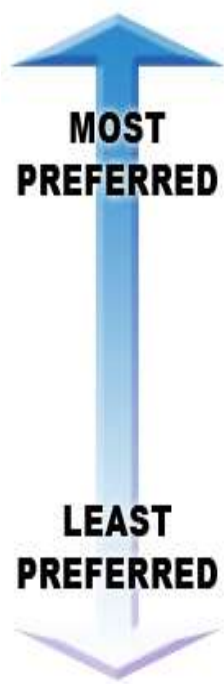


Hazards of Silica in Construction

How do you control the hazard?

Whether it's silica dust or anything else that employees are being overexposed to, you want to control the problem by starting at the top of the following sequence. Reference T8CCR, Section 5141 for details on how Cal/OSHA requires this hierarchy of controls.



Eliminate or reduce the silica content.

"Engineer" out the exposure - i.e. use an effective local exhaust or vacuum tool system, wet-cutting and/or isolate the source of dust.

Use administrative and work practice controls, such as limiting the amount of time of exposure and working with materials in a way that reduces the generation of airborne dust.

Use personal protective equipment, such as a respirator and coveralls that keeps the dust off the clothes you wear home. Respirators may still be required if the above controls don't adequately reduce exposure levels.

NOTE: "Ventilation", "Wet Cutting", "Isolation" and "Work Practice Controls" are automatically mandatory requirements for activities that fall within the scope of Section 1530.1, unless it can be clearly established that employees will not be exposed above Cal/OSHA allowable exposure levels for crystalline silica (quartz, cristobolite, tridymite).

Isolation

- Enclose the work so all dust is contained within the enclosure and all employees are outside.
- Establish a perimeter around the source of the airborne dust to keep employees away and prevent exposures.

In both cases, careful attention is needed where employees need to enter the affected area once the process has stopped or the enclosure has been removed. There may be considerable dust contamination that can easily become airborne due to traffic and other activities, such as clean up.

Ventilation

Use a local exhaust or vacuum tool system that removes airborne dust before it gets to the breathing zone of the operator or surrounding employees.

Some important things to watch out for:

- The exhaust system needs to be properly designed in order for it to effectively control exposure. This means an exhaust hood design that allows for effective capture of airborne dust.
- The users need to make sure it is consistently set up according to the manufacturer's specifications, and remains so throughout its use. This includes using the shortest flexible ducting with the least amount of bends.
- The system needs to be maintained to ensure optimal air exhaust. This includes ensuring the dust collectors are serviced as needed. NOTE: Maintenance of the system can result in significant dust exposures, so respiratory protection may be needed.
- User training on the proper use and maintenance of the equipment.



Wet-Cutting

Use a wet-cutting system that minimizes the generation of dry dust.

What to watch out for:

- Systems meeting Nationally Recognized Testing Lab (NRTL) approval requirements for electrical systems in wet conditions, including GFCI-protected electrical sources.
- Set up and maintenance of the equipment according to the manufacturer's instructions. This will include ensuring water flow rates within specifications.
- User training on the proper use and maintenance of the equipment.

Work Practice Controls

✓ DO's

- Work with materials in a way that minimizes the generation of airborne dust.
- Wet sweeping where possible using water or a sweeping compound.
- Use HEPA (high efficiency particulate air) filter vacuums.
- Wet materials before disturbing, unless that creates significant muscular skeletal strain, slip or other safety hazards.
- Use a water mist to keep airborne dust down.

✗ DON'Ts

- Work with materials dry unless you also have a good exhaust system or there is simply no other way to do it safely, in which case a good respirator protection program will be necessary.
- Use compressed air to clean dust off of surfaces, equipment or yourself.

Respirator Protection

This is your last and least preferred means of protection. If your employees are using one, then make sure that:

1. They are using the right one for the type of material in question. This means
 - The filter will filter out the particle size employees are being exposed to, as well as any other hazardous materials, such as solvents, that may be present. Given the hazards of silica, it's best to use a P100 filtered air purifying respirator, unless an air supplied respirator is called for.
 - The respirator's protection factor is suitable for the exposures being encountered.
2. They are medically approved to wear one.
3. It fits them properly. This means the user needs to
 - Do a positive/negative fit check every time they put a respirator on.
 - Undergo a qualitative or quantitative fit-test at least annually.
4. They've been trained on the respirators' limitations and how to properly use, clean and store it.
 - This includes making sure they do not have facial hair that breaks or interferes with the seal between the respirator and their face.
5. Someone in the organization has been given the responsibility to make sure the program is being implemented correctly.

