Maintain your tools as if your life depends on it.
21. Replace damaged wheel guards.
22. Always handle and store grinding wheels in a careful manner.
23. Wear proper personal protection such as eye and face protection, apron, gloves, safety shoes, hearing protection, etc. while grinding
24. Shield bystanders and any flammable materials from the spark stream (shower).
25. Follow any symbols and warnings located on the wheel.
26. Review all applicable MSDS (Material Safety Data Sheets) before using a cup wheel.
27. Contact the manufacturer if you have any safety questions.

DON'Ts:

1. Never adjust the machine while it is operating.
2. Never operate grinding wheels at speeds in excess of the recommended speed.
3. Do not exceed recommended depth of cut for the grinding wheel or machine.
4. Do not use a wheel that has been dropped or appears to have been damaged.

5. Do not force a wheel onto the machine or alter the size of the mounting hole – if the wheel won't fit the machine, get one that will.
6. Do not use mounting flanges on which the bearing surfaces are not clean, flat, and smooth.
7. Do not tighten the mounting nut excessively.
8. Do not start the machine until the safety guard is properly and securely in place.
9. Do not jam work into the wheel.
10. Do not stand directly in front of grinding wheel whenever a grinder is started.
11. Do not grind material for which the wheel is not designed.
12. Do not grind without proper ventilation.
13. Do not exceed the speed marked on the cup wheel.
14. Do not use spacers, washers, or hex nuts behind cup wheels. These items may aid in the removal of the wheel, but can lead to wheel breakages.
15. Do not "hang" the wheel below the cup guard.
16. Do not use Type 27 (depressed center) or Type 28 (saucer-shaped) wheel guards with cup wheels because they are too shallow to offer full protection.
17. Do not remove the "skirt" or bottom of the cup guard.
18. Do not alter a cup wheel. If the cup wheel does not fit on the tool, then get the correct tool or wheel.
19. Do not use excessive downward pressure while grinding.
20. Do not use on any machine NOT equipped with the proper cup guard.
21. Do not grind wood or other non-approved materials with an abrasive cup wheel.
22. Do not create a fire hazard. Shield any nearby flammable materials to prevent ignition from the spark stream (shower) or from latent sparks.
23. Do not allow the wheel to "load up" with the material you are grinding.
24. Do not grind on the side of a cup wheel.
25. Do not strike the cup wheel onto the work-piece or any item as it may become damaged or break.
26. Do not use this equipment if you have not reviewed all of the safety materials and have not been properly trained in the use of the tool and wheel.

SAFE WORK PROCEDURE

Grinding concrete surfaces generates high levels of silica-containing dust. Breathing in this fine dust can cause a serious and irreversible lung disease called silicosis.

PRE-OPERATIONAL INSPECTION

Inspect equipment and ensure:

- Electrical lead/plug undamaged, tested/tagged and be supplied with RCD protection.
- Electrical lead not placed in areas where it may be damaged or pose a tripping hazard.

Once the above planning is achieved by the General Contractor, then:

1. Proper eye protection and personal protection equipment must be used.
2. Evaluate the area for hazards and the impact on other workers in the grinding area. Where a worker, other than the grinder, is exposed to concrete dust, the area should be restricted by the use of caution tape.
3. Grinding machines must only be used for what the manufacturers intended them for.
4. Proper work rests and protective equipment must be used.
5. Maintenance and good working order of all components in the grinding process must be maintained.
6. Signage must indicate that cement finishing is in progress and that respiratory protection is required.
7. Barricades must be erected to ensure that unsuspecting or unprotected personnel do not enter into an area where there is active cement finishing in progress.
8. The use of abatement system must be used in areas where vacuums, water or barriers are not adequate.
9. Adequate ventilation must be maintained.
10. Each worker doing concrete grinding is to be assigned a respirator for his sole use.

11. The respirator is to be fitted correctly by the Site Safety Officer. A record of assigned safety equipment is to be kept by the Site Safety Officer
12. Only authorized and trained personnel with an assigned respirator is to perform grinding work.
13. Persons who are required to wear a respirator will not wear contact lenses.
14. The respirator wearer is to perform the two fit tests each time he places the mask over his face.
15. Check wheel guards are in place and properly adjusted.
16. Check grinding wheel is firmly secured.
17. Inspect the grinding wheel before turning on the power. Do not use wheels that are chipped or cracked.
18. Test equipment for proper operation.
19. Work area to be clean, dry, and unobstructed.
20. Provide adequate lighting.
21. Provide mechanical ventilation when using half-mask respirator.
22. Do not operate a grinder with one hand.
23. Stand to one side of the wheel before turning on the power.
24. When grinding use the operating face of the wheel only.
25. Do not use a wheel that vibrates.
26. Do not over reach when operating grinder.
27. Before putting down a grinder the wheel must be stopped.
28. A grinder is to be put down with the wheel facing up.
29. Disconnect the grinder from the power source when making equipment adjustments or wheel changes.
30. Store grinder and respirator in clean dry area.
31. Clean and sanitize the respirator face piece and clean remaining components of air respirators after each use.
32. Cleanup and disposal of silica dust must be done in a controlled manner ensuring that there is no accidental release of the dust. The following points must be adhered to:
    - All dust from vacuums is to be double bagged
    - Garbage bags containing silica dust will be transported to ground level on their own (i.e. not with other garbage types such as scrap wood which may cause bags to be penetrated)
    - Bags containing silica dust should, as much as is possible, be removed from the site for disposal in separate garbage containers.
    - Emptying of vacuums or cleaning of tools should be, as much as is possible, done in an area which is away from common areas such as lunch rooms or access/egress routes.
    - Under no circumstances is air to be used for clean-up.
    - Dry sweeping should not be done unless used in conjunction with a dust suppressant.
33. All workers who are exposed to fall above 10 feet will use fall protection (arrest or restraint) in accordance with the site specific fall protection plan.

FIT TEST

NEGATIVE PRESSURE SEALING TEST

Block the inlet tube to prevent the passage of air. Inhale gently, taking care not to distort the face piece, and hold your breath for 10 seconds. If the face piece collapses slightly and no infiltration of air into the face piece is detected, it is considered that the fit of the respirator is satisfactory for the wearer.

POSITIVE PRESSURE SEALING TEST

Close off outlet valves and exhale gently. The fit is considered adequate if a slight pressure can be built up inside the face piece without detection of any outward leakage of air between the sealing surface and the wearer's face.

MAINTENANCE

Each respirator wearer shall clean and sanitize his respirator face piece and clean remaining components of air respirators after each use. The respirator is to be stored in a clean dry area, sealed in a plastic bag.