Protecting Your #1 Asset

ICRI Spring 2014 Convention
Reno, NV

Peter Golter, P.E. - 3M Corporation

Agenda – How do we protect our workforce?

- Visiting/working on a project jobsite.
- How does safety impact the bidding process?
- Potential hazards and considerations.
  - 15 common tasks on a given rehabilitation project.
- Review Government Mandates.
  - Hearing
  - Silicosis
  - Fall Protection
- What is being proposed – open comment period.
- How will these changes impact my business?
- What resources are available to me?

Common Sense – "Common sense is instinct, enough of it is genius"

George Bernard Shaw

What is Common Sense?

Defined as:
"Good sense and sound judgment in practical matters."

What is required in order to visit or work on a jobsite?

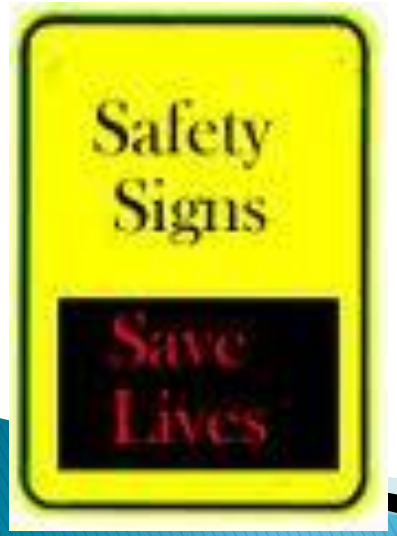
How do I find out? Contact:

- Project Superintendent
- GC's Safety Officer/Person

When would I typically find out what is required?

- Contact Documents
- Pre-Bid Meeting
- Pre-Construction Meeting
- Job Startup

Be informed, read the signs!!!



How Does Safety Impact The Bidding Process?

- Location (urban vs. rural)
- Time of year
- Access to the project
- Condition Assessment
- Traffic Control
- Identify the tasks we are self-performing
- The other trades and their equipment
- Critical path
- QA/QC Inspection process
- Safety program
  - Plans/guidelines in place (OSHA will ask to see it)
  - Mock incident/training

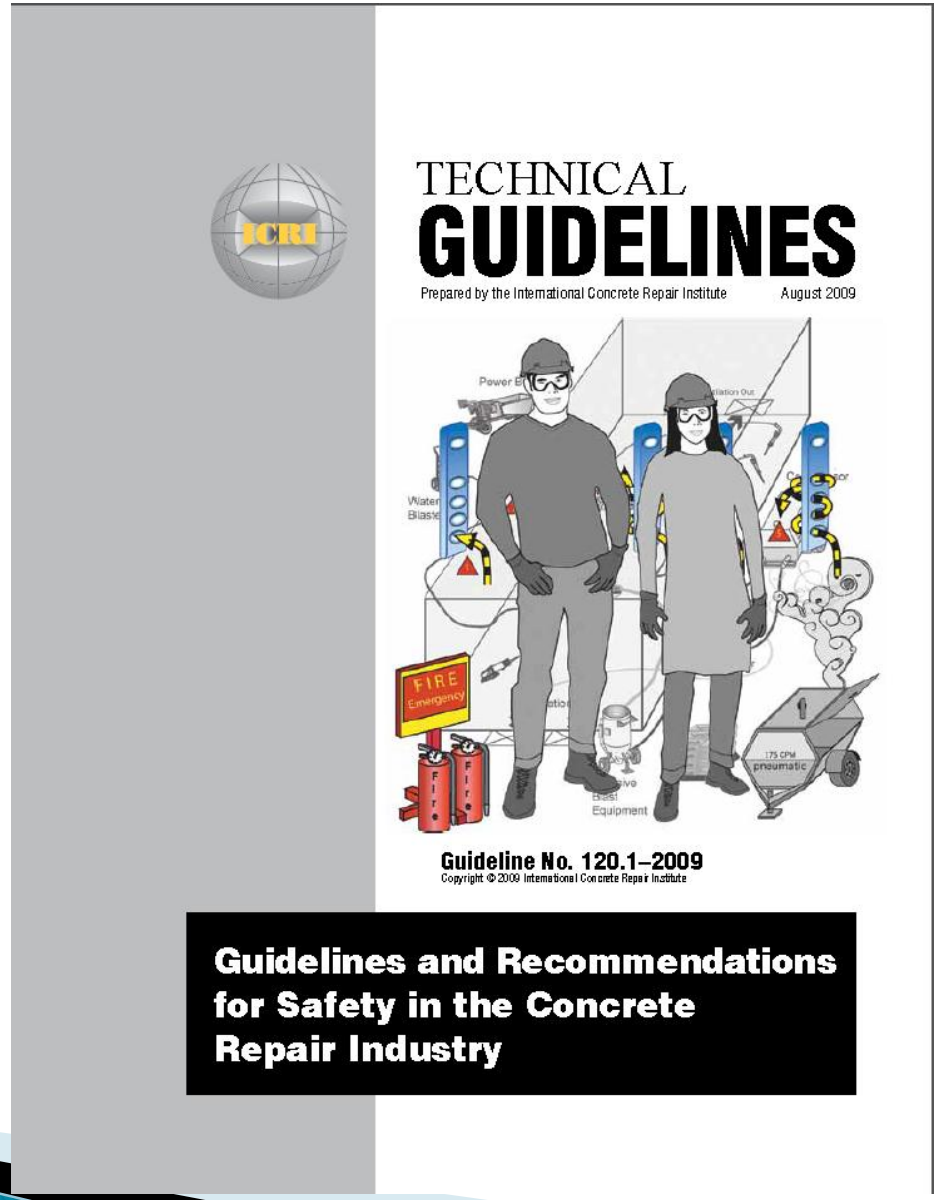
What are the potential hazards & concerns?

