

## Respirable Crystalline Silica | Mirvac Minimum Requirements

### 1. Purpose & Scope

This document outlines the minimum expectations for Mirvac entities to manage the risk of exposure to respirable crystalline silica, commonly referred to as RCS.

The management of such risks will vary depending on Mirvac's role, including as a Developer, Principal Contractor, and where Mirvac has engaged a third-party Principal Contractor.

This document applies to all Mirvac projects and workplaces under the management and control of Mirvac.

The requirements of this document must be incorporated into relevant risk management documentation and planning (dust control plans, workplace risk management plans, silica management plans etc.)

This document sets out minimum expectations only and is not intended to a site specific silica management plan. Where reasonably practicable, the requirements of this document should be exceeded and site specific silica management plans developed outlining how silica exposure to workers will be managed/eliminated

### 2. What is crystalline silica?

Crystalline silica (silica) is found in sand, stone, concrete and mortar. It is also used to make a variety of products including engineered stone (used to fabricate kitchen and bathroom benchtops), bricks, tiles etc. When workers cut, crush, drill, polish, saw or grind products that contain crystalline silica, dust particles are generated that are small enough to lodge deep in the lungs and cause serious illness or disease including silicosis.

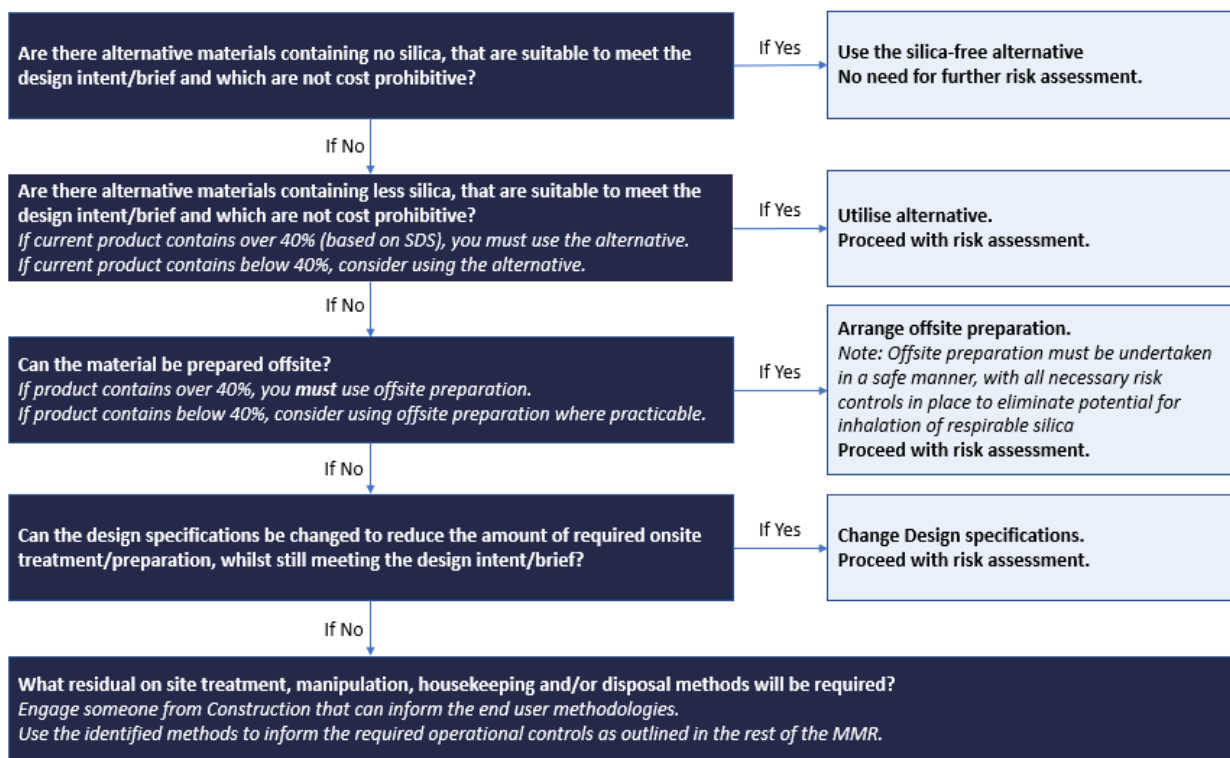
Silica dust or respirable crystalline silica (RCS) is generated in workplace mechanical processes such as crushing, cutting, drilling, grinding, sawing or polishing of natural stone or man-made products that contain silica.

### 3. Required Controls

#### Part A: Design Decisions, Sourcing and Preparation of Silica containing products and materials

Where Mirvac is the Developer or Principal Contractor and has control over the design and planning of works and the sourcing of materials, the following risk assessment decision tree must be applied for all materials containing a concentration of crystalline silica over 1% (according to the relevant Safety Data Sheet). This includes but is not limited to marble, limestone, slate, shale, granite, bricks, concrete, engineered stone, natural sandstone, fibre cement sheets, etc.

