

## Controlling Silica Exposure Using Table 1

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Stationary masonry saws</p> 	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	(none required) 	(none required) 
<p>Handheld power saws (any blade diameter)</p> 	- when used outdoors	(none required) 	(APF 10 required) 
	- when used indoors or in an enclosed area	(APF 10 required) 	(APF 10 required) 
<p>Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)</p> 	<p>For tasks performed outdoors only:</p> <ul style="list-style-type: none"> <li>Use saw equipped with commercially available dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</li> </ul>	(none required) 	(none required) 

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Walk-behind saws</p> 	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:</li> </ul> <p>- when used outdoors</p> <p>- when used indoors or in an enclosed area</p>	<p>(none required)</p>  <p>(APF 10 required)</p> 	<p>(none required)</p>  <p>(APF 10 required)</p> 
<p>Drivable saws</p> 	<p>For tasks performed outdoors only:</p> <ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feed water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
<p>Rig-mounted core saws or drills</p> 	<ul style="list-style-type: none"> <li>Use tool equipped with integrated water delivery system that supplies water to cutting surface.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Handheld and stand-mounted drills (including impact and rotary hammer drills)</p> 	<ul style="list-style-type: none"> <li>• Use drill equipped with commercially available shroud or cowl with dust collection system.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> <li>• Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
<p>Dowel drilling rigs for concrete</p> 	<p>For tasks performed outdoors only:</p> <ul style="list-style-type: none"> <li>• Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> <li>• Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	<p>(APF 10 required)</p> 	<p>(APF 10 required)</p> 
<p>Vehicle-mounted drilling rigs for rock and concrete</p> 	<p>Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.</p> <p>OR</p> <p>Operate from within an enclosed cab and use water for dust suppression on drill bit.</p>	<p>(none required)</p> 	<p>(none required)</p> 

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<p>Jackhammers and handheld powered chipping tools</p> 	<p>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:</p>	<p>- when used outdoors (none required)</p> 	<p>(APF 10 required)</p> 
<p>- when used indoors or in an enclosed area</p>	<p>(APF 10 required)</p> 	<p>(APF 10 required)</p> 	
<p>OR</p>			<ul style="list-style-type: none"> <li>• Use tool equipped with commercially available shroud and dust collection system.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism:</li> </ul>
<p>- when used outdoors</p>	<p>(none required)</p> 	<p>(APF 10 required)</p> 	
<p>- when used indoors or in an enclosed area</p>	<p>(APF 10 required)</p> 	<p>(APF 10 required)</p> 	
<p>Handheld grinders for mortar removal (i.e., tuckpointing)</p> 	<ul style="list-style-type: none"> <li>• Use grinder equipped with commercially available shroud and dust collection system.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</li> </ul>	<p>(Half mask required)</p> 	<p>(APF 25 required)</p> 

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Handheld grinders for uses other than mortar removal 	For tasks performed outdoors only: <ul style="list-style-type: none"> <li>• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	(none required) 	(none required) 
	OR		
	<ul style="list-style-type: none"> <li>• Use grinder equipped with commercially available shroud and dust collection system.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism:</li> </ul>		
	- when used outdoors	(none required) 	(none required) 
	- when used indoors or in an enclosed area	(none required) 	(APF 10 required) 

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Walk-behind milling machines and floor grinders</p> 	<ul style="list-style-type: none"> <li>• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
<p>OR</p>	<ul style="list-style-type: none"> <li>• Use machine equipped with dust collection system recommended by the manufacturer.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Dust collector must provide the airflow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</li> <li>• When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
<p>Small drivable milling machines (less than half-lane)</p> 	<ul style="list-style-type: none"> <li>• Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.</li> <li>• Operate and maintain machine to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Large drivable milling machines (half-lane or larger)</p> 	<p>For cuts of any depth on asphalt only:</p> <ul style="list-style-type: none"> <li>• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>• Operate and maintain machine to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
	<p>For cuts of four inches in depth or less on any substrate:</p> <ul style="list-style-type: none"> <li>• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>• Operate and maintain machine to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
	<p>OR</p> <ul style="list-style-type: none"> <li>• Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.</li> <li>• Operate and maintain machine to minimize dust emissions.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 
<p>Crushing Machines</p> 	<ul style="list-style-type: none"> <li>• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points).</li> <li>• Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</li> </ul>	<p>(none required)</p> 	<p>(none required)</p> 

Equipment/Task	Engineering and Work Practice Control Methods	Respirator Requirements and Minimum Assigned Protection Factor (APF) for 4 Hours or Less	Respirator Requirements and Minimum Assigned Protection Factor (APF) for More Than 4 Hours
<p>Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramping, rock ripping) or used during demolition activities involving silica-containing materials</p> 	<p>Operate equipment from within an enclosed cab.</p>	<p>(none required)</p> 	<p>(none required)</p> 
	<p>When employees outside of the cab are engaged in the task, apply water and/or dust suppressant as necessary to minimize dust emissions.</p>	<p>(none required)</p> 	<p>(none required)</p> 
<p>Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials</p> 	<p>Apply water and/or dust suppressants as necessary to minimize dust emissions.</p>	<p>(none required)</p> 	<p>(none required)</p> 
<p>OR</p>			
	<p>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</p>	<p>(none required)</p> 	<p>(none required)</p> 