New Silica Standard:

CPWR Resources

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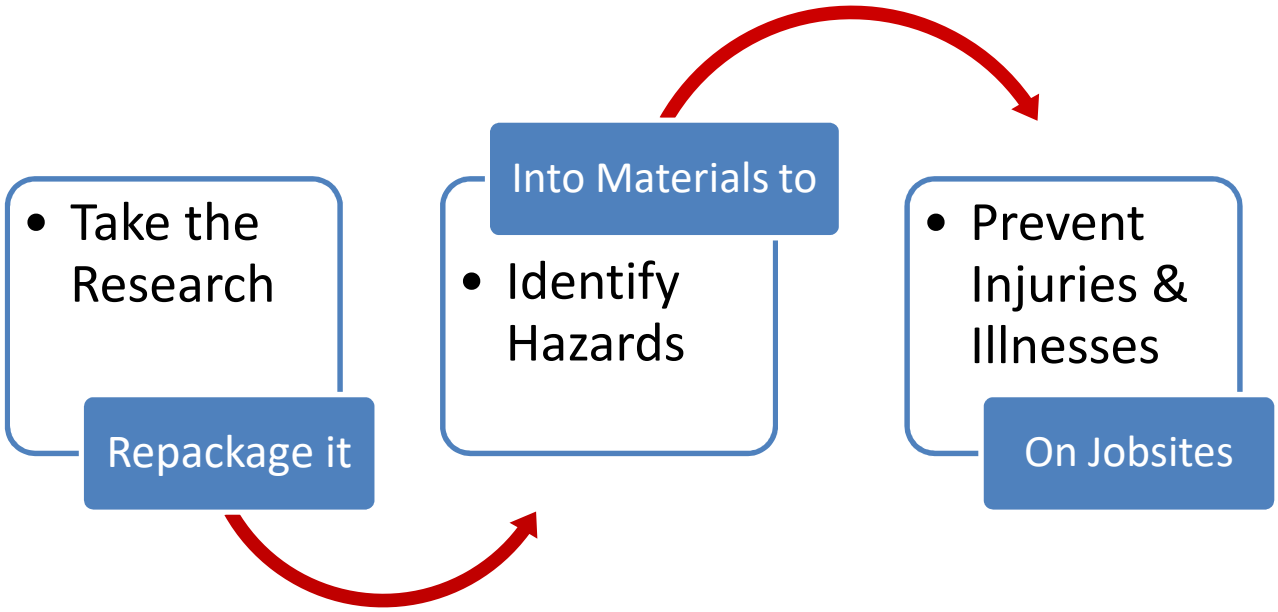
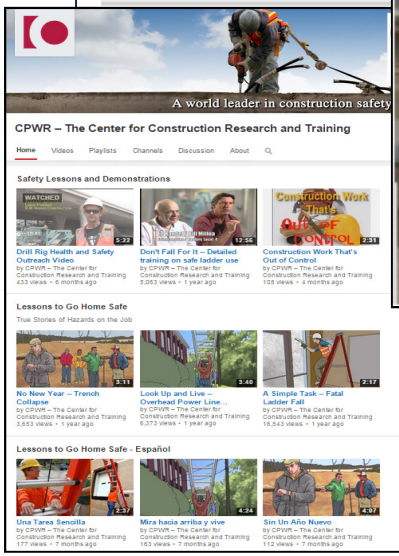
CPWR
THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

Who We Are

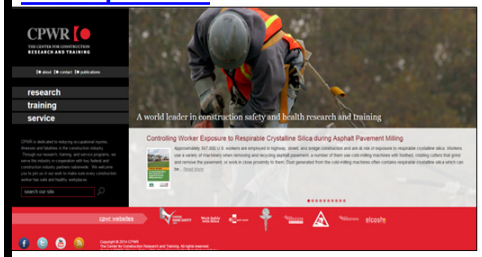
- Non-profit dedicated to reducing injuries, illnesses, and fatalities in the construction industry.
- Activity areas: training, service, and research,
- Serve as NIOSH's National Construction Center
- **Research to Practice (r2p)**



