

DUST

HAZARD

DISEASE



SILICOSIS

LUNGS

young workers:

keeping them safe from

exposure to **silica dust**

an **employer's** guide

**WORK SAFE BC**

WORKING TO MAKE A DIFFERENCE

## help them recognize hazards on the jobsite – and remember:

### unseen dangers hurt, too!

Young construction workers face many hazards on the jobsite. Sometimes the hazards are obvious, such as a broken ladder or an unguarded opening. But sometimes young workers may not even see the dangers that can make them sick. While there are many exposure hazards on a construction site, this document focuses on silica dust. Airborne silica dust can present serious exposure risks that could affect the health of young workers today, tomorrow, or even decades down the road.

This document offers some strategies and resources to help you prevent your young and most vulnerable workers from becoming sick or dying from silica dust-related exposures.

## WHY FOCUS ON YOUNG WORKERS?

### don't all workers need protection from silica dust exposure?

As an employer, you're required to ensure a healthy and safe workplace for all of your workers. But young workers have specific needs. Being both young and new to the jobsite, young workers may lack experience, knowledge of hazards, and a full understanding of the potentially long-term and sometimes fatal consequences of being exposed to silica dust. In fact, research shows that youth don't reach full cognitive development until about 22 years of age, which may help explain why young workers don't always make the link between occupational exposures and health consequences. This underlines the importance of the role you play in making sure your young workers are protected from silica dust.

Improve young worker awareness of health and safety hazards as well as their workplace rights and responsibilities by:

- > Encouraging them to ask questions
- > Providing more training if necessary
- > Ensuring that they're properly protected from silica dust exposure



## WHAT ARE THE RISKS ASSOCIATED WITH SILICA DUST EXPOSURE?

There are several diseases that can result from exposure to fine airborne crystalline silica dust. Prolonged or repeated exposure may cause silicosis (severe scarring of the lungs). Death isn't usually a direct result of silicosis, but cardiac failure may occur as the heart has increasing difficulty pumping blood through the scar tissue in the lungs. Silicosis may be complicated by the development of bacterial infections, including tuberculosis.

The risk of developing silicosis depends on the airborne concentration of crystalline silica, the particle size, and the duration of exposure. The International Agency for Research on Cancer (IARC) has concluded that crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic (cancer causing) to humans.

### ARE YOUR WORKERS AT RISK?

Your workers risk exposure if they clean up jobsites, work with sand and concrete, move around dirt and soil, or break up old concrete.

#### The following activities put workers at risk of inhaling silica dust:

- > Chipping, sawing, grinding, hammering, or drilling rock, concrete, or masonry
- > Crushing, loading, hauling, or dumping rock
- > Building demolition processes
- > Power cutting or dressing stone
- > Renovating façades
- > Hydroblasting concrete
- > Dry sweeping or pressurized air blowing concrete or sand
- > Tunneling, excavating, or earth moving soils with high silica content

# SILICOSIS CARDIAC FAILURE

# ARE YOUR WORKERS AT RISK?

## TRAINING AND ORIENTATION ARE ESSENTIAL... THEY'RE ALSO REQUIRED BY LAW

Sections 3.22 to 3.25 of the Occupational Health and Safety Regulation specify what's required when you hire young workers (less than 25 years of age) or new workers (new to your jobsite or facing new hazards or procedures). If you hire young workers, ensure that training and orientation are carried out before they begin work. There are 13 topics you must include in training and orientation. You must also provide additional training and orientation if the worker needs or requests it. You must be able to present documentation of training and orientation to WorkSafeBC upon request. For full details, and to see a sample orientation checklist, visit [www2.worksafebc.com/Topics/YoungWorker/Home.asp](http://www2.worksafebc.com/Topics/YoungWorker/Home.asp).



# HOW CAN YOU PROTECT YOUR WORKERS FROM SILICA DUST?

If you employ workers who are involved in construction, renovation, or demolition, they may be at risk of silica dust exposure. To protect them and to demonstrate your due diligence, take the proper precautions.

## conduct a hazardous materials survey

You have a duty to ensure that a hazardous materials survey is conducted prior to any renovation or demolition. The survey includes a walk-through inspection, sample collection, sample analysis, and reporting and communicating of the results. The survey must be conducted by a qualified professional who is familiar with proper walk-through and sample collection practices. A copy of the survey must be available on-site.