*Note: wood, glass, metals, and most plastics usually contain less than 1% crystalline silica, and it is not intended that the requirements of this document wouldn't apply to those materials/products.*



Engineered Stone is not permitted to be specified or procured for any new projects or for existing projects where the installation would occur post-July 2024 or where there is reasonable opportunity to do so prior to July 2024.

## Part B: Treatment, alteration and manipulation of Silica containing products and materials (including early works and demolition)

During the execution of work involving the treatment, alteration or manipulation of products or materials containing silica, refer to the table below to apply the correct arrangement of controls.

[Appendix 1](#) contains examples and visuals of applicable controls.

Activity (identified by Part A)	Source Extraction/Suppression/ Automation	Worker Respiratory Protective Equipment/Health Monitoring	Environment Exclusion, Ventilation, Air Monitoring
<b>Drilling</b>	✓	✓*	✓
<b>Cutting/Coring</b>	✓	✓*	✓
<b>Grinding/Polishing</b>	✓	✓*	✓
<b>Rock Breaking</b>	✓	✓*	✓
<b>Demolishing</b>	✓	✓*	✓
<b>Jackhammering</b>	✓	✓*	✓
<b>Mixing</b>	N/A	✓*	✓
<b>Shotcreting</b>	N/A	✓*	✓

\*Only required where the "Source" and "Environment" Controls result in residual exposure exceeding 0.02 mg/m<sup>3</sup> of Respirable Crystalline Silica of (0.02 mg/m<sup>3</sup>).

### "SOURCE" - Control Requirements for the Source of Dust Generation

Activities marked as requiring "Source" controls in the table above **must select one of the following** types of control solutions (Extraction, Suppression or Automation) based on appropriate risk assessments.

#### Extraction (Local Exhaust Ventilation for Dust):

The following controls isolate respirable crystalline silica before it can become airborne via dust extraction. These controls should be considered and implemented where reasonably practicable.

- Tools fitted with dust extraction systems (local exhaust ventilation or equivalent) where commercially available.
- dust extraction systems suitable for the dust generated, including:
  - Dust H Class vacuum
  - Interlocked with tool activation where required,
  - Extraction hood or equivalent design aspects ensuring all respirable crystalline silica dust is captured

Where applicable:

- Dust filters and collection bags must be regularly checked and safely replaced as required
- Tools must be operated and maintained per the manufacturer's instructions to minimise dust emissions.

### **Suppression (Water):**

The following controls prevent respirable crystalline silica from becoming airborne via water suppression. These controls should be considered and implemented where reasonably practicable.

- a. Integrated water delivery systems (or equivalent) where commercially available.
- b. Integrated water dust suppression systems where commercially available for rock drills, piling, pulverisers, crushing and screening plant.
- c. Water misting systems to control airborne dust where it is not practicable to stop dust at the source.

Where applicable, the supply and pressure of water must be suitable for the dust generated

- Continuous supply of water to the point of contact with the silica-containing material
- Effective filtration and management of the filtrate if using a recirculated water supply
- Persons must be protected from any water mist containing respirable crystalline silica

*Note: Handheld spray bottles, sponges, or garden hoses should not be used separately to apply water to power tools.*

### **Automation:**

The following controls isolate people from respirable crystalline silica via automated mechanical solutions. These controls should be considered and implemented where reasonably practicable.

- a. Automated mechanical plant (or equivalent) where commercially available.
- b. Suitable housekeeping and disposal protocols must accompany the use of automated mechanical solutions where dust is generated.
- c. Where applicable, mechanical plant must be operated and maintained per the manufacturer's instructions to minimise dust emissions.

## **“ENVIRONMENT” - Control Requirements for the Work Environment/Atmosphere**

Activities marked as requiring “Environment” controls in the table above **must implement the following** control requirements, as appropriate, based on relevant risk assessments.

### **Air Monitoring:**

The following outlines the requirements for personal exposure monitoring the concentrations of RCS in the workers' breathing zone.

- a. Air monitoring is required for all work generating silica dust where Mirvac cannot be confident it is within the relevant exposure standards or where monitoring is necessary to determine a health risk. except in the following circumstances:
- b. Air monitoring can only be undertaken by a trained and qualified occupational hygienist or person(s), under the direction of and reviewed by a Certified Occupational Hygienist (COH) or equivalent recognised international qualifications/accreditation
- c. When new control arrangements are in place, and there is no statistically valid exposure data to reference, air monitoring should be conducted, and data records be shared with the relevant HSE manager.

*Note: air monitoring is not an alternative to using adequate controls.*

### Dust Containment:

When undertaking work involving the treatment, alteration or manipulation of products or materials containing silica, consider whether isolation controls are reasonably practicable, including:

- a. Isolating high dust generation work processes with an enclosed room with restricted access;
- b. providing physical barriers and exclusion zones between different workers and workstations to prevent dust or water mist from moving into other work areas or towards other workers; or
- c. distancing a work process from other workers.

