



**Table 1 – Equipment Names and Best Practice Tips – Update September 2018**

- Includes equipment terms commonly used by different trades and in different geographic areas.
- ‘Best practice’ tips are intended to help employers and their employees operate the equipment-control options effectively and are based on 1) [OSHA’s Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction](#); 2) [OSHA’s Frequently Asked Questions \("FAQs"\) for the Construction Industry](#); 3) [silica standard’s Table 1](#); 4) manufacturer specifications; and 5) craft worker/contractor input based on experience in the field.

Equip ment/ Control	Photo	Engineering, Work Practice Control Methods & Required Respiratory Protection	Best Practice Tips
(xiii) Walk- behind milling machines and floor grinders	 <p><i>Photo courtesy of OSHA</i></p>	<p><b>CONTROL: water</b></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><b>Required Respiratory Protection:</b></p> <ul style="list-style-type: none"> <li>• ≤4 hours/shift: NONE</li> <li>• &gt;4 hours/shift: NONE</li> </ul> <p>OR</p> <p>CONTROL: ventilation (see next page)</p>	<p>OSHA<sup>1</sup> requires, for <b>water controls</b>, that the employer ensure that:</p> <ul style="list-style-type: none"> <li>• An integrated water system is provided that continuously feeds water to the cutting surface</li> <li>• An adequate supply of water for dust suppression is used</li> <li>• The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation</li> <li>• The spray nozzle is not clogged or damaged</li> <li>• All hoses and connections are intact</li> <li>• Additional exhaust is provided as needed to minimize the accumulation of visible airborne dust when operating indoors or in an enclosed space (area where airborne dust can build up)</li> <li>• Additional means of exhaust could include: portable fans (e.g. box fans, floor fans, axial fans, oscillating fans), portable ventilation systems, or other systems that increase air movement and assist in the removal and dispersion of airborne dust<sup>4</sup></li> <li>• “Indoors or in enclosed areas” refer to any areas where, without the assistance of forced ventilation, the dispersal of airborne dust can be impeded and concentrations can build up. Parking garages, pits, trenches, empty swimming pools, open-top structures with 3 walls, or other structures with limited air movement could be considered enclosed<sup>4</sup></li> </ul> <p>Other tips:</p> <ul style="list-style-type: none"> <li>• Check the hose or spray nozzle regularly to ensure the flow rate is sufficient to control the dust generated so that no visible dust<sup>2</sup> is emitted from the process once the breaker/drill has entered the substrate (material)</li> <li>• Prevent wet slurry from accumulating and drying</li> </ul>

Equipment/ Control	Photo	Engineering, Work Practice Control Methods & Required Respiratory Protection	Best Practice Tips
(xiii) Walk- behind milling machines and floor grinders	 <p data-bbox="323 721 554 743">Photo courtesy of OSHA</p>	<p data-bbox="764 212 1031 235"><b>CONTROL: ventilation</b></p> <ul data-bbox="764 248 1199 885" 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 air flow 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 data-bbox="764 930 1163 953"><b>Required Respiratory Protection:</b></p> <ul data-bbox="764 966 1066 1031" style="list-style-type: none"> <li>• ≤4 hours/shift: NONE</li> <li>• &gt;4 hours/shift: NONE</li> </ul> <p data-bbox="814 1076 848 1099">OR</p> <p data-bbox="764 1144 1199 1167"><b>CONTROL: water</b> (see previous page)</p>	<p data-bbox="1226 209 1913 264">OSHA<sup>1</sup> requires, for <b>dust collection controls</b>, that the employer ensure that:</p> <ul data-bbox="1226 277 1976 1057" style="list-style-type: none"> <li>• The system provides a filter with 99% efficiency or greater and a filter-cleaning mechanism</li> <li>• The hose connecting the tool to the vacuum is intact and without kinks or tight bends</li> <li>• The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions</li> <li>• The dust collection bags are emptied to avoid overfilling</li> <li>• Loose dust must be cleaned with a HEPA-filtered vacuum in between passes of the machine to prevent the loose dust from being re-suspended</li> <li>• Additional exhaust is provided as needed to minimize the accumulation of visible airborne dust when operating indoors or in an enclosed space (area where airborne dust can build up)</li> <li>• Additional means of exhaust could include: portable fans (e.g. box fans, floor fans, axial fans, oscillating fans), portable ventilation systems, or other systems that increase air movement and assist in the removal and dispersion of airborne dust<sup>4</sup></li> <li>• "Indoors or in enclosed areas" refer to any areas where, without the assistance of forced ventilation, the dispersal of airborne dust can be impeded and concentrations can build up. Parking garages, pits, trenches, empty swimming pools, open-top structures with 3 walls, or other structures with limited air movement could be considered enclosed<sup>4</sup></li> </ul> <p data-bbox="1226 1099 1346 1122">Other tips:</p> <ul data-bbox="1226 1135 1965 1453" style="list-style-type: none"> <li>• Visually inspect the milling machine, shroud (hood or cowl) and dust collection system to ensure they are properly connected</li> <li>• Visually inspect the milling machine, shroud (hood or cowl) and dust collection system for missing or damaged part</li> <li>• Check the milling machine, shroud (hood or cowl) and dust collection system regularly to ensure the system is operating so that no visible dust<sup>2</sup> is emitted from the process once the blade has entered the substrate being cut</li> <li>• Use dust collector in accordance with manufacturer specifications including airflow rate</li> </ul>

