

TT037 – Dust Hazards

January 2025

Various construction site activities can produce dust. Exposure to dust is hazardous and can cause serious lung disease. Dust control measures must be used to protect workers.

Silica Dust & Respiratory Disease

Silica is a natural substance found in such construction site materials as concrete, bricks, rocks, stone, sand and clay. Silica when it's intact is harmless. However, when it is cut, ground, drilled or otherwise disturbed silica is released as fine particles and can be inhaled deep into the lungs. Breathing excessive amounts of silica can cause a potentially fatal lung disease called silicosis and has also been linked with other respiratory diseases.



Wood Dust & Risks to Health

Wood processing causes small particles of wood dust to become suspended in the air. Workers can inhale these particles. A person's upper respiratory system can filter out the larger particles, but smaller particles can go deep into the lungs causing damage and scarring to the lung tissue. Each time this happens a small amount of irreversible damage occurs. This damage reduces the lungs' ability to take in oxygen and over time makes it increasingly difficult to breathe. Skin contact with dust especially wood dust can cause ulceration of the skin, irritation and dermatitis. The presence of glues, resins, formaldehyde and other wood treatment chemicals in some wood products increase the health risks from wood dust.



Excavation and Landscaping Dust

Dust is one of those hazards that come with the construction work territory. When you excavate and loosen soil, winds are bound to pick it up and transport it elsewhere. The larger particles tend to settle out of the air quickly and are mostly a health hazard to the operators of plant and equipment and those in the immediate area. They enter the nose and mouth during breathing and settle in the upper airways. The smaller particles are usually invisible and may not seem to be an obvious hazard. However, they can be carried much further in the air and can cause health hazards both to workers on the site and to people living and working outside the site boundary in the local neighbourhood. They penetrate much further into the airways, down to the alveoli in the deep lung areas. Within the site, dust can cause mechanical or electrical faults to equipment, such as computers, and will increase abrasion of moving parts in plant and clogging of filters.

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Tasks which may expose construction workers to dust include:

- Sawing, hammering, sanding, routing, drilling or grinding of bricks, stone, wood or other fibre cement products e.g. Linea Board.
- Concrete mixing, cutting, drilling, chipping, etching or abrasive blasting.
- Hauling, dumping, chipping, hammering and drilling of rock.
- Dry sweeping or using pressurised air to blow concrete, rock, sand or wood dust.
- Demolition of concrete or masonry and buildings.
- Bagging dust from dust extraction systems then emptying them into skip bins.
- Site excavations and landscaping.

DUST CONTROL

The key to preventing dust exposure is keeping dust out of the air. This can be achieved by:

Vacuum Extraction: The most effective way to control dust is by using on-tool extraction / vacuum systems to control dust at source. Purchase tools which feature a “tool-start” vacuum attached to a HEPA (High Efficiency Particulate Air) filter.

Wet Work: Wet work methods are also effective in controlling dust. Wet-machining processes (e.g. concrete wet-saw) should be used in preference to dry-machining. Water hoses should be used to wet down any dust created before it becomes airborne and to frequently clean equipment.

Dust-reducing Equipment: Use cutting equipment and methods which minimise dust. Dust-reducing circular / drop-saws should be used in conjunction with dust-reducing blades which generate larger (and less respirable) dust particles. Where practicable, other hand machining tools or cutting methods (e.g. score-and-snap) may be options. Equipment should be maintained and frequently cleaned to ensure efficient operation.

Adequate Ventilation: Always undertake machining of dust producing products in well-ventilated outdoor areas. Consider prevailing winds and warn others in close proximity. Use the hazard board to communicate with others and setup an exclusion zone using cones or tape. If machining is to occur indoors then appropriate controls need to be established e.g. dedicated containment room with exhaust extraction, etc.

Cleaning Practices: Do not dry sweep. Dust should be removed from work areas using vacuums with HEPA filters or a water hose.



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Task Analysis:

Appropriate dust control methods should be detailed within a task analysis. **Workers should be trained and supervised** accordingly.



PERSONAL PROTECTION

Task Appropriate Respirators: Respirators should be used together with other dust control methods and not as the primary way to prevent exposure to dust. Ensure the correct respirator is used for the job dependent on dust levels and particle size (refer to the Safety Data Sheet for the product being handled). A P1 or P2 disposable respirator (face mask) is a minimum for low to medium dust levels. A half or full-face P1 or P2 respirator may be required for medium to high dust levels.



Training and Supervision: Respirators are only effective when they are properly used. A facial fit test should be carried out for each worker and training provided on the correct use of respirators. Respirators should be cleaned and maintained to ensure they remain fit for purpose and stored in a clean cupboard when they are not in use. Most importantly, supervise workers to ensure they are being used and used correctly.

Other Controls: Wear Protective Clothing. Dusty clothes should not be allowed to contaminate cars, homes or other areas outside the worksite. Have disposable or washable clothes to change into at work. Change into clean clothes (and if possible, shower or wash before leaving the worksite). Do not allow dusty clothes to contaminate other clothing – wash separately.

Personal Hygiene: Follow good personal hygiene practices. This includes not eating, drinking or smoking in dusty areas, washing your face and hands before eating and parking your vehicle in an area that will not be contaminated by dust.

Air Monitoring: Where Contractor employees are exposed to dust, the employer should carry out air monitoring to measure the overall amount of dust created at various positions on the worksite and the maximum level of worker exposure.

Health Monitoring: Similarly, ongoing health surveillance (including lung function testing) should be provided for employees who may be exposed to dust.

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Discussion Points and Q & A:

Q. Name three types of dust generated on a construction site.

A. *Wood dust, silica dust, excavation dust.*

Q. Name some dust producing tasks? *Note: there are several correct answers, encourage dialogue and discussion during this answer.*

A. *Sawing, drilling, concrete cutting, landscaping, excavating, tiling, sweeping.*

Q. Describe some steps you can take to keep yourself and your workmates protected from dust? *Note: there are several correct answers, encourage dialogue and discussion during this answer.*

- ✓ *Wear protective clothing*
- ✓ *Wear a correctly fitted dust mask*
- ✓ *Use signage to warn others of dust producing tasks*
- ✓ *Vacuum up dust, do not sweep it.*