### Ventilation and Administrative Exposure Controls:

The following outlines the requirements of controls that isolate people from respirable crystalline silica via dust containment zones. *These elements should not be relied on as the primary or secondary control for preventing or protecting persons from silica exposure.*

- a. Signage indicating silica dust hazards must be visible in areas where there are silica dust hazards
- b. Natural ventilation, adjusting airflow via fans and re-designing work to be outdoors can be implemented at the discretion of the project/work.
- c. Training and awareness provided to workers on site on silica dust.
- d. Shift rotation and work design solutions can be implemented at the discretion of the project/work.

### “PERSON” – Controls associated with the Person(s) performing the task

Activities marked as requiring “Person” controls in the table above **must implement the following** control requirements, as appropriate.

#### Respiratory Protective Equipment (RPE)

The following outlines the requirements for respiratory protective equipment that protects people from inhaling crystalline silica dust.

RPE is only required for scenarios when the “Source” and “Environment” Controls can’t reduce the crystalline silica concentration in the air below 0.02 mg/m<sup>3</sup>.

*Note: Statistically valid exposure data can be provided by conducting workplace air monitoring or getting statistically accurate exposure data from an equipment manufacturer or third party. E.g. Manufacturing data for dust extraction solutions, water delivery systems or automated solutions verifying crystalline silica is within the Workplace Exposure Standard when utilising those systems.*

- a. RPE must be suitable for the nature of the work and fit for the wearer.
- b. RPE should comply with Australian Standards AS/NZS 1716 and AS/NZS 1715.
- c. Workers shall be provided with information, instruction and training in the use, fit and maintenance of RPE, including the system for storage.
- d. RPE should be cleaned and maintained per the manufacturer’s instructions.
- e. When tight-fitting respirators are provided (negative pressure masks), all wearers must be clean shaven.
- f. Fit testing is required for all tight-fitting RPE at least annually or where there has been a change to the equipment provided or the wearer’s facial features (impacting the seal) since the last fit test.

[Appendix 2](#) contains visuals of RPE.

### Health Monitoring

Health monitoring is required for any worker who has undertaken tasks requiring Respiratory Protective Equipment or where there is or remains a reasonably likely risk to the health of workers because of exposures to silica dust.

Health records must be kept for at least 30 years.

## **Part C: Cleaning and waste management of debris and dust from silica-containing products and materials**

### **Housekeeping**

The following outlines the requirements of controls when cleaning work areas with crystalline silica dust.

- a. Cleaning methods that prevent RCS from becoming airborne must be used where practicable. Forms include but are not limited to:
  - hosing down/wiping/mopping of surfaces;
  - vacuuming up dust and debris containing silica using an H-class vacuum cleaner
  - using ride-on floor cleaners (HEPA filtered or water scrubbing);
  - using on-tool extraction
  - wet sweeping (least preferred method).
- b. Suitable respiratory protection equipment must be used when large volumes of dust are generated/expected (except when there is statically valid exposure data to warrant otherwise).

**NOTE:** Dry sweeping of silica containing dust is not permitted. The use of compressed air or blowers on settled respirable crystalline silica dust is not permitted.

### **Waste Management**

The following outlines the requirements of controls when managing waste containing crystalline silica dust.

- a. Waste contaminated by crystalline silica dust from wet processes will be kept moist (where applicable), contained, and sealed.
- b. Waste contaminated by crystalline silica dust from dry extraction processes will be contained and sealed.
- c. Access should be restricted to prevent others from entering area(s) where waste management practices are being undertaken
- d. Bins and Skips can be located outdoors at the discretion of the project/work.

Waste containing silica will be disposed of through an appropriately specialised contractor.



#### 4. Verification and Assurance

##### **Assurance Requirements for Part A (Design Decisions, Sourcing and Preparation)**

Where Mirvac is the Developer and Principal Contractor and has control over the design and planning of works and the sourcing of materials, assurance of the DOOR process to verify the requirements outlined in the risk assessment decision tree has been implemented (incl. consideration of appropriate alternatives).

##### **Assurance Requirements for Parts B and C (Treatment, alteration, manipulation and cleaning)**

###### **When Mirvac is the Principal Contractor:**

These MMR requirements must be complied with for all works.

Verification of MMR requirements must be communicated in tender processes of subcontractors (where silica exposure has been identified in the scope of work).

Proof of MMR requirements and silica risk awareness must be addressed during induction processes.

During delivery, periodic task observation, monitoring and audits of work activities involving Parts B & C must be undertaken.

Independent assurance program or equivalent commensurate with risk exposure in the scope of works may be implemented where necessary and reasonably practicable.

###### **When Mirvac engages a 3<sup>rd</sup> party, Principal Contractor:**

Verification of MMR requirements must be communicated in the tender processes of Principal Contractors (where silica exposure has been identified in the scope of work).

Review of Principal Contractor's implementation and adherence to their own risk management plan(s) including silica management plans throughout delivery.

Targeted site walks and assurance of client expectations of work activities involving Parts B & C throughout delivery commensurate with the risk exposure in the scope of works.

##### **General Assurance Requirements:**

Continuous monitoring of data insights and trends from incidents, assurance activities, industry alerts and other data sources where relevant.

## Appendix 1

*Examples of on tool extraction.*



*Example of cut-off saw with water suppression.*



## Appendix 2

*Examples of correctly fitted Respiratory Protective Equipment (RPE)*

