Silica Exposures for common construction tasks

A study at seven construction sites in Washington State found at least some construction tasks were over silica exposure limits.

Why worry about silica exposure?

When silica dust is breathed into the lungs frequently or in high concentration, it can damage the lungs causing silicosis. Silicosis is an irreversible scaring of the lungs that leads to breathing problems, and in some cases, death.

Silica exposure has also been linked to increased risk of lung cancer.

To learn more about silicosis visit this website:
http://www.osha-slc.gov/Training/Silicosis.html

Percent of samples over the American Conference of Governmental Industrial Hygienists Threshold Limit Value (TLV*) if task is done for a full shift.

- **Surface Grinding**: 100%
- **Tuckpoint Grinding**: 100%
- **Concrete Demolition**: 88%
- **Floor sanding**: 80%
- **Concrete Cutting**: 77%
- **Clean Up**: 50%
- **Sack and Patch Concrete**: 40%
- **Cement/Mortar Mixing**: 20%

*TLV is 0.05 mg/m³, based on lung cancer studies.

Getting control of concrete dust

- Use ventilated tools
- Spray water at point of dust emission
- Do dusty work outside if possible
- Keep tool’s dust control apparatus intact
- Dust levels can remain high for a time even after cutting, grinding, or sweeping stops
- Air sampling is needed to verify dust levels

What makes a difference in dust levels and dust exposures

- How much of the work space is enclosed
- How long the dusty activity occurs
- Whether the dusty activity is continuous or occasional
- Whether dust controls installed really work
## Respirator types

<table>
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<tr>
<th>Activity</th>
<th>Dust Mask</th>
<th>Cartridge Half Face</th>
<th>Cartridge Full Face</th>
<th>PAPR (Power Air Purifying Respirator)</th>
<th>Airline respirator</th>
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<td>Tuckpoint grinding</td>
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<td>Demolition w/ hand held power tool</td>
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<td>Sack and patch concrete*</td>
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<td>Floor sand concrete</td>
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<td>Clean up</td>
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<td>Concrete block and brick cutting</td>
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<td>Concrete mixing</td>
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*More protection needed when sack and patch includes grinding

Use a more protective respirator when the activity is longer or the workplace is more enclosed.

Avoid reliance on respirators alone for protection. More information on the use of respirators can be found at: [http://www.osha.gov/SLTC/respiratory_advisor/mainpage.html](http://www.osha.gov/SLTC/respiratory_advisor/mainpage.html)

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