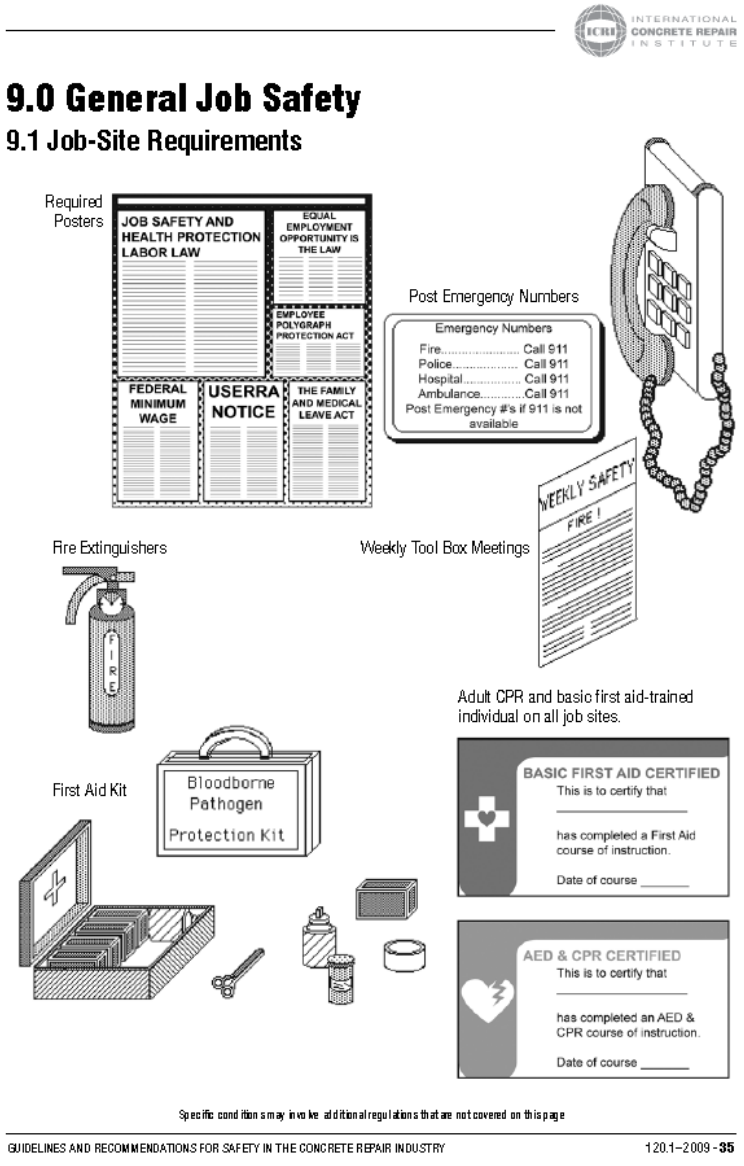
- Weather
- Noise
- Dust/debris/run-off
- Flying objects
- Falling objects
- Heights
- Access
- Staging
- Housekeeping/disposal

