



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; over 500 construction workers die every year from exposure to silica dust. 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 class M or H 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. The RPE should be a minimum of a FFP3 rated disposable dust mask or PAPR (of TH2 or higher classification) if the task is undertaken for periods over one hour.

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 a COSHH assessment, as a periodic check on control effectiveness and to assess compliance with relevant WELs, or where there has been a failure in a control (for example if a worker reports respiratory symptoms). A qualified Occupational Hygienist can ensure it is carried out in a way that provides meaningful and helpful results.

The decision to undertake exposure monitoring should be made in accordance with HSE's monitoring strategies outlined in HSG173. In some situation, qualitative or semi-quantitative methods may be suitable. See also COSHH regulation 10 ACOP which details when exposure monitoring is necessary or unnecessary.

Also, see HSE leaflet G409, Exposure measurement: Air sampling.
www.hse.gov.uk/pubns/guidance/g409.pdf



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WORKPLACE EXPOSURE LIMITS (WELs)

Agent or substance	Control/Exposure Limit	Comments
Hardwood Dust	3 mg/m ³ (8 hour TWA)	Capable of causing cancer. Capable of causing occupational asthma. If hardwood dusts are mixed with other wood dusts, the WEL shall apply to all the wood dusts present in that mixture.
Softwood Dust	5 mg/m ³ (8 hour TWA)	Capable of causing occupational asthma. If softwood dusts are mixed with hardwood dusts, the WEL for hardwood dusts shall apply to all the wood dusts present in that mixture.
RCS	0.1 mg/m ³ (8 hour TWA) All Party Parliamentary Group for Respiratory Health (which is an informal, cross-party group formed by MPs and Members of the House of Lords) published a report named 'Silica- the next asbestos'. This recommends that the WEL for RCS is reduced to 0.05 mg.m ³ as this would be in line with the recommended exposure standard from the Scientific Committee on Occupational Exposure Limits proposed in 2003.	Capable of causing cancer where generated as a result of a work process.

Further information

- COSHH Essentials: Health surveillance for those exposed to respirable crystalline silica (RCS): www.hse.gov.uk/pubns/guidance/g404.pdf
- Construction dust leaflet: www.hse.gov.uk/pubns/cis36.pdf
- Construction dust: Cutting paving blocks, kerbs and flags: www.hse.gov.uk/construction/healthrisks/hazardous-substances/cutting-paving-blocks-kerbs-and-flags.htm
- Silica dust: www.hse.gov.uk/construction/healthrisks/cancer-and-construction/silica-dust.htm