<sup>1</sup>Best practice requirements from [OSHA's Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction](#)

<sup>2</sup>Although many of the entries on Table 1 require employers to "[o]perate and maintain" tools "in accordance with manufacturer's instructions to minimize dust emissions," 29 C.F.R. § 1926.1153(c)(1)(i)-(vii), (x)-(xiii), (xvi), or to "[o]perate and maintain machine[s] to minimize dust emissions," 29 C.F.R. § 1926.1153(c)(1)(xiv)-(xv), the standard does not separately require employers to minimize dust emissions. An employer generating a limited amount of dust when engaging in a task listed on Table 1 would not be in violation of the standard if it is fully and properly implementing the engineering controls, work practices, and respiratory protection specified on the Table (including operating and maintaining controls so as to minimize emissions). A small amount of dust can be expected even with new equipment that is operating as intended by the manufacturer. However, a noticeable increase in dust emissions may indicate that the dust control system is not operating properly. See OSHA's Q&A's #15 at [https://www.osha.gov/dsg/topics/silicacrystalline/construction\\_info\\_silica.html](https://www.osha.gov/dsg/topics/silicacrystalline/construction_info_silica.html).

<sup>3</sup>Respirator use is conditional on time spent using equipment (less than or equal to 4 hours/shift or greater than 4 hours/shift) and if task is done outdoors, indoors or in an enclosed area. See Table 1 in the standard for specific requirements including the assigned protection factor (respiratory protection). The employer does not have the track the exact amount of time that employees are performing a job throughout a shift to be in compliance with Table 1. Before the task is performed, the employer must make a good-faith judgement about whether the task will take more than 4 hours based on previous experience and other available information. At the beginning of the task, the employer must provide the employee the respiratory protection required for the anticipated time the employee will be engaged in the task. However, if unforeseen difficulties or other circumstances are expected to extend the task duration beyond 4 hours, the employer must provide the appropriate respiratory protection as soon as it becomes evident. (In that situation, the 4-hour mark is still measured from the beginning of the task, not from the time the expected duration of the task changes.) See OSHA's Q&A's #14 at [https://www.osha.gov/dsg/topics/silicacrystalline/construction\\_info\\_silica.html](https://www.osha.gov/dsg/topics/silicacrystalline/construction_info_silica.html).

<sup>4</sup>In August 2018, OSHA released new Q&A's. These additions are based on information included in the responses. Q&A #11 addresses manufacturer air flow recommendations; #12 addresses use of additional exhaust; #13 addresses indoor and enclosed spaces; #14 addresses respirator requirements based on duration of task; #15 addresses minimizing dust emissions; #17 addresses demolition hammers with bushing tools; #18 addresses tile saws. For more information, see [https://www.osha.gov/dsg/topics/silicacrystalline/construction\\_info\\_silica.html](https://www.osha.gov/dsg/topics/silicacrystalline/construction_info_silica.html).

<sup>5</sup>Employees engaged in the Table 1 task means the equipment operator; helpers, laborers and other employees who are assisting with the task; or any other employee responsible for completing the task. For example, an employee operating a walk-behind saw and another employee helping the operator guide the saw are both engaged in the task. An employee operating a jackhammer would be engaged in the task, but another employee directing traffic near the employee jackhammering would not be engaged in the task. [OSHA's Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction](#), page 5.