Where do I start?

- Company Programs
- Websites
- Professional Organizations

Example: ICRI Guideline 120.1-2009





Refer to the ICRI 120.1–2009 Safety Guideline

INTERNATIONAL CONCRETE REPAIR INSTITUTE

Contents

INTERNATIONAL CONCRETE REPAIR INSTITUTE

TASK
Abrasive blasting
Bushhammering
Cutting/sawing
Demolishing/disturbing
Drilling
Earthmoving
Grinding
Jackhammering
Milling
Mixing
Polishing
Roofing
Sacking/patching
Sanding
Scabbling
Scarifying
Scraping
Sweeping/cleaning up

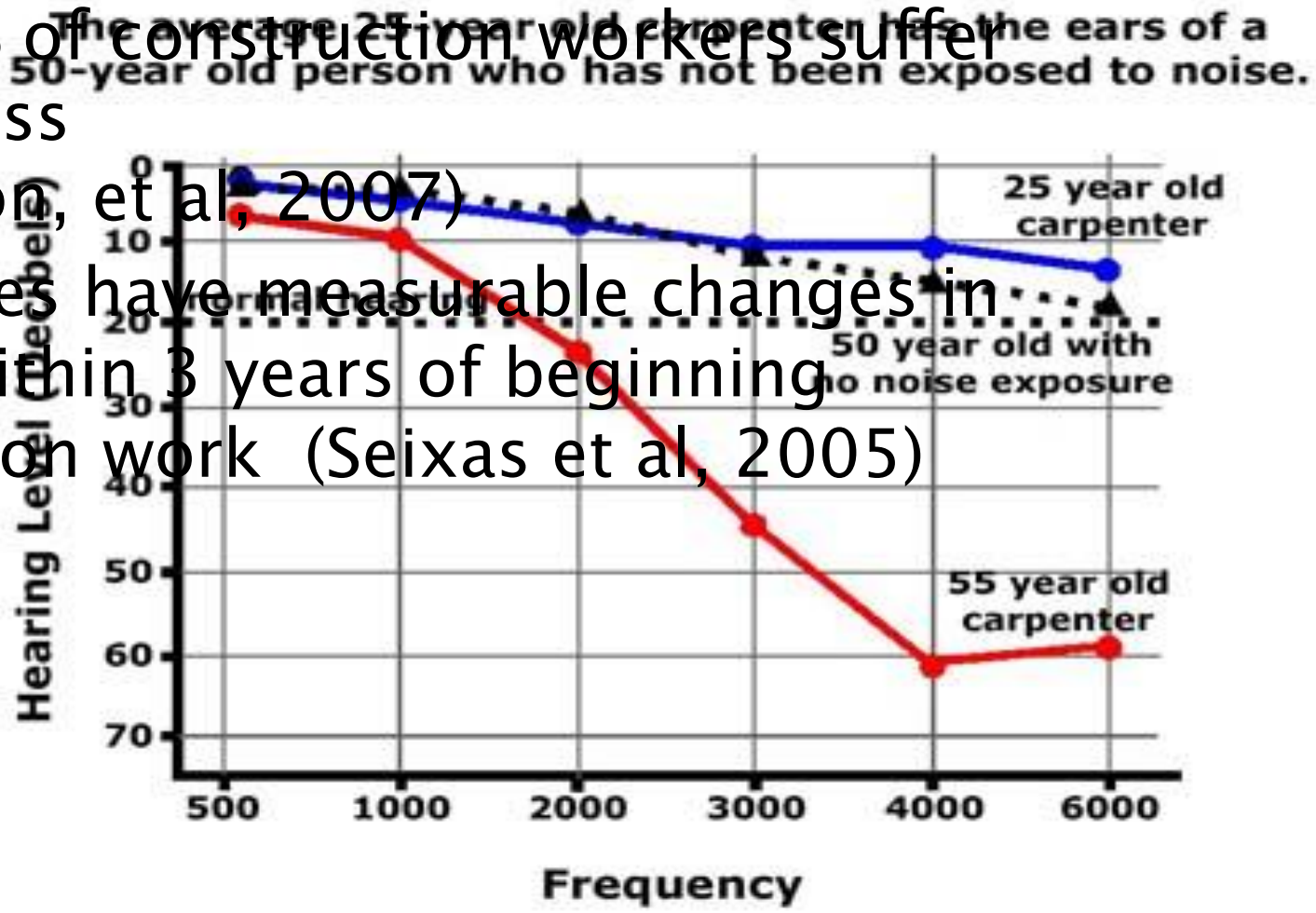
15 concrete related tasks

CONSTRUCTION MATERIAL
Asphalt (for paving)
Brick
Cement
Concrete
Concrete Block
Drywall
Fiber Cement products
Grout
Gunite/Shotcrete
Mortar
Paints containing silica
Plaster
Refractory Mortar/Castables
Refractory Units
Rock
Roofing tiles & pavers
Sand
Soil (fill dirt and top soil)
Stone (including: granite, limestone, quartzite,sandstone, shale, slate, cultured, etc.)
Stucco/EIFS
Terrazzo
Tile (clay, ceramic, concrete, etc.)

Source: www/silica-safe.org

Noise-Induced Hearing Loss NIHL

- Up to 74% of construction workers suffer hearing loss (Robertson, et al, 2007)
- Apprentices have measurable changes in hearing within 3 years of beginning construction work (Seixas et al, 2005)



NIOSH and ANSI S.344

NIOSH: National Institution for Occupational Safety and Health

Table 2. Tasks, in order of increasing average noise level

University of Washington (2003)

Tasks	Average noise level (dBA)	Maximum noise level (dBA)	% time hearing protection worn when needed
Floor Leveling	70.4	98.6	0%
Break, Rest, Lunch, Cleanup	83.3	101.4	0%
Finishing Concrete	84.4	103.8	0%
Setting Forms	86.5	119.4	0%
Manual Material Handling	86.5	102.6	7%
Repairing Concrete	88.9	103.2	68%
Placing Concrete	89.4	109.5	5%
Patching Concrete	92.6	112.4	6%
"Other" Tasks	93.1	108.4	21%
Grinding	95.2	104.8	11%