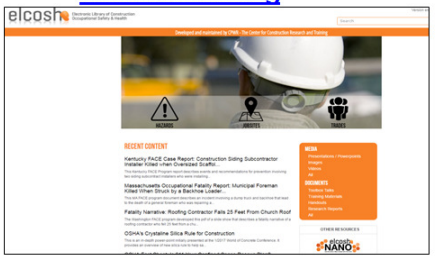
Materials, Websites & Online Resources



www.cpwr.com



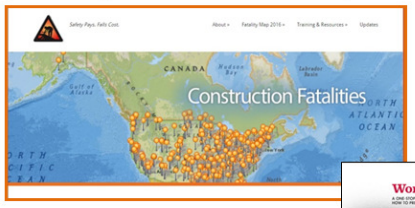
www.elcosh.org



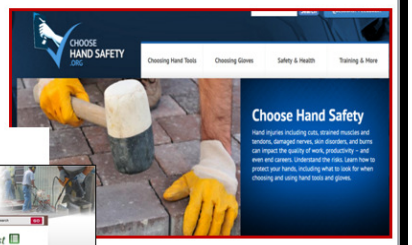
www.cpwrconstructionsolutions.org

www.safecalc.org

www.stopconstructionfalls.com

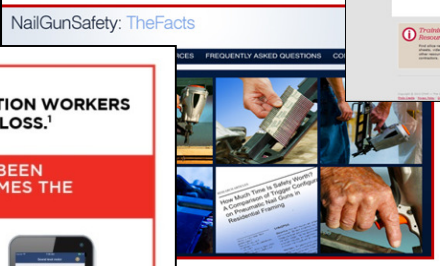


www.choosehandsafety.org

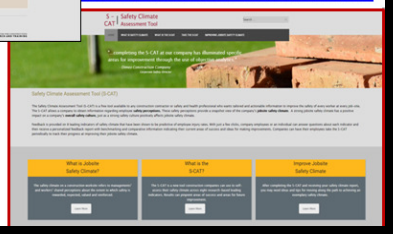


www.silica-safe.org

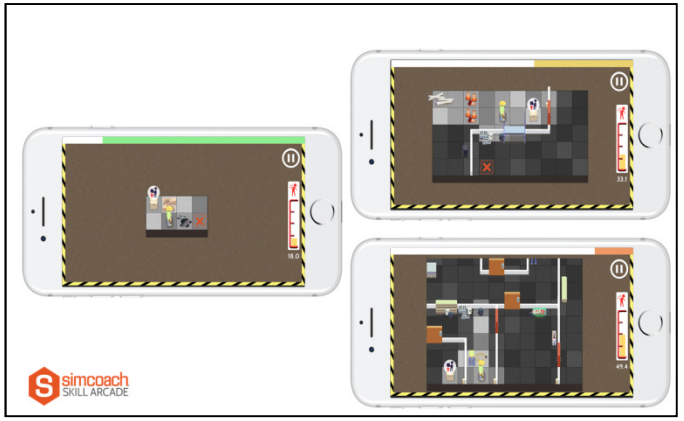
http://nailgunfacts.org/

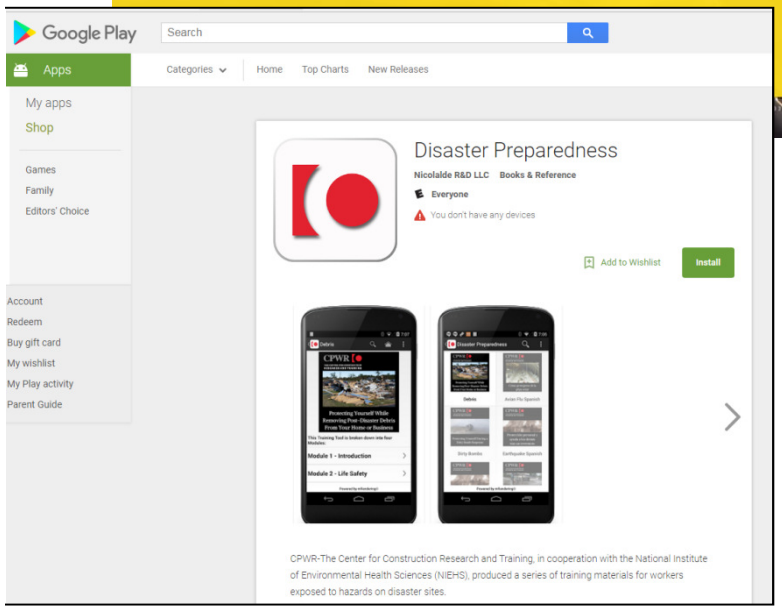


www.safetyclimateassessment.org

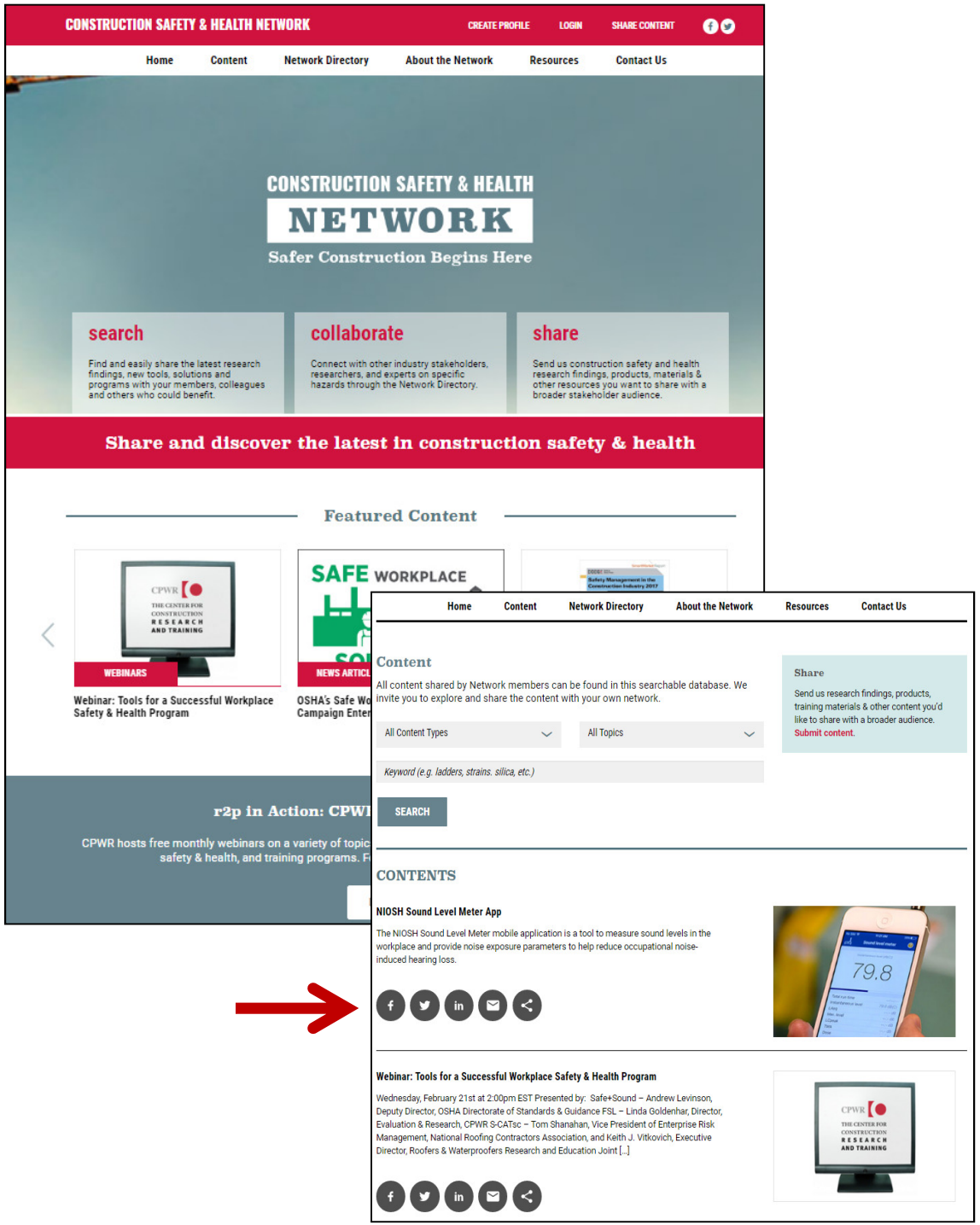


Training & Awareness Programs/Apps





Construction Noise
&
Hearing Loss Prevention
(1 HOUR, 30 MINUTE PROGRAMS
& A SERIES OF 10-15 MINUTE IN CLASS AND ON THE JOB ACTIVITIES)



February 21st at 2:00pm EST

Tools for a Successful Workplace Safety & Health Program:

- **OSHA Safe+Sound Campaign**
- **FSL – New resources**
- **Introducing the S-CATsc**

OSHA's Federal & Oregon's Final Rules on Occupational Exposure to Respirable Crystalline Silica

1971

OSHA PEL 100µg/m³

1974

NIOSH REL 50µg/m³

1994

Silica on OSHA Regulatory Agenda

2011

OSHA Proposed Rule sent to OMB

2013

OSHA publishes Proposed Silica Standard

March 2016

OSHA Issues Final Rule PEL 50µg/m³

September 23, 2017

OSHA Enforcement Begins

December 2017

Appeals Court upholds standard

Mid-Atlantic Area

State	Type of OSHA Plan	Silica Standard Enforcement
District of Columbia	Federal	September 23, 2017
Delaware	Federal	September 23, 2017
Maryland	State	Pending
New Jersey	Federal (private employees); State (public employees)	September 23, 2017
Pennsylvania	Federal	September 23, 2017
Virginia	State	June 23, 2017
West Virginia	Federal	September 23, 2017

Construction

Federal (29 CFR § 1926.1153)

(a) Scope
(b) Definitions
(c) Specified exposure control methods
(d) Alternative exposure control methods
    (1) PEL
    (2) Exposure Assessment
    (3) Methods of Compliance
(e) Respiratory protection
(f) Housekeeping
(g) Written exposure control plan
(h) Medical surveillance
(i) Communication of silica hazards
(j) Recordkeeping
(k) Dates

Scope and application

"…applies to all occupational exposures to respirable crystalline silica in general industry and construction activities, except for the following:

(2) Operations where objective data demonstrates that employee exposures to respirable crystalline silica will remain below 25 micrograms per cubic meter of air (25 µg/m^3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions."

