



SILICA EXPOSURE CONTROL PLAN

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Purpose

The purpose of this document is to establish and implement a written exposure control plan that identifies tasks involving silica exposure and methods used to protect employees. University units are required to implement the components of the Plan to ensure compliance with the following applicable state and federal regulations. The following Occupational Safety and Health Administration (OSHA) standards are applicable for respirable crystalline silica.

- General Standard 29 CFR 1910.1053
- Construction Standard 29 CFR 1926.1153

2: Scope

The Silica Exposure Control Plan applies to all Purdue University employees who are expected to be exposed to respirable crystalline silica as outlined in section 4; or through other means, which are determined by Radiological and Environmental Management (REM) or their supervisor.

3: Responsibilities

3.1 Deans, Directors and Department Heads

- Ensure supervisor(s) understand their responsibilities for the preparation and implementation of the Silica Exposure Control Plan within each work unit.
- Actively support this Plan within individual units.
- Ensure an environment where all employees are required to follow this Plan.

3.2 Supervisors

- Implement and ensure procedures are followed in accordance with this Plan.
- Ensure that staff is aware of this Plan, instructed on the details of implementation, and provided with equipment, and methods of control (e.g. engineering controls, work practice controls and respirators).
- Contact REM to request technical assistance, and to evaluate health and safety concerns within their department.

3.3 Employees

- Comply with this Plan and any further safety recommendations provided by supervisors and/or REM regarding the Silica Exposure Control Plan.
- Contact supervisor or REM to request technical assistance, and to evaluate health and safety concerns within their department.

4: Specified Exposure Control Methods

For each employee working with materials containing crystalline silica and engaged in a task using the equipment and machines listed below, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified.

4.1 Stationary Masonry Saws

- **Engineering Control:** Water continuously fed to the blade
- **Respiratory Protection:** None Required

4.2 Drivable Saws

- **Engineering Control:** Water continuously fed to the blade
- **Respiratory Protection:**
 - Enclosed Area: Can Not Use Saw in Enclosed Areas
 - Outside Area: None Required

4.3 Handheld Power Saws

- **Engineering Control:** Water continuously fed to the blade
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: N95 Dust Mask

4.4 Walk Behind Saws

- **Engineering Control:** Water continuously fed to the blade
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required

4.5 Ring Mounted Core Saw or Drill

- **Engineering Control:** Water continuously fed to the cutting surface
- **Respiratory Protection:** None Required

4.6 Handheld and Stand-Mounted Drills

- **Engineering Control:** Commercial shroud or cowling with dust collection system
- **Respiratory Protection:** None Required

4.7 Dow Drilling Rigs for Concrete

- **Engineering Control:** Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: Can Not Use Drill in Enclosed Areas
 - Outside Area: N95 Dust Mask
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: Can Not Use Drill in Enclosed Areas
 - Outside Area: N95 Dust Mask

4.8 Vehicle-Mounted Drilling Rigs

- **Engineering Control:** 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.
- **Respiratory Protection:** None Required

4.9 Jackhammers and Handheld Power Chipping Tools

- **Engineering Control:** Water continuously fed to the point of impact – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: N95 Dust Mask

4.10 Walk-Behind Milling Machines and Floor Grinders

- **Engineering Control:** Water continuously fed to the point of impact – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection:** None Required

4.11 Small Drivable Milling Machines (Less than Half-Lane)

- **Engineering Control:** Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.
- **Respiratory Protection:** None Required

4.12 Large Drivable Milling Machines (Half-Lane and Larger)

- **Engineering Control:** Use a machine equipped with exhaust ventilation on drum enclosure and supplemental water spray designed to suppress dust. – OR – Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.
- **Respiratory Protection:** None Required

4.13 Crushing Machines

- **Engineering Control:** Use equipment designed to deliver water spray or mist at crusher and other points where dust is generated. – AND – Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.
- **Respiratory Protection:** None Required

4.14 Heavy Equipment (Hoe-Ramming, Rock Ripping, and Demolition)

- **Engineering Control:** Operate equipment from within an enclosed cab. – AND – When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.
- **Respiratory Protection:** None Required

4.15 Heavy Equipment (Grading and Excavating)

- **Engineering Control:** Apply water and/or dust suppressants as necessary to minimized dust emissions. – OR – When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.
- **Respiratory Protection:** None Required

4.16 Handheld Grinders for Mortar Removal

- **Engineering Control:** Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: N95 Dust Mask
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: Full Face Air Purifying Respirator
 - Outside Area: Full Face Air Purifying Respirator

4.17 Handheld Grinders for Uses Other than Mortar Removal

- **Engineering Control:** Water continuously fed to the grinding surface – OR – Commercial shroud or cowling with dust collection system
- **Respiratory Protection (less than 4 hours per shift):**
 - Enclosed Area: None Required
 - Outside Area: None Required
- **Respiratory Protection (more than 4 hours per shift):**
 - Enclosed Area: N95 Dust Mask
 - Outside Area: None Required

4.18 Housekeeping

- The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica
 - Use Wet Sweeping
 - Use HEPA-Filtered Vacuuming
- The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica.

If you're exposed to respirable crystalline silica and engaged in a task using equipment and machines not identified in the list above, contact REM for an exposure assessment to determine the engineering controls, work practices, and respiratory protection requirements to safely do your job.