## comply with the requirements of the regulation

The following parts of the Occupational Health and Safety Regulation and accompanying guidelines list your responsibilities with regard to occupational exposure to silica dust. They set out what you must do to eliminate, reduce, or manage workers' exposure risk. You'll find the complete Regulation online at [www2.worksafebc.com/Publications/OHSRegulation/Home.asp](http://www2.worksafebc.com/Publications/OHSRegulation/Home.asp).

- > **Part 5: Chemical Agents and Biological Agents** (including regulations for controlling exposure, developing an exposure control plan, and the hierarchy of controls)
- > **Part 6: Substance Specific Requirements** (for rock dust)
- > **Part 20: Construction, Excavation and Demolition** (demolition information on hazardous material surveys)

*Note: Guidelines for all of the above are available online.*

## implement an exposure control plan

You have a duty to protect your workers from silica dust exposure. Studies show that workers are exposed to airborne silica concentrations far above occupational exposure limits when dust controls are not used during common construction tasks that involve the sanding, drilling, chipping, grinding, cutting, sawing, sweeping, or blasting of concrete and concrete products. WorkSafeBC provides documents to help employers develop exposure control plans that protect workers from overexposure to silica dust. These include the following:

- > *Developing a silica exposure control plan* – Provides information on silica, the purpose of an exposure control plan, responsibilities, risk identification and assessment, risk control, education and training, safe work procedures, health monitoring, and documentation.
- > *Sample Respirator Program* – A sample document that employers can use to develop their own respirator program.

Other available documents describe specific exposure control plans for:

- > Chipping concrete
- > Cutting concrete
- > Cutting fibre cement board
- > Cutting, grinding, and polishing stone containing crystalline silica (quartz)
- > Drilling concrete

For details, or to view or download the exposure control plans, go to [www.worksafebc.com/publications/health\\_and\\_safety/by\\_topic/occupational\\_hygiene/default.asp](http://www.worksafebc.com/publications/health_and_safety/by_topic/occupational_hygiene/default.asp).

## additional considerations for young workers

Young workers may not have the same level of exposure awareness as older, more experienced workers. They may be more vulnerable to exposure because of inexperience, physical and psychological immaturity, lack of awareness of health and safety issues, and a reduced likelihood of recognizing the long-term consequences of exposure.

You can increase young workers' awareness of hazards through training and orientation, and then reinforce their awareness through ongoing supervision and safety meetings. Help young workers understand that they have a right to ask questions, to be protected from hazards, and to refuse unsafe work. Remind them that they also have a responsibility to wear the gear provided and follow safe work procedures.

## RESOURCES

# TOOLS FOR SAFETY TALKS

The following are some WorkSafeBC resources that may help you educate and train young workers.

### APPRENTICESHIP PORTAL

This site provides trade- and topic-specific health and safety resources that you can use in safety meetings or to help improve the knowledge and awareness of young workers and apprentices. Visit the portal at [www2.worksafebc.com/Topics/Apprenticeships/Home.asp](http://www2.worksafebc.com/Topics/Apprenticeships/Home.asp).

### 6-MINUTE SAFETY TALKS

Designed to help you deliver a short safety meeting, these are available for a number of topics. Each topic includes an employer/instructor guide and young worker/student handout. Go to [www2.worksafebc.com/Topics/YoungWorker/ApprenticeshipPrograms.asp](http://www2.worksafebc.com/Topics/YoungWorker/ApprenticeshipPrograms.asp).

Topics include:

- > Exposure to Airborne Contaminants
- > Personal Protective Equipment (PPE)
- > Health and Safety Responsibilities
- > Right to Refuse Unsafe Work

### TOOLBOX MEETING GUIDES

Download the following ready-made meeting guides on silica dust exposure and rights and responsibilities at [www2.worksafebc.com/Portals/Construction/ToolboxMeetingGuides-Index.asp](http://www2.worksafebc.com/Portals/Construction/ToolboxMeetingGuides-Index.asp):

- > Silica dust – are you at risk?
- > Learn about the dangers of breathing silica dust
- > Silica dust control during wall and ceiling grinding
- > Silica dust control during tuckpoint grinding
- > Controlling dust when cutting fibre-cement board
- > Silica dust control when drilling concrete
- > Silica dust control during stairwell grinding/chipping
- > Silica dust control (available for multiple occupational activities)
- > Putting on your respirator
- > Preventing interference with the respirator seal
- > Eye and face protection
- > The right to refuse unsafe work

## more print resources and helpful tools

- > *Breathe Safer: How to Use Respirators Safely and Start a Respirator Program*
- > *Young Worker Orientation*
- > PPE information sheets