Location in standard:
OSHA Section (a) (p. 1)

Specified Exposure Control Methods

Table 1 matches the following 18 tasks with effective dust control methods and, in some cases, respirator requirements.

Equipment/ Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturers' instruction to minimize dust - When used outdoors - When used indoors or in an enclosed area	 None APF 10	 APF 10 APF 10

Location in standard: *OSHA Section (c) (pgs.2-15)*

Specified Exposure Control Methods

Employers that fully and properly implement the engineering controls, work practices, and respiratory protection for the tasks on Table 1 **DO NOT** have to conduct exposure assessments for employees engaged in those tasks.

- ✓ Presence of controls is not sufficient.
- ✓ Employers are required to ensure that:
  - Controls are properly operated and maintained
  - Employees understand how to use them

Location in standard:

OSHA Section (c) (1)(pgs.2-15)

Exposure Assessment

- PEL lowered to 50 µg/m^3, calculated as an 8-hour time-weighted average (TWA)
- Action Level and PEL apply
  - Required if exposures are or may reasonably be expected to be at or above action level of 25 µg/m^3
- Must do exposure assessment using either:
  - Performance option
  - Scheduled monitoring option
- Must use engineering and work practice controls

Location in standard:

OSHA Section (d) (pgs.15-18)

Performance Option

Exposures assessed for each employee on the basis of **any combination** of **air monitoring data** or **objective data** sufficient to accurately characterize employee exposure to respirable crystalline silica

Location in standard:

OSHA Section (d)(2)(ii) (pg.15)

Scheduled Monitoring Option

Schedule for performing initial and periodic personal monitoring:

- ✓ Initial to assess 8-hour TWA for each employee
  - Initial below the AL - no additional monitoring
  - Most recent at or above the AL - repeat within 6 months
  - Most recent above the PEL - repeat within 3 months
  - When most recent (non-initial) results are below the AL, repeat monitoring within 6 months until 2 consecutive measures, taken 7 or more days apart, are below the AL – discontinue monitoring
  - Reassess if circumstances change
- ✓ Appendix A – Methods of Sample Analysis
- ✓ Notification of results
- ✓ Observation of monitoring

Location in standard:

OSHA Section (d)(2)(iii) & (iv) (pgs.15-17)

Methods of Compliance
(Hierarchy of Controls)

- Employers can use engineering and work practice controls to reduce and maintain exposures at or below the PEL
- Respirators allowed, in addition to engineering or work practice controls, where feasible engineering controls cannot reduce exposure at or below the PEL
- When abrasive blasting is conducted using crystalline silica or on substrates that contain silica comply with 1926.57 - Ventilation

Location in standard:

OSHA Section (d)(3) (pgs.17 & 18)

Housekeeping

- When it can contribute to exposure, employers must not allow:
  - Dry sweeping or brushing
  - Use of compressed air for cleaning surfaces or clothing, unless it is used with ventilation to capture the dust
- Those methods can be used if no other methods like HEPA vacuums, wet sweeping, or use of ventilation with compressed air are feasible
- Sweeping compounds (e.g., non-grit, oil- or waxed-based) is an acceptable dust suppression method

Location in standard:

OSHA Section (f) (pg. 19)

Medical Surveillance

- Employers must offer medical examinations to workers who will be required to wear a respirator under the standard for 30 or more days a year.
- Employers must offer examinations every three years to workers who continue to be exposed above the trigger
- Exam includes medical and work history, physical exam, chest X-ray, and pulmonary function test (TB test on initial exam only)

Location in standard:

OSHA Section (h) (pgs. 20-24)

Medical Opinion

- Worker receives ***report*** with detailed medical findings, any work restrictions, and recommendations concerning any further evaluation or treatment
- Employer receives an ***opinion*** that only describes limitations on respirator use, and if the worker gives written consent, recommendations on:
  - Limitations on exposure to respirable crystalline silica, and/or
  - Examination by a specialist

Location in standard:

OSHA Section (h) (pgs. 20-24)

Communication of Hazards

- Comply with hazard communication standard (HCS) (29 CFR 1910.1200)
- Address: cancer, lung effects, immune system effects, and kidney effects as part of HCS
- Ensure each employee can demonstrate knowledge of: health hazards, tasks resulting in exposure, workplace protections, the medical surveillance program, and the identity of the competent person & when required
- Make a copy of the standard available free to each covered employee

Location in standard:

OSHA Section (i) (pgs. 24 & 25)

Recordkeeping

- Must maintain records per 29 CFR 1910.1020 for:
  - Air monitoring data
  - Objective data
  - Medical records

Location in standard:

OSHA Section (j) (pgs. 25 & 26)

Written Exposure Control Plan

- ✓ The plan must describe:
  - Tasks involving exposure to respirable crystalline silica
  - Engineering controls, work practices, and respiratory protection for each task
  - Housekeeping measures used to limit exposure
  - Procedures used to restrict access, when necessary to limit exposures
- ✓ Reviewed and the effectiveness evaluated at least annually and updated as necessary
- ✓ Implemented by a competent person

Location in standard:

OSHA Section (g) (pg. 19)

www.silica-safe.org

(1)About
Regulations &
Requirements
What's New

(2)Know the Hazard

(3)Training & Other Resources

(4) What's Working

(5) Ask a Question

"The Center for Construction Research and Training (CPWR) has a tool to help employers develop written exposure control plans that is available at www.silica-safe.org." OSHA Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction (page 45)

Step 1

(1) Register

(2) How it works

Create-A-Plan to Control the Dust

You do not need to register to use the planning tool, however, registering will allow you to **confidentially** save, retrieve, edit, rename or delete saved plans. Only you have access to your saved plans.

REGISTER

Returning users login below.

Email | Password

LOGIN

Forgot your password?

CLEAR THE PLAN

Step 1. Will you generate dust containing silica on the job?

How does the Create-A-Plan tool work?

The materials listed below contain silica. Select all of the materials you plan to use.
As you select a material a list of dust generating tasks will appear. Please select the task(s) that you will perform with the material.

