



# Cloud control



By Heather Prime

It's time to clear the air about silica dust. More common than asbestos – but just as deadly – regular exposure to this substance requires thorough prevention measures.

**A** 47-year-old construction worker is finding it difficult to make it through the day. He feels weak and he's developed a severe cough. His wife is worried and urges him to quit smoking. He does, but his symptoms worsen and he eventually becomes so short of breath he can't climb a flight of stairs. His lungs have been permanently damaged by years of exposure to a deadly substance on the job. His life is changed forever.

## What respiratory disease has this worker contracted?

Colin Murray, WorkSafeBC senior manager of prevention and occupational disease initiatives, is willing to bet that you're thinking the answer is asbestosis, a chronic lung disease caused

by exposure to asbestos. "And that would be a reasonable guess," Murray says. "But what's troubling is that few people think of silicosis – and that's because the danger of silica dust is not well known. So we need to raise awareness about this substance."

Grant McMillan, president of the Council of Construction Associations (COCA), shares Murray's concerns. "It's probably fair to say that silica awareness is where asbestos awareness was 20 to 30 years ago."

Like asbestos fibres, fine silica dust can't always be seen with the naked eye but workers can easily inhale the particles. Deposited in the lungs, silica dust causes thickening and scarring of the lung tissue – silicosis – and the scar tissue restricts a person's ability to breathe. Depending on the level of exposure, silicosis

A construction worker polishes newly molded concrete on the Pitt River Bridge (linking Port Coquitlam to Pitt Meadows) in February of this year. Concrete grinding can expose workers to the dangers of silica.

can develop in a matter of months or mere weeks, leaving victims more susceptible to lung infections and at greater risk for lung cancer. There is no cure. The damage is permanent. The disease can kill.

Unlike asbestos, silica is commonly used in construction. “Very few new materials contain asbestos anymore,” Murray explains. “Today, workers’ risk of asbestos exposure is generally limited to renovating and rebuilding, when they’re tearing down walls, ceilings, and floors. But silica is in all kinds of building materials.”

In fact, silica is all around us; it’s the basic component of sand and rock. Concrete, bricks, tiles, cement board, asphalt, and even top soil contain silica. It’s hard to avoid, which makes it a potential hazard on almost all construction sites. And even materials containing small amounts of silica are hazardous when they’re used in ways that produce high dust concentrations.

“You can plainly see the danger in the clouds of dust at construction sites, mines, and other work locations, but what’s

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*Grant McMillan,  
Council of Construction Associations president*

harder to find,” Murray says, “is a silica exposure control plan, especially at smaller companies.”

“Larger construction companies tend to work on larger projects where there’s a heightened sense of workplace health and safety, and they employ more safety specialists, which explains – but doesn’t excuse – the difference,” McMillan says. “We need to reach out to the small and medium-sized contractors to help them understand the urgency of protecting their workers and themselves from silica dust.”

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## Develop your exposure control plan

Silicosis is entirely preventable, and every employer is required to develop a silica exposure control plan when silica dust presents a hazard to workers.

The key to developing your plan is a thorough identification and assessment of the following:

- Materials that might contain silica
- Work activities that may generate airborne silica dust
- Workers at risk of exposure
- Amount of exposure generated by work activities
- Duration of workers' exposure

Equipped with this information, you can now select the most effective control or combination of controls to put into action. A hierarchy of control measures must be followed, "but fortunately the best prevention method is often the simple approach: substituting silica materials with alternative products, and controlling dust using methods such as ventilation, wetting, and vacuuming," Murray says.

## Control silica exposure risks

Let's take a look at how a variety of controls could be applied to one work activity: grinding concrete walls.

### Step 1: Minimize form/finishing work

Plan the building, particularly the form work (e.g., include holes and trenches for electrical and mechanical services to eliminate or reduce the need for cutting, drilling, and surface grinding and therefore the risk of exposure to silica dust). If that solution isn't practical, proceed to step 2.

### Step 2: Use engineering controls

Use saws, drills, and grinders with dust-control attachments. In addition, erect enclosures to contain the dust and barriers to prevent unprotected workers from entering the work area.

### Step 3: Implement administrative controls

Supplement the barriers by posting warning signs, or, better yet, schedule cutting, drilling, and grinding for times when other workers are not on-site.

### Step 4: Use personal protective equipment

A full- or half-face air-purifying respirator (depending on the work) will provide the last line of defence to the worker responsible for cutting, drilling, and grinding. Eye protection should be worn when a half-face respirator is used.

"Minimizing exposure to silica doesn't have to be difficult. But if that fact isn't enough to prompt action, it may be time for some shock therapy," McMillan says. "Seeing a lung damaged by silicosis will bring the message home to employers and workers."

## Silica dust — who's at risk?

Workers participating in any of the following activities (and many more) risk breathing silica dust:

- Sawing or grinding concrete
- Jackhammering, chipping, or drilling rock or concrete
- Abrasive blasting of concrete
- Cutting brick or tiles
- Loading, hauling, and dumping rock, gravel, or soil with high silica content
- Demolishing concrete or masonry structures
- Renovating facades and tuckpoint grinding
- Sweeping concrete dust
- Manufacturing stone products and ceramics

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