http://depts.washington.edu/occnoise/

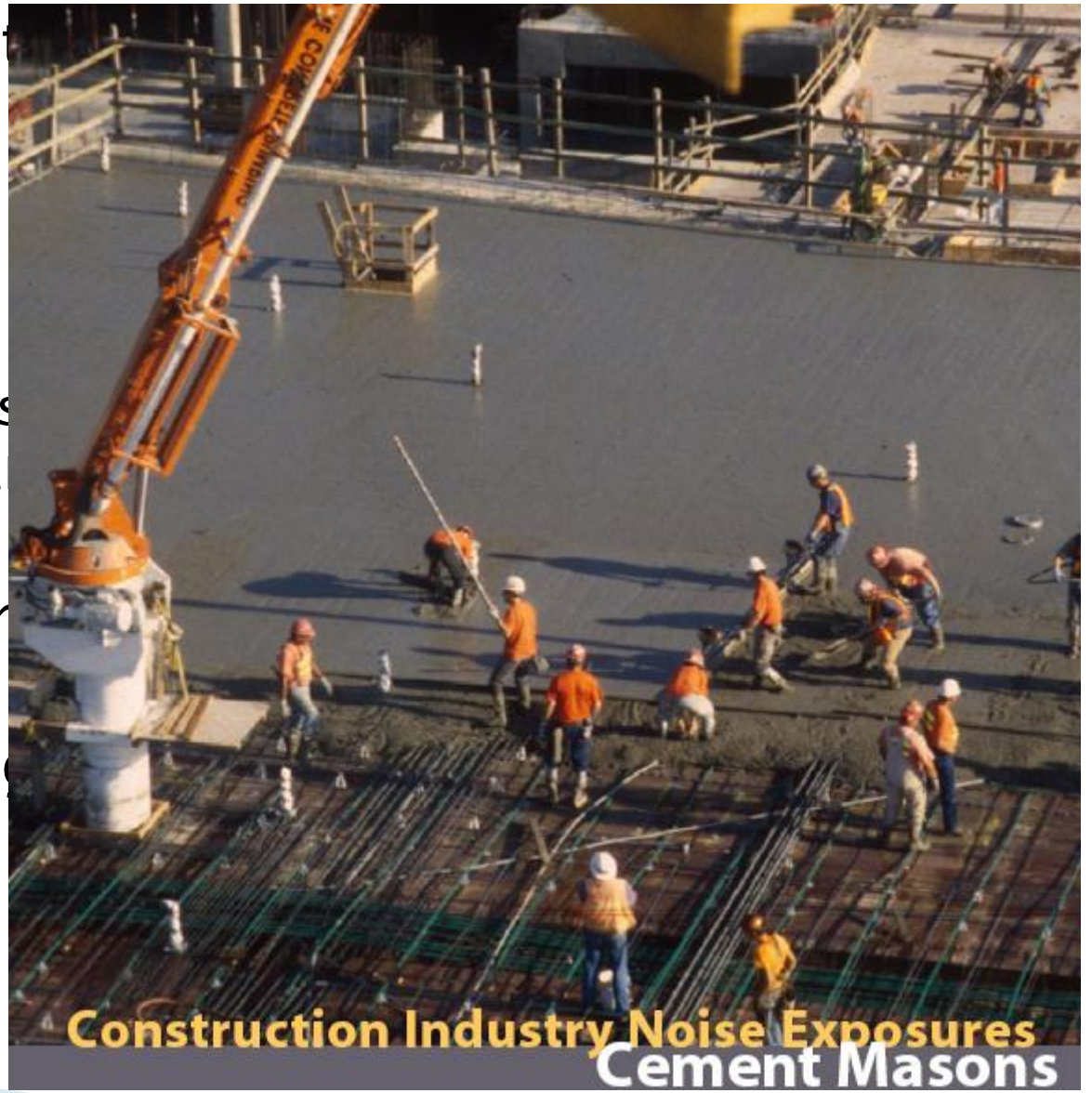
Hearing Protection in Construction

- Noise Exposure & HPD Use Among Construction Workers in Washington State (Seixas and Neitzel, 2004)
  - *Workers overexposed on 70% of work shifts (TWA > 85 dBA)*
  - *Construction workers wear HPDs less than 20% of time (average) when exposures over 85 dBA*
  - *Effective protection only about 3 dB due to low % of time worn*
  - *Workers dramatically overestimate % of time worn when asked*

Recommendations of University of Washington Report (2004)