- ☐ Asphalt
- ☐ Brick
- ☐ Cement
- ☐ Concrete
- ☐ Concrete Block
- ☐ Drywall
- ☐ Fiber Cement products
- ☐ Grout
- ☐ Gunite/Shotcrete
- ☐ Mortar
- ☐ Paints containing silica
- ☐ Plaster
- ☐ Refractory Mortar/Castables
- ☐ Refractory Units
- ☐ Rock
- ☐ Roof Tile (concrete)
- ☐ Sand
- ☐ Soil (fill dirt and top soil)
- ☐ Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.)
- ☐ Stucco/EIFS
- ☐ Terrazzo
- ☐ Tile (clay and ceramic)
- ☐ Material Other

CONTINUE

If you will not be using one of the materials listed above or another silica-containing material,
You Don't Need a Silica Control Plan.
If you are not sure if a material contains silica, there are several ways you can find out... learn more.

(3)

To find out if a material contains silica:

Option 1 - Check the label: OSHA's silica standard requires employers to include silica in their program to comply with the hazard communication standard. OSHA's Hazard Communication Standard requires materials containing silica to be labeled. Learn more

Option 2 - Check the Safety Data Sheet Learn more

Option 3 - Review the published data Learn more

Option 4 - Analyze a sample of the material Learn more

RETURN TO YOUR SILICA CONTROL PLAN

Step 1. Will you generate dust containing silica on the job?

How does the Create-A-Plan tool work?

The materials listed below contain silica. Select all of the materials you plan to use.
As you select a material a list of dust generating tasks will appear. Please select the task(s) that you will perform with the material.

Step 1 -- (g)(1)(i)

- [ ] Asphalt
- [x] **Brick**
  - [ ] Abrasive blasting
  - [ ] Bushhammering
  - [x] Cutting/sawing
  - [ ] Demolishing/disturbing
  - [ ] Drilling/coring
  - [ ] Earthmoving
  - [ ] Grinding
  - [ ] Jackhammering
  - [ ] Milling
  - [ ] Mixing/pouring
  - [ ] Other
  - [ ] Polishing
  - [ ] Sacking/patching
  - [ ] Sanding
  - [ ] Scabbling
  - [ ] Scarifying
  - [ ] Scraping
  - [ ] Sweeping/cleaning up
  - [ ] Test Task
- [ ] Cement
- [ ] Concrete
- [ ] Concrete Block
- [ ] Drywall
- [ ] Fiber Cement products
- [ ] Grout
- [ ] Gunite/Shotcrete
- [ ] Mortar
- [ ] Paints containing silica
- [ ] Plaster
- [ ] Refractory Mortar/Castables
- [ ] Refractory Units
- [x] **Rock**
  - [ ] Abrasive blasting
  - [ ] Bushhammering
  - [ ] Cutting/sawing
  - [ ] Demolishing/disturbing
  - [x] Drilling/coring
  - [ ] Earthmoving
  - [ ] Grinding
  - [x] Jackhammering
  - [ ] Milling
  - [ ] Mixing/pouring
  - [ ] Other
  - [ ] Polishing
  - [ ] Sacking/patching
  - [ ] Sanding
  - [ ] Scabbling
  - [ ] Scarifying
  - [ ] Scraping
  - [ ] Sweeping/cleaning up
  - [ ] Test Task
- [ ] Roof Tile (concrete)
- [ ] Sand
- [ ] Soil (fill dirt and top soil)
- [ ] Stone (including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.)
- [ ] Stucco/EIFS
- [ ] Terrazzo
- [ ] Tile (clay and ceramic)
- [ ] Material Other

CONTINUE

Step 2 -- (g)(1)(ii)

Step 2. How do you plan to control the dust?

Select the type of equipment and dust control you plan to use for each material and task you selected in Step 1.

Not Sure - Perform Air Monitoring.

To find the exposure control methods in OSHA's silica standard, learn about air monitoring, or to find studies and data on the use of controls click here. To give users the greatest flexibility, any material-task combination may be selected.

For uncommon combinations or those not typically performed, the default control is respiratory protection.

(1)

1 Brick – Cutting/sawing — COMPLETED

Select the Equipment/Control:

Click here for examples of commercially available equipment and controls.

- [x] Hand-Held Masonry Saw with Vacuum
- [x] Hand-Held Masonry Saw with Water (Table 1 Entry)
- [ ] Splitter
- [ ] Stationary Masonry Saw with Vacuum
- [ ] Stationary Masonry Saw with Water (Table 1 Entry)
- [ ] Other

Describe the specific task and equipment/control you plan to use for this job.

(2)

(3)

2 Rock – Drilling/coring — COMPLETED

Select the Equipment/Control:

Click here for examples of commercially available equipment and controls.

- [x] Heavy Equipment with Cab Filtration System (Table 1 Entry)
- [ ] Other

Describe the specific task and equipment/control you plan to use for this job.

3 Rock – Jackhammering

Select the Equipment/Control:

Click here for examples of commercially available eq controls.

- [x] Jackhammer with Vacuum (Table 1 Entry)
- [ ] Jackhammer with Water (Table 1 Entry)
- [ ] Other

More information to help you decide how to control the dust:

Option 1 - OSHA Exposure Control Methods: The exposure control methods and respiratory requirements specified in the OSHA silica standard. Learn More

Option 2 - Perform Air Monitoring: Information on how to find an industrial hygienist to conduct air monitoring, questions to ask, and what's involved. Learn More

Option 3 - Studies and Data on the Use of Dust Controls: Summaries of research findings, reports, and data. Learn more

Option 4 – OSHA's On-site Consultation Program: Learn More

RETURN TO YOUR SILICA CONTROL PLAN

Examples of Equipment and Control Options* for the material and task you selected.

Hand-Held Masonry Saw with Vacuum

1. *Bosch 1364 - 12" Abrasive Cut-Off Saw w/1605510215 Dust Attachment & Dust Extractor*
   - Manufacturer: Saw
   - Manufacturer: Dust Collection Shroud
   - Manufacturer: Vacuum
   - Learn More: OSHA - Fact Sheet
   - Learn More: Construction Solutions
2. *Hilti DCH 300 Hand-Held Electric Diamond*
   - See how it works
   - Manufacturer: Saw
   - Manufacturer: Vacuum
   - Learn More: OSHA - Fact Sheet
   - Learn More: Construction Solutions

RETURN TO YOUR SILI

Hand-Held Masonry Saw with Water (Table 1 Entry)

1. *STIHL TSA 230 Cut-Off Machine w/ Water*
   - See how it works
   - Manufacturer: TSA 230
   - Manufacturer: Pressurized Water Tank
   - Learn More: Table 1 - Equipment Names and Best Practice Tips
   - Learn More: OSHA's Silica Standard Full Text and Table 1
   - Learn More: Construction Solutions
2. *Diamond Fast Cut SLR Cut-Off Saws w/ Water*
   - See how it works
   - Manufacturer
   - Learn More: Table 1 - Equipment Names and Best Practice Tips
   - Learn More: OSHA's Silica Standard Full Text and Table 1
   - Learn More: Construction Solutions

Step 3. Complete your Silica Control Plan

Step 3

Company:

Person Completing the Plan/Title:

Jobsite/Project:

Description of Work:

Company

Person completing the plan

Jobsite/Project

Description of work

Please fill in the name and title of the person assigned as the competent person for silica on the project. Required by 29 CFR 1926.1153 (g)(4).

