

360 Wall Systems Respirable Silica Exposure Control Program

A **Respirable Silica Exposure Control Program** is a workplace safety program designed to reduce workers' exposure to respirable crystalline silica (RCS), a hazardous material that can cause serious health issues like lung disease, silicosis, and even cancer. The program typically includes preventive measures, monitoring strategies, employee training, and proper use of equipment to minimize the inhalation of silica dust. Here's an outline of key components involved in such a program:

Purpose

The purpose of the Silica Program is to provide information, guidelines, control measures and training to eliminate exposures to respirable silica dust in the excess of the action levels established by OSHA.

Scope

This program covers all 360 Wall Systems crew members who are engaged in silica releasing activities including, but not limited to, such activities as mixing, cutting, grinding, sanding, and drilling of concrete, stucco, fireproofing, or other silica containing materials.

Policy

360 Wall Systems Silica Policy is to control and minimize worker exposure to respirable silica while not exceeding the action levels established by OSHA. In this program, all fireproofing materials, masonry products and concrete products are presumed to contain trace amounts of silica as per their SDS. 360 Wall Systems, in collaboration with the TCDSC, has completed air monitoring by a certified Industrial Hygienist to verify that our current practices have our crews working under permissible action levels.

OSHA uses a benchmark 8-hour, time-weighted average exposure of 0.050 mg/m³ of respirable silica as a point of reference for the permissible exposure limit and 0.025 mg/m³ as the action level related to airborne silica. 360 Wall Systems Silica Protection Program will meet the OSHA standards, as the applicable law, at a minimum and 360 Wall Systems will work toward processes and controls which take into consideration more stringent exposure recommendations. Table #1 on page 32 shows some typical activities with silica exposure of those activities. If a tool or activity isn't on Table #1 contact your 360 Wall Systems Foreman/Supervisor.

If a 360 Wall Systems employee or any other trade is involved in a dust producing activity such as, but not limited to, sweeping, drilling, or mixing, of a material known or unknown to contain silica. The dust producing activity must be performed in conjunction with adequate engineering and administrative controls to protect against higher than permissible exposure levels established by OSHA.

Policy

The physical disturbance of concrete products or any silica containing material, by tool or piece of equipment (drilling, mixing, etc.) will not be allowed unless engineering controls or administrative

controls are put in place to reduce exposure levels below the action levels as established by applicable law. If site conditions make the use of engineering controls, such as wet method or vacuum systems, or administrative controls infeasible, a site-specific plan for associated dust control measures that are to be implemented must be reviewed and approved by the General Superintendent.

360 Wall Systems Responsibilities for the Silica Control Program

Project Manager

To review contract documents and follow policy. If a 360 Wall Systems employee is working with materials containing silica they have the proper training on the hazards and applicable standards.

General Superintendents

To review the installation and removal of silica containing materials on jobsite and ensure the dust control measures are properly put in place for both directly and non-directly affected employees.

To provide employees that are directly working with materials containing silica a wet method, vacuum system or alternate silica dust containment system.

To ensure that all employees have been properly trained when working with silica materials.

Foreman/Supervisor

To make sure the tools being used in working with materials containing silica are given a vacuum system or an alternate silica dust containment system.

Inspect tools and equipment to ensure they are in working order and good condition and have a dust control / suppression system function.

To ensure that all employees have the knowledge on dust control requirements when using materials containing silica.

To ensure that all employees have the proper training on silica hazards and related tools.

Field Employees

Only use tools that you have received training on. If trained, inspect and test all functions of tools to ensure proper working condition.

If not trained properly, DO NOT work in areas of potential silica dust exposure. Please contact your Foreman if you are unsure if you are working in an area they may or may not have silica air borne exposure.

Training

All employees who have the potential to be exposed to respirable silica must be properly trained on the hazards associated with exposed silica. Training should be included but is not limited to, the following:

1. What is silica and why can it be harmful?
2. What are the hazards associated with silica?
3. What laws are in place regarding levels and permissible exposure limits?
4. Where is silica found and used?
5. How can silica be controlled in the workplace?
6. What tools can be used to protect against silica exposure.
7. Instructions and standards examples.

When working on a 360 Wall Systems project that has exposure to silica the following controls will be used.

- Engineering Controls
- Administrative Controls
- PPE

Control Methods

The following list represents the recommended engineering controls for 4 common tools / activities that may cause respirable silica exposure. This list doesn't provide all items but give an overview to employees and what measures can be taken to address dust producing activities related to silica containing materials. If there is any questions related to possible exposure to silica, contact the 360 Wall Systems General Superintendent or Foreman/Supervisor.