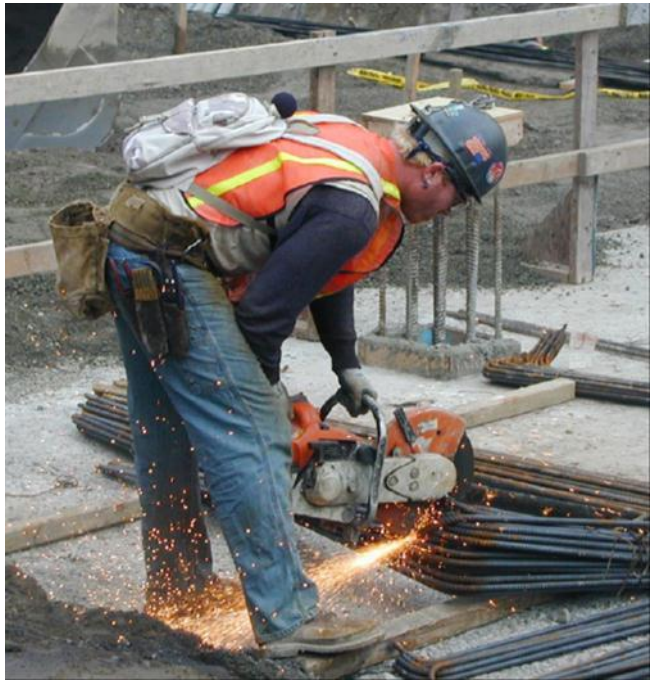
- Task-based assessment best for est
  construction noise exposures
- Better training
- Provide multiple types of HPDs
  - Convenient locations on each jobsite
  - HPDs must be provided free to overexpos
- Provide HPDs with the appropriate a
  attenuation
- Post signs around areas or operation
  are required
- Strict enforcement of HPD use durin
  exposures

http://depts.washington.edu/occnoi



Compliance ≠ Prevention

- OSHA construction noise rules (1926.52) for hearing conservation are weak
  - *OSHA Compliance no guarantee of hearing loss prevention*
- ANSI Guidelines more protective



Key Components of ANSI Standard A10.46-2007

- Identification of hazardous exposures at or above 85 dBA
- Posting of Warning Signs
- Engineering Controls
  - Mufflers, barriers, insulated cabs, etc
- Effective hearing protection
  - Provide 2 types of plugs and one type of muff
  - Double protection above 105 dBA
  - Avoid overprotection: reduce exposure levels to between 70 and 84 dBA
- Annual audiometric testing and training

6.0 Hearing Protection

OSHA Requirements
Permissible Noise Exposures

Duration per Day (Hours)	Sound Levels dBA
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

Tools or Equipment	Median Noise Levels
Air compressor	95
Air lance	105
Abrasive blast hood	98
Abrasive cut-off saws	105
Chain saws	107
Concrete saws	105
Circular saw	105
Disk grinder	102
Electric disc grinder	100
Skid steer	92
250 CFM rotary screw	92
Gasoline welding machines	95
Impact tools	108
Pavement breaker	110
Pneumatic chipping hammer	110
Pneumatic tamper	105
Pumpcrete machine	98
Rotary hammers	97
Reciprocating saw	97
Circular saw cutting	108

Specific conditions may involve additional regulations that are not covered on this page

OSHA Requirements
Permissible Noise Exposures

Duration per Day (Hours)	Sound Levels dBA
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