Click here for an explanation of what a competent person is, why it is important to assign one for silica, and what this person should know and d on the job.

Competent Person (g)(4)

Exposure Assessment and Controls

1. **Materials:** Brick **Task:** Cutting/sawing
   Equipment and Control(s): 1) Hand-Held Masonry Saw with Vacuum, 2) Hand-Held Masonry Saw with Water (Table 1 Entry)
2. **Materials:** Rock **Task:** Drilling/coring
   Equipment and Control(s): Heavy Equipment with Cab Filtration System (Table 1 Entry)
3. **Materials:** Rock **Task:** Jackhammering
   Equipment and Control(s): Jackhammer with Vacuum (Table 1 Entry)

Please describe the procedures to restrict access to work areas, when necessary, to minimize the number employees exposed to respirable crystalline silica and their level of exposure, including exposures genera by other employers or sole proprieters. Required by 29 CFR 1926.1153 (g)(1)(iv)

Restricting Access (g)(1)(iv)

Please use the space below to describe the training that will be provided to workers engaged in dust producing tasks and those working nearby.

Click here for an explanation of the elements of a worker-training program. Materials to help you conduct your training program are available on this site - just click "Training and Other Resources."

Click here for …..Training (i)

Please use the space below to describe the housekeeping measures that will be used on the project to limit employee exposure to respirable crystalline silica. Required by 29 CFR 1926.1153 (g)(1) (iii)

Click here to learn more about recommended housekeeping activities.

Housekeeping (g)(1)(iii)

Please use the space below to describe medical surveillance that will be provided to workers exposed to silica dust.

Click here to learn more about medical surveillance. Additional materials on the risk, information workers should provide their physicians, and steps to work safely with silica are available on this site - just click "Know the Hazard."

Medical Surveillance (h)

Please use the space below to describe other things that need to be taken into consideration when controlling dust on this project.

Click here to learn more about possible things to consider.

Other Considerations

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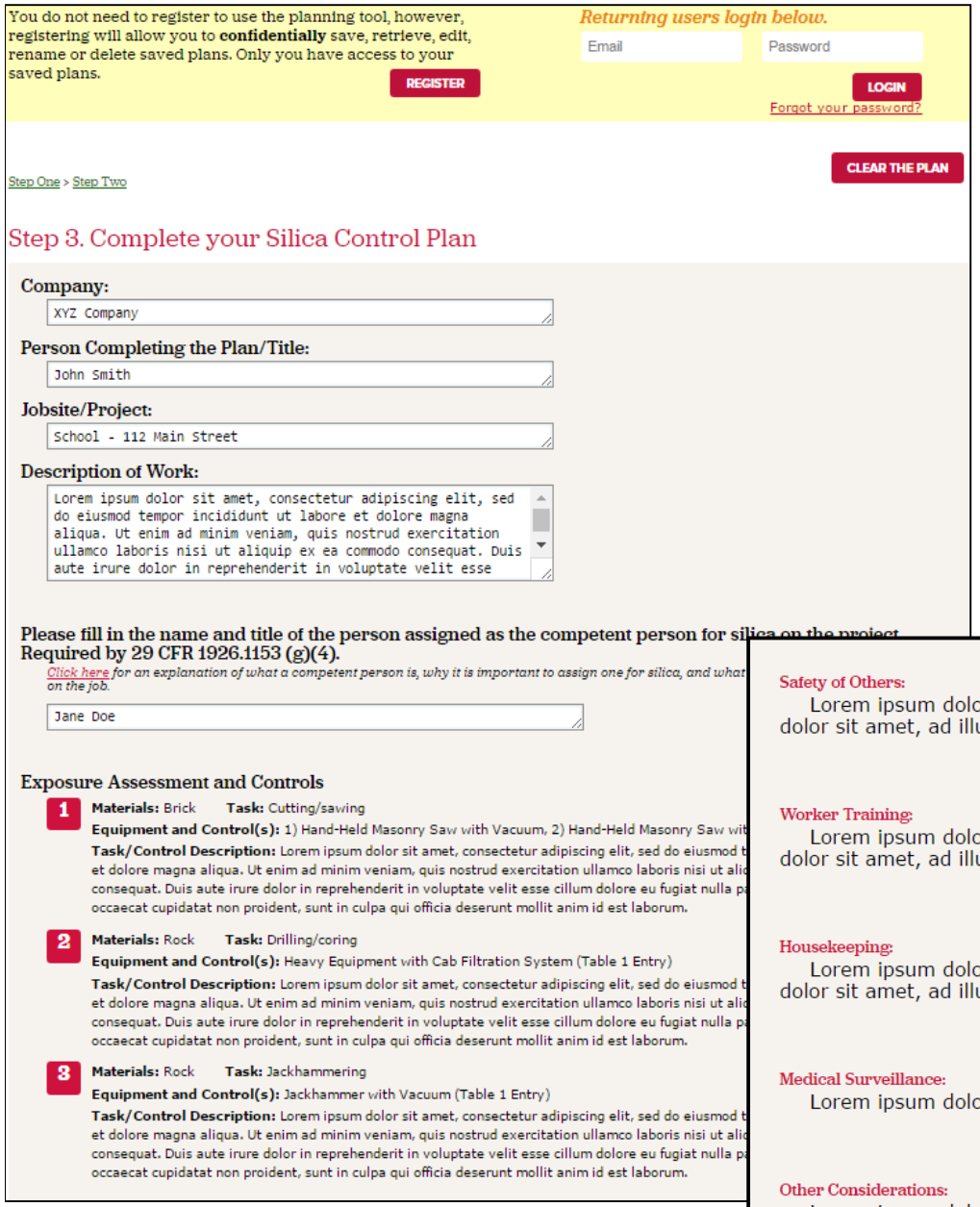
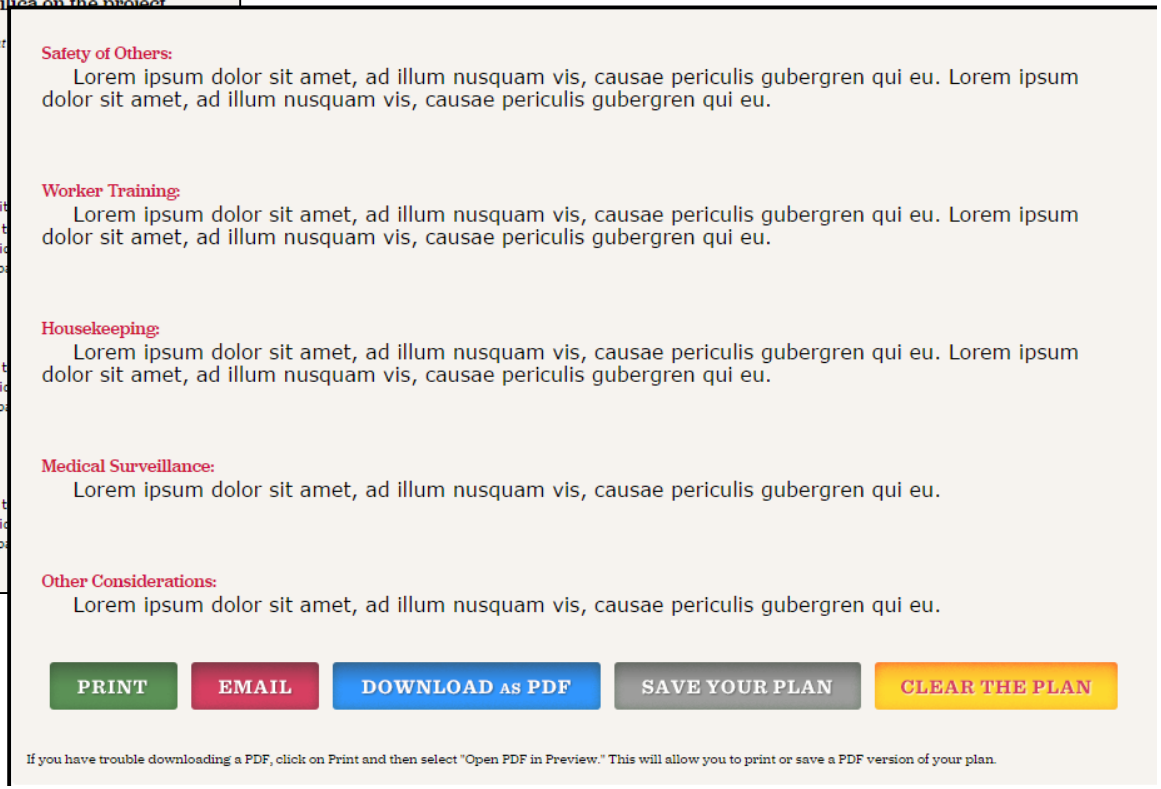
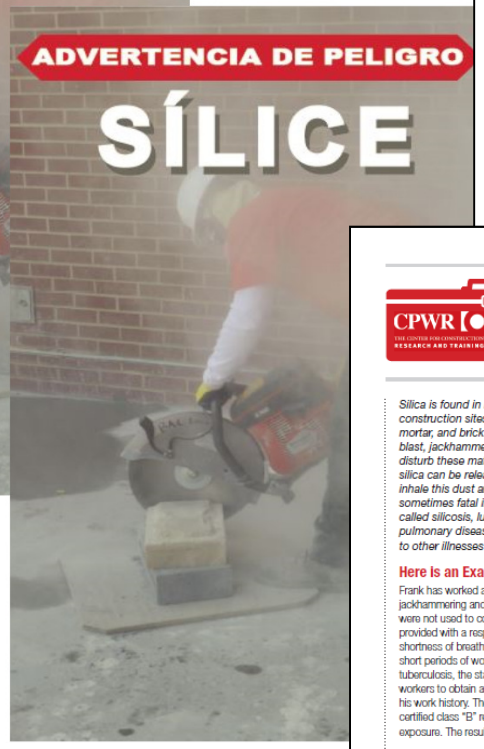




