







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.

Equipment/ Control	Photos & Video	Engineering, Work Practice Control Methods & Required Respiratory Protection	Best Practice Tips
<p>(x) Jackhammers and handheld powered chipping tools</p> <p>Other names:</p> <p>Chipping hammer</p> <p>Chipping gun</p> <p>Chisel gun</p> <p>Demolition hammer⁴</p> <p>Demolition hammer with bushing tool⁴</p>	 <p>(water)</p>  <p>(vacuum)</p> <p><i>Photos courtesy of the International Masonry Institute & OSHA</i></p>  <p><i>Video courtesy of OSHA</i> https://www.youtube.com/watch?v=MULqL7FtB58 English & Spanish subtitle options included.</p>	<p>CONTROL: Water + respirators³</p> <ul style="list-style-type: none"> • Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. <p>Required Respiratory Protection: <u>Outdoors</u></p> <ul style="list-style-type: none"> • ≤4 hours/shift: NONE • >4 hours/shift: APF 10 <p><u>Indoors or in an enclosed area</u></p> <ul style="list-style-type: none"> • ≤4 hours/shift: APF 10 • >4 hours/shift: APF 10 <p>OR</p> <p>CONTROL: Ventilation+ respirators³ (see next page)</p>	<p>OSHA¹ requires, for water controls, the employer to ensure that:</p> <ul style="list-style-type: none"> • A continuous stream or spray of water is delivered at the point of impact through direct connections to fixed water lines or portable water tank systems; one or two workers can operate the water delivery system • An adequate supply of water for dust suppression is used • The spray nozzle is working properly and produce a pattern that applies water at the point of dust generation • The spray nozzles are not clogged or damaged • All hoses and connections are intact • Additional exhaust is provided as needed to minimize the accumulation of visible airborne dust when operating indoors or in an enclosed space • 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 dust⁴ • “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 enclosed⁴ <p>Other tips:</p> <ul style="list-style-type: none"> • Check the hose or spray nozzle regularly to ensure the flow rate is sufficient to control the dust generated so that no visible dust² is emitted from the process once the breaker/drill has entered the substrate (material) • Prevent wet slurry from accumulating and drying

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<p>(x) Jackhammers and handheld powered chipping tools</p> <p>Other names:</p> <p>Chipping hammer</p> <p>Chipping gun</p> <p>Chisel gun</p> <p>Demolition hammer⁴</p> <p>Demolition hammer with bushing tool⁴</p>	 <p>(water)</p>  <p>(vacuum)</p> <p><i>Photos courtesy of the International Masonry Institute & OSHA</i></p>  <p><i>Video courtesy of OSHA</i> (https://www.youtube.com/watch?v=MulqL7FtB58) English & Spanish subtitle options included.</p>	<p>CONTROL: Ventilation+ respirators³</p> <ul style="list-style-type: none"> • Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust. • 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. <p>Required Respiratory Protection:</p> <p><u>Outdoors</u></p> <ul style="list-style-type: none"> • ≤4 hours/shift: NONE • >4 hours/shift: APF 10 <p><u>Indoors or in an enclosed area</u></p> <ul style="list-style-type: none"> • ≤4 hours/shift: APF 10 • >4 hours/shift: APF 10 <p>OR</p> <p>CONTROL: Water + respirators³ (see previous page)</p>	<p>OSHA¹ requires, for dust collection controls, the employer to ensure that:</p> <ul style="list-style-type: none"> • The system provides at least the air flow recommended by the manufacturer, a filter with 99% or greater efficiency, and a filter cleaning mechanism • The shroud or cowling is intact and installed in accordance with the manufacturer's instructions • The hose connecting the tool to the vacuum is intact and without kinks or tight bends • The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions • The dust collection bags are emptied to avoid overfilling • Additional exhaust is provided as needed to minimize the accumulation of visible airborne dust when operating indoors or in an enclosed space • 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 dust⁴ • "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 enclosed⁴ • Employers may rely on statements made by the manufacturer of equipment to determine dust collection systems function at the air flow level required. However, employers must properly select, use, maintain, and replace dust collection systems in order to ensure they function as designed⁴ <p>Other tips:</p> <ul style="list-style-type: none"> • Visually inspect the jackhammer/ impact driller, shroud (cowl or hood) and dust collection system to ensure they are properly connected • Visually inspect the jackhammer/ impact driller, shroud (cowl or hood) and dust collection system for missing or damaged parts

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

²Although 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.

³Respirator 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.

⁴In 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.

⁵Employees 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.