Figure 2. WISHA allowable noise exposures

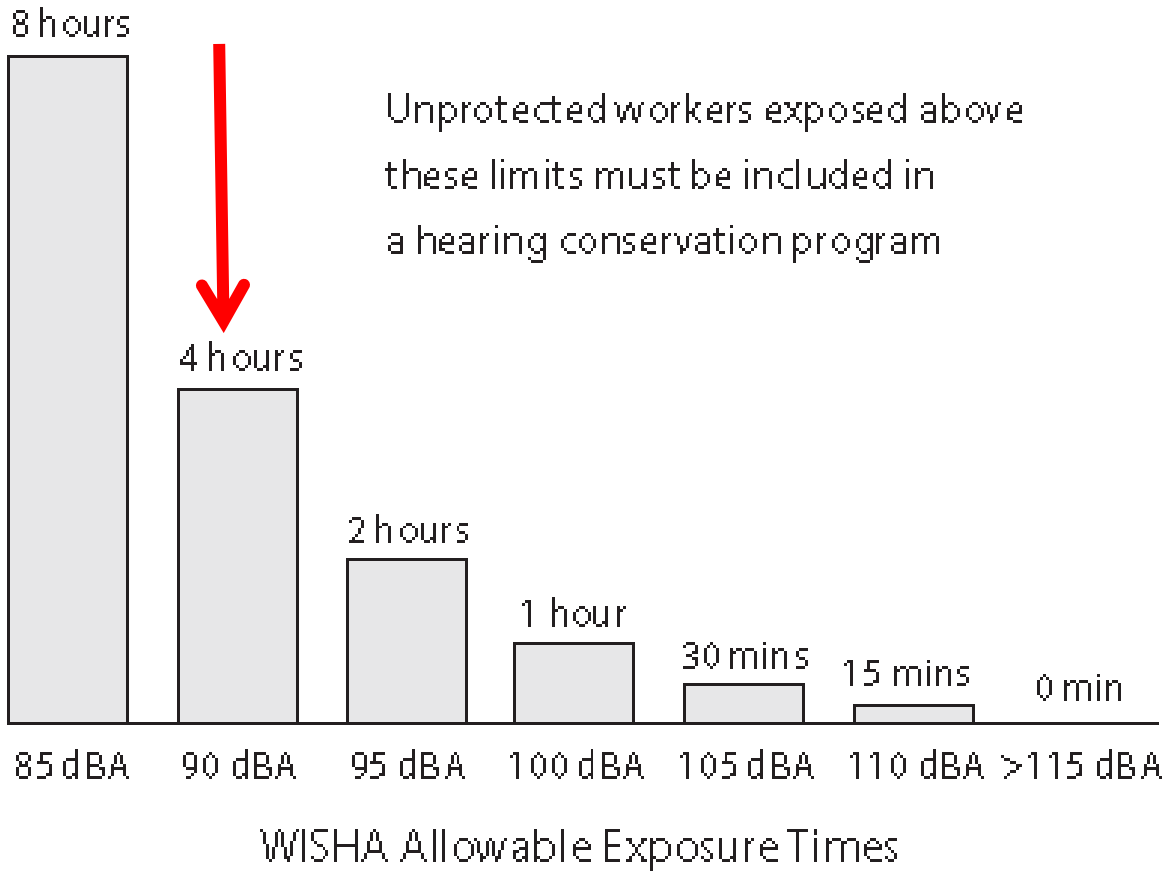


Table 3. Tools, in order of increasing average noise level

Tools	Average noise level (dBA)	Maximum noise level (dBA)	% time hearing protection worn when needed
