Case study

Controlling silica dust at Central Station

What is it? Respirable crystalline silica (commonly known as 'silica dust') is generated when workers cut, crush, drill, saw or grind products that contain quartz.

Why is it hazardous? Silica dust particles are small enough to go deep in your lungs and can cause incurable illnesses and diseases such as silicosis. These dust particles can be so small that they are not visible to the naked eye.

How can exposure be controlled? Controlling exposure to silica dust is done through first eliminating the hazard, then substituting work methods or materials, followed by adopting engineering controls. These are supplemented by additional administrative controls and in some cases, the use of personal protective equipment such as respiratory protection.

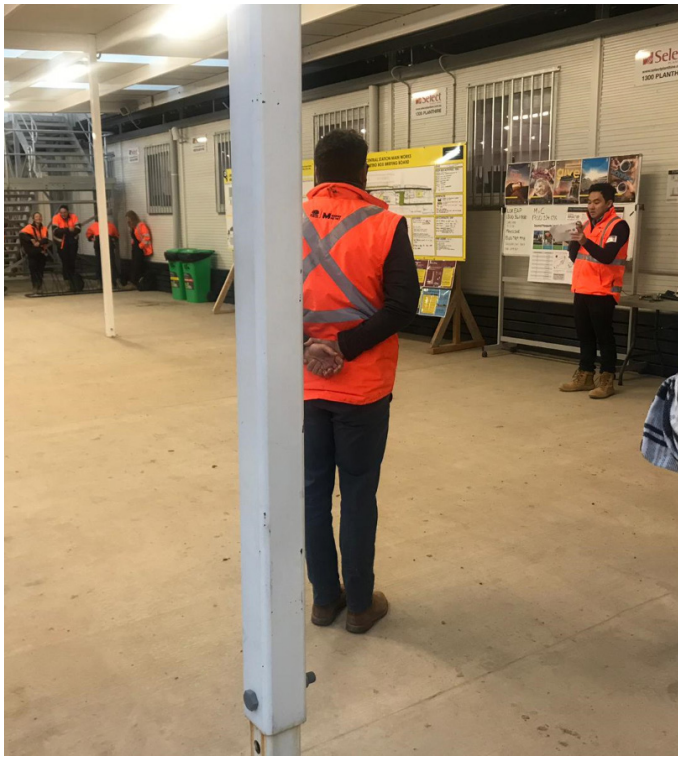
What activities are happening onsite that produce Silica dust? Work activities at the Central Station site change from day to day. In general, activities that involve excavation, drilling, tunnelling and saw cutting into sandstone, concrete or other quartz-containing products are some examples of activities that can produce silica dust.

How is the risk controlled at the Central Station site? Higher-order control measures are implemented as a priority, which include the use of:

- non-drill guardrail systems to eliminate the need for drilling into concrete
- pre-fabricated concrete structures which minimise the need to manually saw-cut through concrete
- temporary ventilation fitted with scrubbers that extract airborne silica dust and supply clean air to the work environment
- eliminating dry brush sweeping and instead using vacuum extraction
- misting systems to suppress silica dust
- wet cutting when hand tools are used
- training and education in silica dust control
- strict requirements around heavy plant cabin use including enclosed cabins and the need to keep doors and windows closed
- respiratory protection to supplement other control measures.

Silica dust awareness stand at Sydney Metro / Laing O'Rourke Get Connected event.

Working inside the Metro Box.



Tool box talks include discussion on silica dust hazards and controls.

Canon misters

Canon misters eliminate the human element/need of a person standing close by with a hand held hose at the source of the dust being generated.

They are generally used for larger tasks such as cutting that involves heavy plant movement.

Canon misters used as a method of dust suppression during jack hammering works.

Misting rings

Misting rings are fitted to the perimeter of excavation to suppress silica dust generated from under the track slab below.

Other controls include the use of extraction ventilation, closed cab doors and use of respiratory protection for any persons in the area.

Misting system installed along the Metro Box.

Ventilation/dust extraction scrubber

Used to reduce exposure of silica dust to workers during the tunnel construction phase of the project. Extraction is kept as close as possible to the face of excavation.

Ventilation dust extraction systems placed at the face of the works.

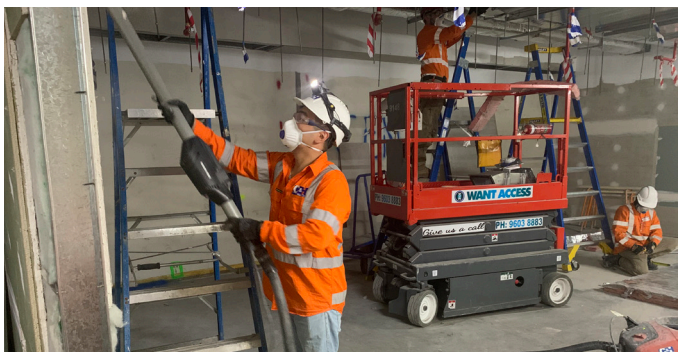
Personal protective equipment

Use of half-face reusable respiratory protection. Personnel who use respiratory protection are required to be clean shaven and quantitatively fit tested.

Quantitative fit testing of respiratory protection.

Vacuums

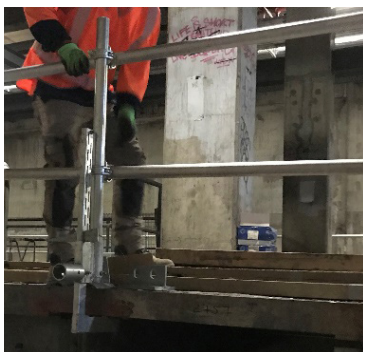
Use of vacuums for cleaning dusty areas. This eliminates dry sweeping.



Vacuums used to clean up dusty areas post dust related activities.

Eliminating the need for drilling

Non-drill guardrail systems prevent the need to drill into concrete and therefore prevents exposure to silica dust.



Non-drill handrail.

Watch how we protect worker health at Central Station here: **youtu.be/3MqVpF5vg00**

Laing O'Rourke, Principal Contractor