- Removing fireproofing materials.
- Using hammer drills and similar tools.
- Sanding taping materials.
- The use of sweeping compound and/or vacuum systems for cleanup procedures.

Removing Fireproofing Materials

When fireproofing materials are required for removal a wet method should be used. Most common reason for removal is for installation of clips, kickers or other framing members. Employees will use water to wet down the fireproofing before it's scraped and removed. The material that was removed will need to be cleaned up and disposed of in sealed plastic bags before it dries.

Hammer Drills – Refer to Table #1 on page 32

When using a hammer drill, especially for tasks like drilling into concrete, masonry, or stone, dust control is crucial to ensure both worker safety and a cleaner work environment. Here are some key methods for controlling dust while using a hammer drill:

Use a Dust Extract Systems

- **Vacuum Attachment:** Many hammer drills have dust extraction attachments that can be connected to a vacuum system. These attachments capture dust at the point of contact as the drill bit creates dust, significantly reducing airborne particles.
- **Dedicated Dust Extractors:** For large projects or continuous use, a dedicated dust extractor (HEPA vacuum) can provide better suction and ensure more efficient dust collection.

Use a Dust Control Attachment or Shroud

- Dust shrouds or overs are designed to fit around the drill bit and capture dust as the drill makes contact with the surface. These tools work by enclosing the area around the bit, channeling the dust into a collection bag or hose attached to a vacuum.

Personal Protective Equipment (PPE) – Follow Table #1 based on tools/durations/indoor or outdoors

- **Respirators:** Workers should always wear an appropriate dust mask or respirator to protect themselves from inhaling harmful dust particles, especially when using a hammer drill without a dust collection system.
- **Eye Protection:** Safety goggles or face shields are essential to protect the eyes from flying debris and dust particles.
- **Hearing Protection:** Hammer drills can be loud, so hearing protection (earplugs or earmuffs) is recommended.

Proper Ventilation

- Work in well ventilated areas to help disperse dust that might not all be collected by the extraction system. Use fans or ventilation systems to improve airflow.

Training and Awareness

- Ensure that workers are properly trained on the importance of dust control and the safe use of dust extraction systems. Regular maintenance and inspection of dust collection equipment should also be part of the protocol.

By combining these methods, you can significantly reduce the risks associated with airborne dust and provide a safer, cleaner working environment when using a hammer drill.

Orbital Vacuum System during Sanding & Clean-Up

The purpose of a vacuum system is capturing silica dust. The vacuum system should have a HEPA (High Efficiency Particulate Air) self-cleaning bagged filtration system. Inspection of all hoses and connections in vacuum system are required to ensure there are no holes or cracks. This will ensure the systems is working properly. When a vacuum system is used during clean-up operations it's highly recommended that a bag liner be used inside the vacuum, this makes disposal easier. When it's time to empty the contents, inside the bag gently close and secure the bag to eliminate silica dust exposure. When the filter media needs to be cleaned or changed, it must be gently taken out of the machine and rinsed with water. Wet cleaning the filter is the only option. Do not take the filter out and "bang it" on something to clean it.

Sweeping compound

Sweeping compound is used for cleaning floors and controlling dust during the sweeping process. It is a mixture of fine, absorbent materials such as sawdust and clay that are sprinkled onto the floor before sweeping. Sweeping compound is an effective tool for maintaining cleaner, safer, and more controlled environments during floor maintenance. Here are the key reasons for using sweeping compound:
















1. **Dust Control:** Sweeping compound helps to bind dust particles, preventing them from becoming airborne during sweeping. This is especially useful in environments where dust can cause health concerns or visibility issues.
2. **Improved Cleaning:** It helps collect and trap dirt, debris, and dust, making it easier to sweep and remove from the floor. It can also pick up smaller particles that might otherwise be left behind.
3. **Safety:** By controlling dust, sweeping compounds reduce slip hazards and improve traction on walking and working surfaces.
4. **Surface Protection:** Some compounds are designed to be gentle on floors, helping to preserve the finish or surface of the floor while still cleaning effectively.

Table #1


Silica Exposure Control Methods

The tables below show silica testing that has been completed by various drywall companies in the Twin Cities. The participating companies tested different activities in the industry. Each selected activity is listed that may create silica to become airborne. If a tool or activity being used isn't on Table #1 contact a 360 Wall Systems Foreman/Supervisor.