"Other" Tools	87.2	102.3	0%
Other Hand Power Tool	90.8	111.9	30%
No Tool	91.2	109.1	2%
Chipping Gun	94.6	111.2	33%
Hammer, Mallet, Sledge	94.7	110.1	2%
Hand Power Saw	96.6	98.1	100%

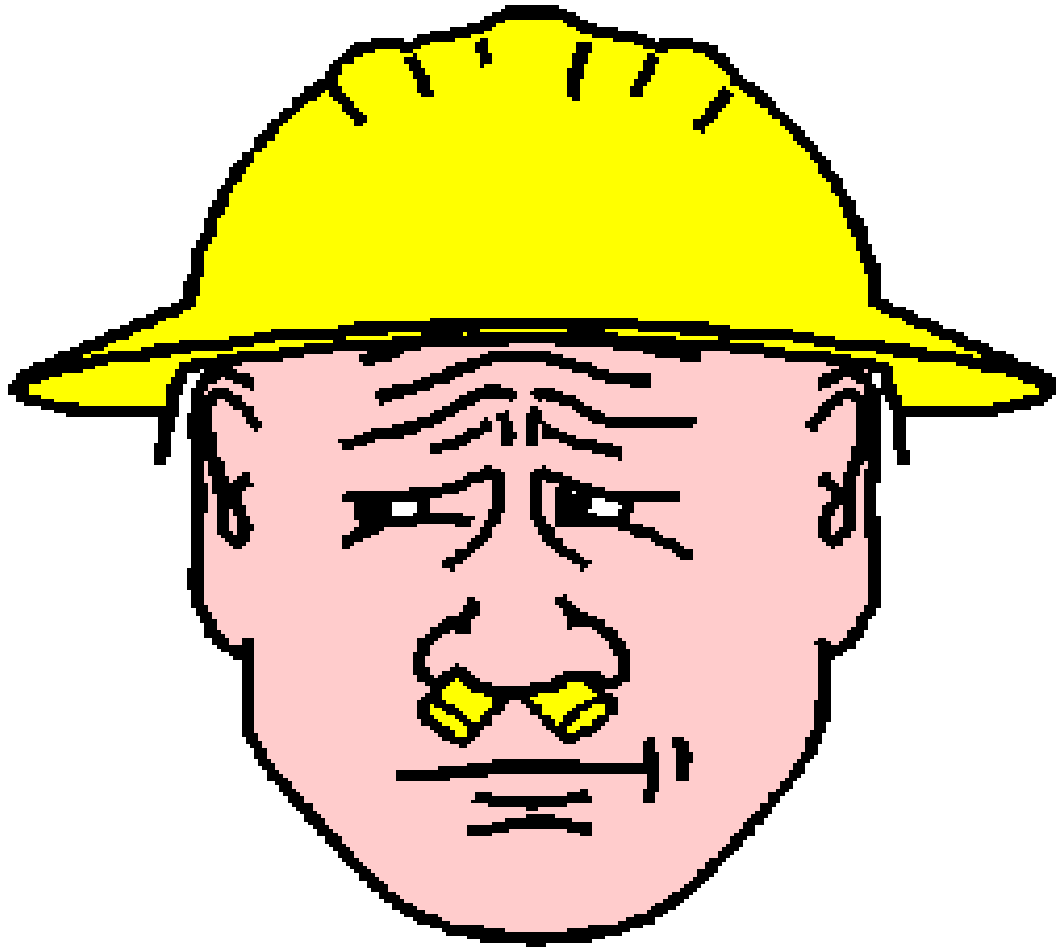
University of Washington (2003)

