

Silica Exposure Plan

**Green Township School District
69 Mackerley Road
Newton, NJ 07860**



Created By:



Application

This Plan applies to all Buildings and Grounds Personnel of the Green Township School District (full time, part time, and temporary employees).

This Plan also applies, in part, to contractors, and subcontractors while they are on-site and they should be advised of this plan.

Purpose

The purpose of this Plan is to ensure the health safety of individuals who work with or near respirable crystalline silica. It describes the minimum requirements for the control of silica at the school district facilities.

This Plan also satisfies the requirements of 29 CFR 1910.1053, Respirable Crystalline Silica.

Definitions

- Action Level (AL) - The concentration of silica at which action must be taken to reduce dust and control exposures (.025 µg/m³).
- Permissible Exposure Limit (PEL): the average concentration to which employees may be exposed during an eight-hour shift - .05 µg/m³.
- Regulated area - An area where an employee's exposure to respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL.
- Respirable crystalline silica - Quartz, cristobalite, and/or tridymite forms of silica contained in airborne particles that are determined to be respirable by a sampling device
- Competent Person – An individual with the knowledge and ability necessary to identify existing and foreseeable silica hazards and who has authorization to take prompt corrective measures to eliminate them. Each facility must have a competent person designated whenever Building or Grounds personnel are engaged on site in activities with potential silica exposure.

Tasks With Potential Exposure

Specific tasks at this facility that have the potential to create exposure to crystalline silica include those listed in Appendix A. These tasks include those associated with normal operation, maintenance, and housekeeping/cleaning.

There are two versions of the OSHA Silica Standard: One for General Industry, and one for Construction. The General Industry Standards are focused on repetitive tasks performed at permanent workstations. Factory safety staff can evaluate an operation and characterize the exact composition of the raw materials, products, wastes, and contamination. The Construction Standard accommodates businesses that perform the same tasks, but where the materials always vary. For instance, the concrete saw operator could have to cut 100-year-old 6" thick concrete with wire mesh that was made with 60% sand today, while last week it was 25-year-old 4" concrete with re-bar made with 40% sand. Instead of requiring exposure monitoring in all possible situations,

OSHA provided a table in the standard for construction, the infamous “Table 1” that provides 14 different task/equipment PPE determinations for task durations of less than or more than 4 hours.

The Building and Grounds operations for schools fit neither classification. The tasks involving silica exposure vary greatly, more like the construction industry, but they are infrequent and usually of short duration. There are some tasks that match a row in Table 1, such as cutting through concrete. For this reason, Table 1 is included below as Appendix B.

It is unreasonable to expect to be able to perform exposure monitoring for every task that will generate silica dust that becomes immediately necessary (and will usually take less than an hour to perform). If someone on the staff has been cleared to wear respiratory protection, and the Competent Person can make a determination that exposure can be minimized, perhaps with fans for ventilation or a water hose to wet down the silica source, the object of the standard can be met.

If there was a database of objective data, results of exposure monitoring performed for tasks done in the school environment across the state, expected exposure levels could be defined, and “Table 2” could be developed. Ultimately, PEOSH or the Building and Grounds Association might be the repository of this information.

Exposure Monitoring

Exposure monitoring shall be conducted initially when there is the potential for generation of dust containing silica and objective data is not available.

Where exposures are at or above the AL but at or below the PEL, monitoring shall be repeated within six months until two consecutive measurements, taken 7 or more days apart, are below the AL.

Where exposures are above the PEL, monitoring shall be repeated within three months.

When (non-initial) monitoring indicates that exposures are below the AL, the monitoring shall be repeated within six months until two consecutive measurements, taken 7 or more days apart are below the AL.

All potential exposures shall be reassessed periodically thereafter whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures.

Exposures that exceed applicable exposure limits will be reassessed at the frequencies required by OSHA.

Engineering and Dust Controls

Silica exposure shall be controlled through the use of engineering controls such as exhaust ventilation, application of water, shrouds on power tools (such as angle grinders and tuck pointers) that capture the dust and run to HEPA dust collectors, and use of HEPA vacuums.

Controls shall be evaluated periodically to ensure their effectiveness.

If controls are not effective in maintaining dust concentrations below the PEL, restricted access areas will be established.

Housekeeping

At a minimum, the following housekeeping measures will be followed unless not feasible:

- Dust accumulations in concrete, mortar, and brick demolition or construction areas shall be removed through frequent vacuuming with HEPA vacuums.
- Dry sweeping or brushing is prohibited in areas where silica dust is likely to exist (such as ceramics classrooms/studios) unless HEPA-filtered vacuuming or other methods that minimize dust generation are not feasible.
- Use of compressed air for indoor cleaning of clothing and surfaces is **prohibited** unless used in conjunction with a ventilation system that effectively captures the dust cloud created.

Respiratory Protection

Respirators shall be worn if controls do not reduce exposures below the action level.

Only N100 filters shall be worn.

If exposures exceed the Maximum Use Concentration for silica (MUC - the highest concentration of a substance that a respirator will protect the user from) for the respirator being worn; respirators with a higher protection factor shall be provided and worn.

Voluntary use of filtering facepieces (for allergies while cutting grass for instance) does not require medical clearance or fit-testing as long as the employer provides Appendix D of the OSHA Respiratory Protection Standard (29 CFR 1910.134). However, if the Competent Person believes that the exposure from a given task is above the AL for silica, and a filtering facepiece is recommended, it is no longer voluntary use. The employer (School District) must have a written Respiratory Protection Program, any employees using a non-voluntary dust mask or respirator must have a medical exam to prove Fit-for-Duty, and be fit-tested with the type of respirator or mask to be used.

