



## Controlling Exposures to prevent occupational lung disease in the construction industry

# Bricklayer

### HAZARDS AND RISKS

Bricklayers can be frequently exposed to high levels of dusts through many regular tasks. Mixing cement and mortar; emptying or disposing of cement bags; cutting, sawing and drilling through bricks; and sweeping/cleaning floors and blockwork can all generate airborne dust which is easily inhaled. Close-up work, such as brick marking and carving, can also mean the worker is breathing very near to a dust source.

#### Dust & respirable crystalline silica (RCS)

Construction dust is a general term for dust typically found on a construction site; the risk to health depends on the actual composition of the dust as well as the level of exposure to it. The highest risk to a bricklayer's health is likely to be from breathing in silica dust. Silica occurs in many types of stone, including concrete and brick. Inhaling fine silica dust (respirable crystalline silica or RCS) over time can lead to serious lung diseases, including fibrosis, silicosis, chronic obstructive pulmonary disease (COPD) and lung cancer. These diseases cause permanent disability and early death. Breathing in any dust can potentially lead to lung irritation, asthma and other acute and chronic respirable conditions depending on the nature of the hazardous substance.

#### Exposure levels

Exposure to RCS varies according to the silica content of the material being worked. Concrete typically has a high proportion (silica content of between 25-75%), as does brick which contains around 30-40% silica. Dry cutting/sawing without dust extraction is likely to produce the highest levels of airborne brick/stone dust. Wet working has been shown to reduce exposure levels by up to 91%. Exposure levels are also affected by the frequency and duration of the work.

### CONTROL OPTIONS

#### Elimination/prevention

Use pre-cut bricks/blocks and ready mixed concrete where possible.

#### Engineering controls

- Cutting
  - Use on-tool dust extraction where use of block splitters/wet sawing is not possible.
- Cleaning
  - Use industrial vacuum cleaners fitted with a HEPA filter wherever possible for cleaning

#### Safe working methods

- Block cutting
  - Use block splitters to eliminate dust.
  - Use wet saws for cutting.
  - Carry out cutting in well-ventilated areas.
- Mixing cement
  - Mixing dry cement in a well-ventilated area.
  - Carefully empty and dispose of cement bags to minimise dust release.
- Cleaning
  - Clean up regularly using industrial vacuums or wet cleaning; avoid dry sweeping or use of compressed air to remove dust from clothing.

#### PPE

- Respiratory protective equipment (RPE) must be worn for brick cutting and cement mixing. RPE should be selected in accordance with CSA Z94.4-11 *Selection, Use and Care of Respirators*.

#### Preferred control methods

- Use of pre-cut materials and ready-mixed concrete.

### MANAGING THE RISK

**Training & communication, supervision, maintenance & testing of controls and air monitoring\*** are all vital aspects of managing the risk, in addition to health surveillance which can be a requirement in certain circumstances.

See our introductory [Respiratory Health Hazards in Construction Fact Sheet Series: Overview](#) for more information about what things to consider and implement.

#### Air monitoring\*

Air monitoring is a specialist activity. It may be needed as part of an exposure risk assessment, as a periodic check on control effectiveness and to assess compliance with relevant occupational exposure limits, or where there has been a failure in a control (for example if a worker reports respiratory symptoms).

A qualified occupational hygienist or occupational hygiene technologist can ensure exposure monitoring is carried out in a way that provides meaningful and helpful results.