



Silica in Construction - Table 1




OSHA Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

OSHA's new rule on respirable crystalline silica mandates reducing exposures through engineering and work practice controls. Additionally, it gives contractors flexibility by providing three different compliance options. One of those options is Table 1, which lists 18 silica-generating tasks along with specific engineering controls and respirator requirements. Employers who follow these requirements fully and completely will not have to do air monitoring and will be assumed to be below the permissible exposure limit.

Equipment Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours / shift	> 4 hours / shift
(i) Stationary masonry saws 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None Required	None Required
(ii) Hand held power saws (any blade diameter) 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufactures instructions to minimize dust emissions. - when used outdoors - when used indoors or in an enclosed area	None Required APF 10 Required	APF 10 Required APF 10 Required
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None Required	None Required


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		≤ 4 hours / shift	> 4 hours / shift
			
(iv) Walk-behind saws 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions: - When used outdoors - When used indoors or in an enclosed area	None Required APF 10 Required	None Required APF 10 Required
(v) Drivable saws 	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.	None Required	None Required
(vi) Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.	None Required	None Required




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		≤ 4 hours / shift	> 4 hours / shift
			
(vii) Handheld and stand-mounted drills (including impact and rotary hammer)	<p>Use drill equipped with commercially available shroud or cowling with dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>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.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	None Required	None Required
(viii) Dowel drilling rigs for concrete	<p>For tasks performed outdoors only:</p> <p>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.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	APF 10 Required	APF 10 Required


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		≤ 4 hours / shift	> 4 hours / shift
			
(ix) Vehicle-mounted drilling rigs for rock and concrete 	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. OR Operate from within an enclosed cab and use water for dust suppression on drill bit.	None Required None Required	None Required None Required
(x) Jackhammers and handheld powered chipping tools 	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. – When used outdoors – When used indoors or in an enclosed area OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to	None Required APF 10 Required	APF 10 Required APF 10 Required

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		≤ 4 hours / shift	> 4 hours / shift
	minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. – When used outdoors – When used indoors or in an enclosed area	None Required APF 10 Required	APF 10 Required APF 10 Required
(xi) Handheld grinders for mortar removal (i.e., tuckpointing) 	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions. 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.	APF 10 Required	APF 25 Required

(xii) Handheld grinders for uses other than mortar removal 	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions. OR Use grinder equipped with commercially available shroud and dust collection	None Required	None Required
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		≤ 4 hours / shift	> 4 hours / shift
	<p>system.</p> <p>Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.</p> <p>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</p> <p>-When used outdoors.....</p> <p>- When used indoors or in an enclosed area</p>	<p>None Required</p> <p>None Required</p>	<p>None Required</p> <p>APF 10 Required</p>
<p>(xiii) Walk-behind milling machines and floor grinders</p> 	<p>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</p> <p>Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.</p> <p>OR</p> <p>Use machine equipped with dust collection system recommended by the manufacturer.</p> <p>Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.</p> <p>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.</p> <p>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove</p>	<p>None Required</p> <p>None Required</p>	<p>None Required</p> <p>None Required</p>



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		≤ 4 hours / shift	> 4 hours / shift
	loose dust in between passes.		
(xiv) Small drivable milling machines (less than half-lane) 	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None Required	None Required
(xv) Large drivable milling machines (half-lane and larger) 	<p>For cuts of any depth on asphalt only:</p> <ul style="list-style-type: none"> - Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. - Operate and maintain machine to minimize dust emissions. <p>For cuts of four inches in depth or less on any substrate:</p> <ul style="list-style-type: none"> - Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. - Operate and maintain machine to minimize dust emissions. <p>OR</p> <p>Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>	None Required	None Required
(xvi) Crushing machines	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).		


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		≤ 4 hours / shift	> 4 hours / shift
	<p>Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</p>	None Required	None Required
<p>(xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials</p> 	<p>Operate equipment from within an enclosed cab.</p> <p>When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.</p>	None Required	None Required
<p>(xviii) 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>OR</p> <p>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</p>	None Required	None Required

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		≤ 4 hours / shift	> 4 hours / shift
			

Notes:

1. When implementing the control measures specified in Table 1, each employer shall*:
 - a. For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
 - b. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
 - c. For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - i. Is maintained as free as practicable from settled dust;
 - ii. Has door seals and closing mechanisms that work properly;
 - iii. Has gaskets and seals that are in good condition and working properly;
 - iv. Is under positive pressure maintained through continuous delivery of fresh air;
 - v. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
 - vi. Has heating and cooling capabilities.
2. Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.*

* Reference OSHA 1926.1153 Respirable crystalline Silica standard including full table 1 for complete information. Images are for representational purposes only.