Final Plan

Print/ Email/Download/ Save Your Plan (g)(2) & (3)

Examples of Resources: www.cpwr.com



CPWR TOOLBOX TALK

Silica

CPWR CHARLA INFORMATIVA

Sílice

spiradoras o agua para reducir o eliminar el polvo en la fuente, antes de que pase al aire.
na aspiradora para quitar el polvo de su ropa y póngase ropa limpia antes de salir del
trabajo. ¡No se quite el polvo cepillándolo o soplándolo! ¡No lleve el polvo a su hogar!

CPWR TOOLBOX TALK

Silica

Silica is found in many materials common on construction sites, including sand, concrete, rock, mortar, and brick. When workers cut, grind, abrasive blast, jackhammer or perform other tasks that disturb these materials, dust containing crystalline silica can be released into the air. Workers who inhale this dust are at risk. Silica can cause serious, sometimes fatal illnesses including a lung disease called silicosis, lung cancer, and chronic obstructive pulmonary disease (COPD). It has also been linked to other illnesses such as kidney disease.

Here is an Example

Frank has worked as a laborer for 22 years dry cutting, jackhammering and drilling concrete. Water or vacuums were not used to control the dust, and he rarely was provided with a respirator. He began to experience shortness of breath, wheezing, and tiredness after even short periods of work. After a coworker developed tuberculosis, the state health department required all the workers to obtain a chest x-ray. Frank told his doctor about his work history. The doctor had Frank's x-ray read by a certified class "B" reader because of the possible silica exposure. The results helped in diagnosing his silicosis.

1. **Have you ever been exposed to silica dust either because of the work you were performing or work going on nearby?**
2. **How frequently is equipment with water or vacuums attached used to control dust at your worksite?**
3. **Have you known anyone who has developed a silica-related health problem?**

Preventing Health Problems from Silica

- Use vacuums or water to reduce or eliminate the dust at the source, before it becomes airborne. When these controls are not enough, use respiratory protection. Routinely maintain dust control systems to keep them in good working order.
- Do not use sand or other substances containing more than 1% crystalline silica as abrasive blasting materials. Substitute less hazardous materials.
- Wear disposable or washable work clothes and shower if facilities are available. Vacuum the dust from your clothes and change into clean clothing before leaving the work site. **Do not brush or blow the dust off! Do not bring dust home!**
- Avoid eating, drinking and smoking in areas where silica dust is present. Wash your hands and face outside of dusty areas before performing any of these activities.
- To learn more visit: **http://www.silica-safe.org/**

What Are We Going to Do Today?

What will we do here at the worksite today to control the dust and prevent exposure to silica dust?

1. _____
2. _____

OSHA REGULATIONS: 1926.1153 Respirable Crystalline Silica

www.cpwr.com

CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

Examples of Resources: www.silica-safe.org

Table 1 – Equipment Names and Best Practice Tips

- Includes equipment terms commonly used by different trades and 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) manufacturer specifications; and/or 3) craft worker/contractor input based on experience in the field.