Silica Tools and Protective Equipment

 <p>Stand-Mounted Drills</p>	 <p>Handheld Power Saws</p>	<p>Not Allowed Indoors Not Allowed Indoors</p>  <p>Handheld Power Saws for Cutting Fiber Cement</p>	 <p>Handheld Grinders for Uses Other than Mortar Removal <small>25 C M / INCH O WHEEL DIAMETER</small></p>	 <p>Jackhammers and Handheld Power Chipping Tools</p>
 <p>Handheld Drills</p>	 <p>Stationary Masonry Saws</p>	 <p>Walk-Behind Saws</p>	 <p>Handheld Grinders for Mortar Removal <small>25 CFM / INCH O WHEEL DIAMETER</small></p>	<p>NEGATIVE AIR MACHINE DEMO NEGATIVE AIR MACHINE</p>  <p>Demolition Activities <small>DRYWALL/SHEETROCK, CONCRETE BRICK/MASONRY, PLASTER</small></p>
 <p>Impact and Roto Hammers</p>	 <p>Rig-Mounted Core Saws/Drills</p>	 <p>Gas Partner Saws</p>	 <p>Walk-Behind Milling Machines and Floor Grinders</p>	<p>SWEeping COMPOUND SWEeping COMPOUND</p>  <p>Housekeeping Activities <small>SWEeping AND HEPA VACUUMING; NO COMPRESSED AIR/BACKPACK BLOWERS</small></p>


LEGEND




Integrated Water System



Integrated HEPA Vacuum System



N95 Dust Mask (apf 10)



Powered Air Purifying Respirator (apf 25)



Non-Integrated

EXAMPLE

DAILY DURATION
< 4 hrs > 4 hrs

LOCATION

Outdoor

Indoor

TOOL

FAQ'S

What if my tool/activity isn't on here?
 You should notify your employer. Air testing should take place to determine required engineering controls /PPE.

What is the Silica Table 1?
 It is an OSHA document that was created from objective research and if followed correctly, assures a work atmosphere free of a Silica exposure. Most of the listed tools/activities from 'Table 1' are documented on this poster.

What does an 'integrated' system look like?
 Integrated means the system is designed by a manufacturer for the tool and it is used properly.

Do I need to be fit tested for wearing the respirators?
YES! Your company should provide a Fit Test and Medical Evaluation before wearing the assigned respirators. Additional baseline and surveillance testing should be ordered if respirators are worn more than 30 days annually. This includes N95 dust masks.

What is Silica?



- Component of soil, sand, granite and other minerals
- Abundant in the earth's crust
- Most common form is Quartz
- Important industrial material

Silica FAQ's

Where can Silica be found?



Sand • Stone • Rock • Concrete
Brick Block • Mortar • Plaster
Joint compound • Granite • Tile

Activities with potential Silica exposure?

- Cutting • Sawing • Drilling • Chipping •
- Crushing • Mixing • Grinding • Tuckpointing •
- Sandblasting • Jackhammering • Housekeeping •
- Demolition

How can I prevent Silica overexposure?

Begin by using OSHA's 'SILICA Table 1' to determine required Engineering/Administrative/PPE procedures.

If the task is not in the 'SILICA Table 1', your company needs to provide testing to determine appropriate prevention methods and underexposure.

PRIMARY – Engineering Methods

- Integrated Wet/water methods
- Containment methods
- Local exhaust ventilation

SECONDARY – Administrative Methods

- Limit exposure time
- Proper hygiene and housekeeping

LASTLY – Personal Protective Equipment

- Respiratory protection
- Personal protective clothing



2.3M

U.S. workers are potentially exposed to SILICA annually

90%

of those workers are employed in construction

What are Silica health risks?

RESPIRATORY DISEASES

- Silicosis (incurable) • Tuberculosis/COPD/etc
- Kidney Disease
- Lung Cancer

3 CLASSES OF SILICOSIS

- Chronic/15-20yrs/poor O2-CO2 exchange, chest pain, respiratory failure
- Accelerated/5-10yrs/shortness of breath, weakness
- Acute/3m-2y/high concentrations leading to shortness of breath, weight loss, weakness, fatality

CAUSES OF DUST EXPOSURE



When is Silica hazardous to me?

- When VERY small particles become respirable and are inhaled
- Respirable particles enter the lungs and cause scar tissue which reduces the lungs' ability to take in oxygen
- The formation of Silicosis Affects Lung Function and Causes Susceptibility to lung infections

Pre-2016



250 microgram/
cubic meter of air

2016



50 micrograms/
cubic meter of air

Dangers of Silica Dust (Crystalline Silica)

SILICOSIS: LUNG DISEASE BROUGHT ON BY EXPOSURE TO CRYSTALLINE SILICA



SILICA DUST IS 100X SMALLER THAN BEACH SAND

SILICOSIS CAN BE PREVENTED WITH PROPER SAFETY MEASURES

360 Wall Systems has a SILICA program, creates Site-Specific SILICA Exposure Control Plans, and expects all trades potentially creating silica on site to also create their own Site-Specific SILICA Exposure Control Plans.