## video resources

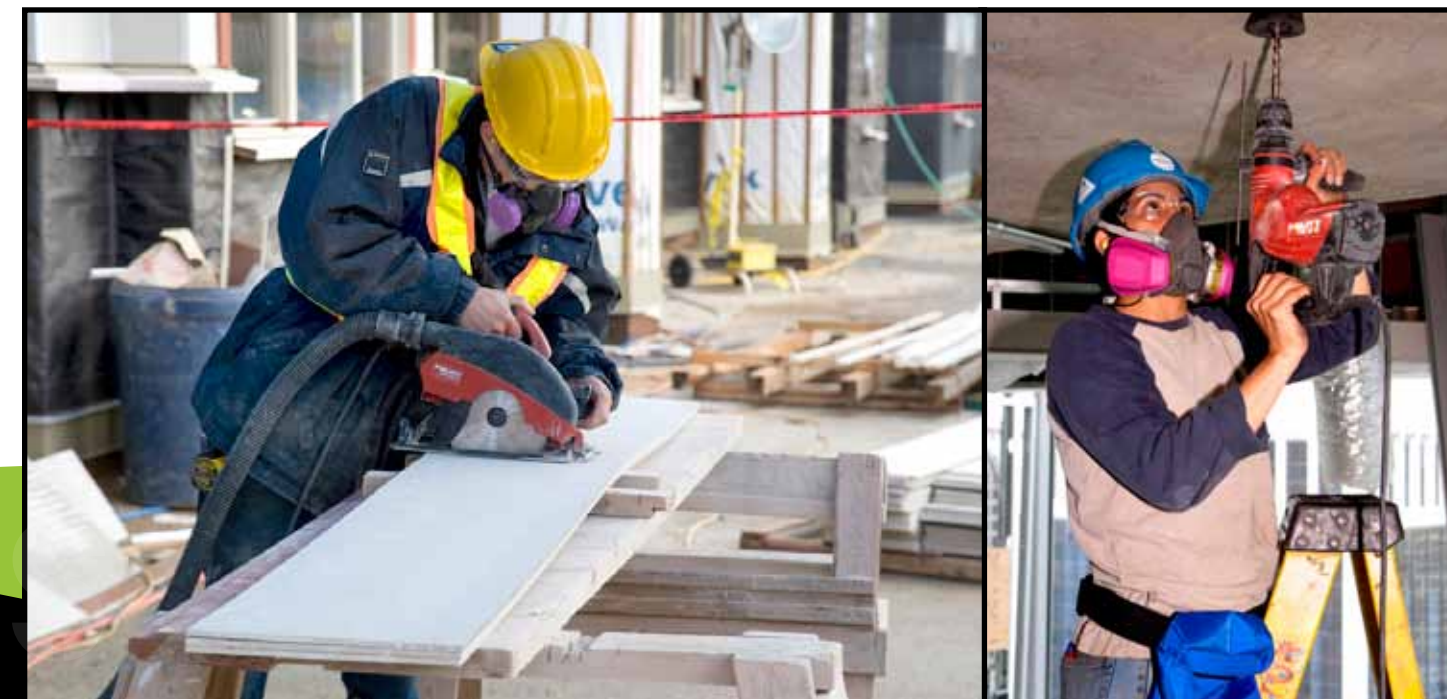
WorkSafeBC has several videos you can use to augment training and orientation or to reinforce exposure awareness during safety meetings. Below is a sample of the video topics that are available for free download at [www.worksafebc.com/publications](http://www.worksafebc.com/publications):

- > Silica exposure
- > WHMIS

### WHY IT MATTERS

**It matters because workers are getting sick and dying.**

You need to protect young workers now to save them from diseases later. Many people dying of occupational diseases today were exposed to harmful airborne dusts and fibres when they were younger. Last year, 148,000 work days were lost as a result of occupational diseases, which accounted for 2,610 claims.



RESOURCE  
REFUSE UNSAFE WORK

# DUST

# HAZARDOUS

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**LEARN MORE** Visit the WorkSafeBC Young Worker Portal at [www2.worksafebc.com/Topics/YoungWorker/Home.asp](http://www2.worksafebc.com/Topics/YoungWorker/Home.asp).

**QUESTIONS?** E-mail [yworker@worksafebc.com](mailto:yworker@worksafebc.com).

Scan the tag with your smartphone to go directly to the WorkSafeBC Young Worker Portal.

Get the free mobile app at [gettag.mobi](http://gettag.mobi) or search "tag reader" in the App Store.



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