Equipment/ Control	Photo	Names	Best Practice Tips
(i) Stationary masonry saws CONTROL: water		Table saw Brick/block saw	OSHA[1] requires the employer to ensure that: • The saw is equipped with an integrated water delivery system (commercially developed specifically for the type of tool in use) • An adequate supply of water for dust suppression • The spray nozzle is working properly to apply water at the point of dust generation • The spray nozzle is not clogged or damaged

Photo courtesy of th Masonry Institute &

CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

MEDICAL MONITORING UNDER THE OSHA SILICA STANDARD FOR THE CONSTRUCTION INDUSTRY

GUIDE FOR EMPLOYERS

This guide is intended to help employers 1)
in the OSHA silica standard for the construc
the program for their employees.

Which employees are cover
requirement?

You must provide medical surveillance for e
more a year because they are performing w
Compliance Guide for the Respirable Crystal
required to wear a respirator at any time du
if the standard requires an employee to we

Physicians' Alert:

Occupational Silicosis and Silica-Related Illnesses among Construction Workers

This Alert was developed to help ensure that all construction workers who engage in work that could expose them to respirable crystalline silica and put them at risk of developing occupational silicosis or other silica-related illnesses are properly diagnosed and treated. ***Please:***

(1) read and print this Alert;

(2) keep the Best Practice tips to help you work safely; and

(3) fill in the "To My Doctor" form and give it to your doctor to include in your medical records.

Examples of Resources: www.silica-safe.org

FIELD GUIDE

for Controlling Silica Dust Exposure on Asphalt Pavement Milling Machines

NATIONAL ASPHALT PAVEMENT ASSOCIATION

CPWR THE CENTER FOR CONSTRUCTION RESEARCH AND TRAINING

What You Can Do to Reduce Silica Dust Exposure

Recognize the hazard. Milling, cutting, or otherwise disturbing asphalt pavement can create airborne dust containing silica. Pay attention to wind direction and any visible dust emissions.

Use ventilation and water-spray controls on asphalt pavement milling machines. Water-spray plus ventilation controls are collectively considered to be the best practice approach to asphalt pavement milling dust control. Ventilation controls used in combination with water-spray controls can consistently reduce exposures below the NIOSH REL. Typical ventilation controls designed to reduce silica exposures on asphalt pavement milling machines include a collection hood, fan, and ductwork as shown in Figure 1. Milling machines should also be designed to allow the operator to temporarily turn the ventilation control off when milling into the wind. If the ventilation control can be shut off, however, then a feature should be in place to automatically turn the ventilation control back on when it has been off for longer than 60 minutes. Water-spray controls should always remain ON regardless of wind direction.

Always use water-spray controls on asphalt pavement milling machines that do not have ventilation controls. When ventilation controls are unavailable, water-spray systems that are properly designed, operated, and maintained can provide a signi

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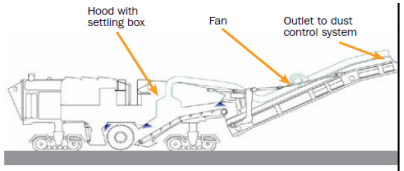


Figure 1: Asphalt pavement milling machine with silica dust controls (*Illustration by NIOS*

Maintain your dust control systems and follow these tips:

- Locate the machine operator's manual that contains a maintenance schedule for the water-spray or ventilation controls. Each operator's manual should include detailed sketches, performance criteria, and troubleshooting instructions for equipment owners to use in their periodic inspection of the controls.
- Inspect and maintain the systems according to the manufacturer's recommendations and record the dates of periodic inspections in the operator's manual.
- Check the air-flow indicator to verify that the ventilation control is operating within the designed operating range. The manufacturer should attach a plate to the milling machine showing a simple diagram of the ventilation control and a list of