Regulated Areas

Regulated areas, which restrict entry only to qualified employees will be established where exposures exceed the PEL.

Regulated areas will be demarcated from the rest of the workplace in a manner that minimizes the number of employees exposed to respirable crystalline silica.

Only employees authorized by the Competent Person and required by work duties to be present in the regulated area shall be allowed access.

Signs shall be posted at all entrances to regulated areas that bear the legend:

DANGER
RESPIRABLE CRYSTALLINE SILICA
MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION IN
THIS AREA
AUTHORIZED PERSONNEL ONLY

Medical Monitoring

Medical exams shall be available at no cost to employees, and at a reasonable time and place, for those exposed to silica at or above the action level for 30 or more days per year.

The silica medical monitoring program shall comply with the requirements of 29 CFR 1910.1053

Contractors

Contractors working in areas in facilities in which RCS has been identified will be informed that the workplace contains regulated areas and that only authorized persons may enter.

When contractors are retained to perform work that involves potential exposure to silica, the Site Competent Person will ensure that:

- Contractors are apprised of the potential for exposure to silica;
- Contractors have a written silica exposure control plan in place; and
- Contractors' employees have completed any required silica hazard awareness training.

Employee Notification

Within 15 working days after an exposure assessment, the results will be posted in a location accessible to all affected employees.

Whenever an exposure is above the PEL, a description of the corrective action(s) being taken to reduce exposures shall be included in the results notification.

This Plan shall be readily available for examination and copying, upon request, to each employee.

Training

Prior to performing duties associated with silica, training that includes the following shall be provided:

- The health hazards associated with exposure to silica;
- Specific tasks that could result in exposure to silica;
- Specific measures implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators;
- The contents of 29 CFR 1910.1053; and
- The purpose and a description of the medical surveillance program.

Training will be provided to each affected employee:

- Before the employee is first assigned duties under this Plan;
- When there is a change in assigned duties;
- Training shall be in both a language and vocabulary that the employee can understand.

The employer must ensure that each employee covered by this section can demonstrate knowledge and understanding of these topics.

Training documentation will consist of the employee's name, the signatures of the trainers, and the dates of training.

Annual Review

This plan shall be reviewed at least annually and updated as needed.

Responsibilities – Custodians, Groundskeepers, Maintenance Techs

- Minimize the creation, spreading, and exposure to silica dust by using the appropriate tools and engineering controls. Use wet methods whenever possible.
- Wear the recommended personal protective equipment.

Responsibilities – Competent Person

- Identify tasks where silica exposure may be an issue;
- Provide the means to assure effective, consistent implementation of this procedure;
- Assure that training is implemented and is effective;
- Ensure that records are maintained according to School District requirements;
- Provide technical assistance, as needed, for implementation of silica controls;
- Review and approve documentation as specified in this Plan; and
- Approve deviations from this Plan
- Identify new equipment and install modifications to existing equipment that reduce exposure to silica.

Responsibilities – District Building and Grounds Director

- Notify Supervisors when either new equipment or modifications to existing equipment may impact employee silica exposures.
- Notify contractors of the presence of silica in their work area; and,
- Verify that those contractors have a written silica program and that employees have been trained as needed.

Recordkeeping

Training certifications shall be retained in accordance with established School District procedures. Documentation of annual reviews of this silica plan shall be retained for one calendar year beyond the year in which the review is conducted.

Task/Exposure/PPE Table

Appendix A

| Task | Conditions | Controls | PPE Required |
|---|--|---|----------------------------|
| <ul style="list-style-type: none"> •Handheld Drill Use •Installing security cameras and lights • •Hanging whiteboards | Drill in concrete, less than 15 min in day | None | None (As per OSHA FAQs) |
| <ul style="list-style-type: none"> •Mixing small amounts of mortar or concrete •Mixing EFIS base and finish coat •Removing concrete framework •Using block or tile splitters •Using manual chisels, shears, utility knives | Brief exposure to silica that are incidental to the primary work | No added exposure from other silica generating tasks | None (As per OSHA FAQs) |
| Grinding asphalt | No dust cloud | Wet surface | None |
| <ul style="list-style-type: none"> •Spackle and sand on concrete fixtures, •Hand wiping block walls to remove excess wet mortar •Pouring Concrete •Grouting floor & wall tiles | Brief exposure to silica that are incidental to the primary work | If silica containing and handled while wet. No added exposure from other silica generating tasks | None (As per OSHA FAQs) |
| Cut Grass (Lawns) | No bare Ground | None | None |
| Cut Grass (Fields) | Dry, Churned up football practice field | None | Unknown exposure |
| Dragging clay fields | Short duration | Take advantage of winds | None |
| Leaf Blowing | Clean Concrete, grass clippings | None | None |
| Leaf Blowing | Dry, Bare ground, loose dirt | None | Unknown exposure |
| Cleaning floor and fixtures in ceramics classroom | Dried clay, walked on and broken up | HEPA vacuum, wet methods | None |
| Sidewalk Leveling | Angle grinder, used outside | Shroud on tool/HEPA dust collector used to | None (see Table 1 |

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| | | collect dust, or water delivery system to grinding surface | 1926.1153) |
| Cutting through concrete | Concrete Saw Used less than 4 hours, outside | Water delivery system to cutting surface | None (see Table 1 1926.1153) |

Work Practices should include, at a minimum, maintenance of all engineering controls, prohibition of indoor dry sweeping of silica containing dusts, prohibition of using compressed air for cleaning, and minimization of dust generation.