



Controlling Exposures to prevent occupational lung disease in the construction industry



General Site Operative

HAZARDS AND RISKS

A general site operative can have many different roles, typically in site preparation, demolition work, plant and machinery operation, clean up and waste removal, and assisting other trades such as carpenters, plasterers and masons with preparing and applying materials. The breadth of these activities, potentially across the whole construction site, can mean a risk of exposure to many different harmful dusts, gases, fumes and vapours which can lead to respiratory ill health.

Dusts

A worker may be exposed to high airborne dust levels during tasks such as cleaning and digging, abrasion and cutting of stone, concrete or wood, and mixing mortar and cement. The dust may contain toxic substances such as asbestos, silica, wood dust, organic material and toxic metals present in cements or soils at contaminated and derelict sites.

Gases, fumes and vapours

Application of sealants, adhesives, spray markers and coatings may result in exposures to airborne chemical mists and vapours. Torch cutting of metals and heating of materials (e.g. bitumen) can expose operators to metal fumes, toxic gases and vapours, and operating plant can lead to high levels of diesel exhaust fume exposure. Entry to confined spaces, drainage or sewer structures (particularly on derelict sites) might result in exposure to toxic gases such as hydrogen sulphide.

Risks to health

Breathing in these hazardous substances can cause serious, debilitating, irreversible, life-limiting, and, in some cases, fatal illnesses, which include lung cancer, pulmonary fibrosis (e.g. asbestosis, silicosis), asthma, pulmonary edema and chronic obstructive pulmonary disease (COPD).

CONTROL OPTIONS

Control measures

As there are so many airborne pollutants to which a construction worker may be exposed, it is vitally important that exposure risk assessments are completed for all activities to identify the significant risks and appropriate control measures. The findings should be communicated to ensure that they are understood by any worker who may be at risk. A qualified occupational hygienist or occupational hygiene technologist can assist with the exposure risk assessment, to help to identify hazardous substances, advise on the level of exposure risk and select appropriate control measures. These measures should be task specific, and developed following a hierarchy of control which should start with preventative measures, followed by engineering controls and working methods with PPE considered as a last resort.

Elimination/prevention

- Product/material substitution (eg. use of water-based coatings in place of solvent-based coatings) should be adopted as far as possible to avoid use of hazardous substances completely.

Engineering controls

- There are many types of local exhaust ventilation (LEV) designs suitable for a wide range of construction activities; the most effective are often those that are integrated into the tools.
- Ventilated enclosures may be needed if the materials are particularly hazardous.
- Wherever practicable, industrial HEPA filter vacuums should be used for cleaning up hazardous dusts.

Safe working methods

- Select working methods which minimise the generation of dusts and fumes, etc., for example: appropriate tool selection; wet working; roller/brush rather than spray application of coatings; vacuuming not dry sweeping; and techniques which avoid or limit grinding, drilling, cutting, chiselling and blasting of stone or wood (eg. use of pre-cut materials).
- Limit the number of people who may be exposed, through restricted access areas, planning tasks so that workers are not located near to other hazardous work, and job rotation.
- Ensure good site housekeeping and hygiene eg; clean up regularly and dispose of waste via covered chutes and skips.
- Ensure good natural ventilation, and carry out dusty tasks outside where possible.

PPE

- PPE is considered a last resort control measure as it has to be worn properly all of the time, and it does not "fail safe". It needs to be carefully selected to ensure it provides adequate protection. Respiratory protective equipment (RPE) should be selected in accordance with CSA Z94.4-11 *Selection, Use and Care of Respirators*.

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.

Further information

Other fact sheets in this series cover specific construction trades, associated respiratory health risks and appropriate control options.