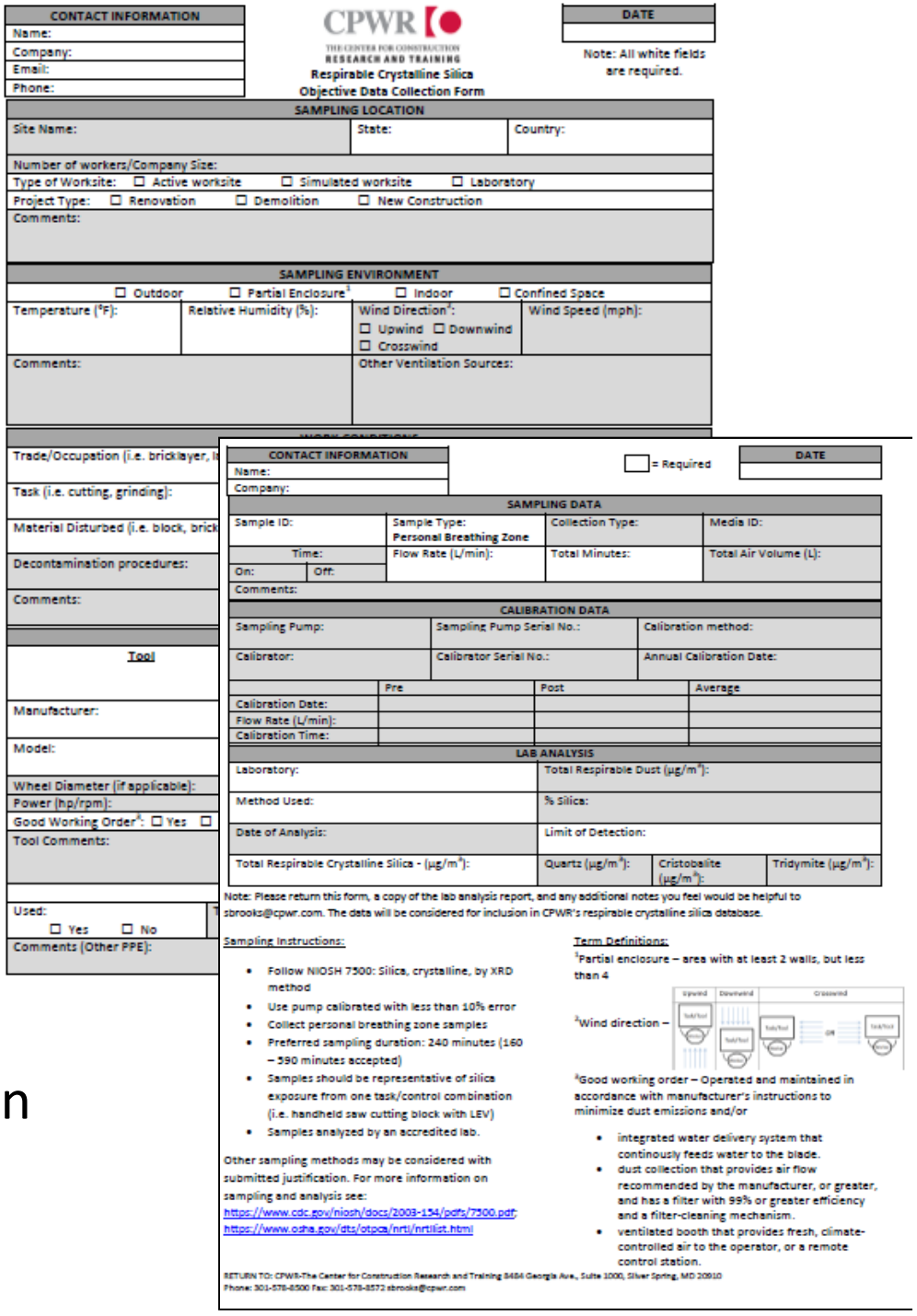
Example Daily Dust Control Checklist

WATER-SPRAY AND VENTILATION SYSTEMS DAILY CHECK LIST	
CHECK LIST COVERS 2 WEEK PERIOD. FILL OUT COMPLETELY DAILY PRIOR TO START-UP. SEND TO _____ WHEN FILLED UP	
EQUIPMENT #	Fill in Date and Initials, Y = YES = ALL Items Functioning Correctly N = NO = Item not Functioning Correctly.
WATER SYSTEM	
DATE	EXAMPLE = 3/17/15
INSPECTOR	PRINT INITIALS
WATER PUMP	FUNCTIONING PROPERLY — THIS ITEM COULD POTENTIALLY BE A DEAD LINE ITEM
PUMP PRESSURE	VISUALLY MONITOR GAUGE / ADJUST AS CONDITIONS REQUIRE
INSPECT IN-LINE FILTER	ENSURE IT'S CLEAN, NO DEBRIS
SPRAY BAR	LOCATION & OPERATING PER MANUFACTURER'S SPECIFICATION
NOZZLES	SPRAY / PATTERN / CLEAN
FLASHING	CONDITION / PLACEMENT AT TRANSFER POINTS
VENTILATION SYSTEM	ITEMS DESCRIBED UNDER VENTILATION SYSTEM NOT OPERATING PROPERLY NEED TO BE ADDRESSED
FAN OPERATES PER MFG.'S SPEC.	DAILY INSPECTION / FOLLOW MANUFACTURER'S RECOMMENDATIONS / PERFORM SCHEDULED MAINTENANCE This Function should be tested annually to ensure it meets manufacturer's specification
VACUUM TUBES MEETS MFR. CFM	FOLLOW MANUFACTURER'S RECOMMENDED INSPECTION AND SPECIFICATIONS This Function should be tested annually to ensure it meets manufacturer's specification
VACUUM TUBES	NO DEBRIS OR CLOGGING IN TUBES AND AIR DUCTS Visually Inspect Periodically During Daily Operation
FLASHING / SEALING	VISUALLY INSPECT ALL FLASHING TO ENSURE TIGHT SEAL
AT 50 OPERATING HRS OR MANUFACTURER'S RECOMMENDATION: INSPECT PIPES/HOSES - REMOVE HOSES & REMOVE DUST DEPOSITS	
COMMENTS:	

Table provided by Payne & Dolan, Inc.

Objective Data Collection Form

- Sampling environment
  - Indoor/outdoor
  - Wind and weather
- Work conditions
  - Task and material
- Equipment specifics
  - Tool and controls used
- Sample data
  - Personal breathing zone
  - Duration
  - Flow rate
- Lab report with concentration



CONTACT INFORMATION
Name:
Company:
Email:
Phone:

CPWR – The Center for Construction Research and Training
Respirable Crystalline Silica
Objective Data Collection Form

DATE

Note: All white fields are required.

SAMPLING LOCATION
Site Name: | State: | Country:
Number of workers/Company Size:
Type of Worksite: ☐ Active worksite ☐ Simulated worksite ☐ Laboratory
Project Type: ☐ Renovation ☐ Demolition ☐ New Construction
Comments:

SAMPLING ENVIRONMENT
☐ Outdoor ☐ Partial Enclosure[1] ☐ Indoor ☐ Confined Space
Temperature (°F): | Relative Humidity (%): | Wind Direction[2]: ☐ Upwind ☐ Downwind ☐ Crosswind | Wind Speed (mph):
Comments: | Other Ventilation Sources:

WORK CONDITIONS
Trade/Occupation (i.e. bricklayer, l
Task (i.e. cutting, grinding):
Material Disturbed (i.e. block, brick
Decontamination procedures:
Comments:

Tool
Manufacturer:
Model:
Wheel Diameter (if applicable):
Power (hp/rpm):
Good Working Order[4]: ☐ Yes ☐
Tool Comments:
Used: ☐ Yes ☐ No
Comments (Other PPE):

CONTACT INFORMATION
Name:
Company:

☐ = Required

DATE

SAMPLING DATA
Sample ID: | Sample Type: Personal Breathing Zone | Collection Type: | Media ID:
Time: On: Off: | Flow Rate (L/min): | Total Minutes: | Total Air Volume (L):
Comments:

CALIBRATION DATA
Sampling Pump: | Sampling Pump Serial No.: | Calibration method:
Calibrator: | Calibrator Serial No.: | Annual Calibration Date:

	Pre	Post	Average
Calibration Date:			
Flow Rate (L/min):			
Calibration Time:			

LAB ANALYSIS
Laboratory: | Total Respirable Dust (µg/m³):
Method Used: | % Silica:
Date of Analysis: | Limit of Detection:
Total Respirable Crystalline Silica - (µg/m³): | Quartz (µg/m³): | Cristobalite (µg/m³): | Tridymite (µg/m³):

Note: Please return this form, a copy of the lab analysis report, and any additional notes you feel would be helpful to sbrooks@cpwr.com. The data will be considered for inclusion in CPWR's respirable crystalline silica database.

Sampling Instructions:

- Follow NIOSH 7500: Silica, crystalline, by XRD method
- Use pump calibrated with less than 10% error
- Collect personal breathing zone samples
- Preferred sampling duration: 240 minutes (160 – 390 minutes accepted)
- Samples should be representative of silica exposure from one task/control combination (i.e. handheld saw cutting block with LEV)
- Samples analyzed by an accredited lab.

Other sampling methods may be considered with submitted justification. For more information on sampling and analysis see:
https://www.cdc.gov/niosh/docs/2003-154/pdfs/7500.pdf;
https://www.osha.gov/dts/otpca/nrti/nrtilist.html

Term Definitions:

[1]Partial enclosure – area with at least 2 walls, but less than 4

[2]Wind direction –

[4]Good working order – Operated and maintained in accordance with manufacturer's instructions to minimize dust emissions and/or

- integrated water delivery system that continously feeds water to the blade.
- dust collection that provides air flow recommended by the manufacturer, or greater, and has a filter with 99% or greater efficiency and a filter-cleaning mechanism.
- ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.

RETURN TO: CPWR-The Center for Construction Research and Training 8484 Georgia Ave., Suite 1000, Silver Spring, MD 20910
Phone: 301-578-8500 Fax: 301-578-8572 sbrooks@cpwr.com

New Silica Standard:

CPWR Resources

QUESTIONS???

CPWR

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RESEARCH AND TRAINING