Common Observations

- Hearing protection isn't top of mind
- Worker's don't know when they are overexposed
- They don't have protection available when needed
- They don't wear earplugs properly
- They have concerns about comfort and communication

Training & Motivation are the Keys to Success!

Without proper training, any hearing protector that can be worn wrong, will be worn wrong



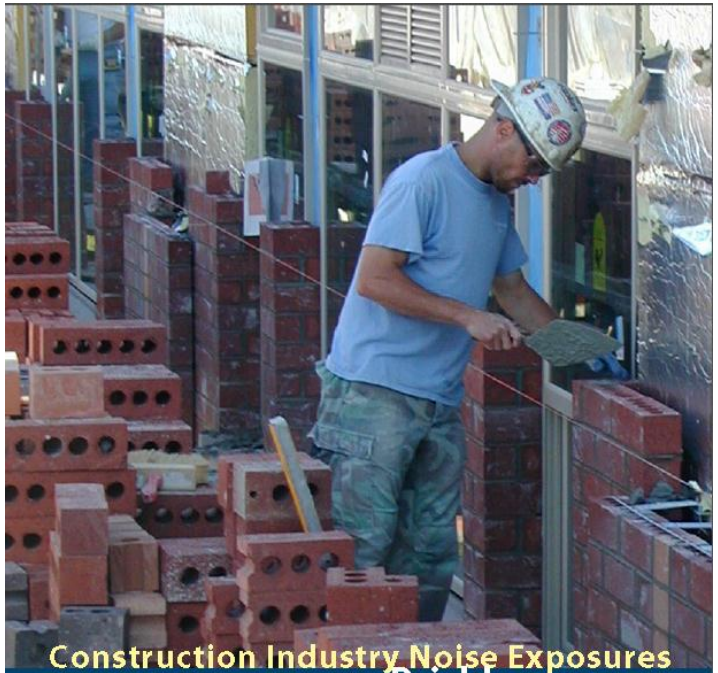
How Much Noise Reduction do Construction Workers Need?

Table 5. Hearing protection NRR which should prevent almost all workers from being exposed above the 8-hour allowable limit (by increasing NRR)

Trade	NRR (dB)
Sheet Metal Worker	12
Insulation Worker	12
Electrician	12
Tilesetter	12
Carpenter	14
Cement Mason	14
Ironworker	18
Bricklayer	22
Laborer	24
Operating Engineer	24
Masonry Restoration Worker	26

University of Washington, 2004

Additional Resources



For additional information

About the UW study and its results

University of Washington *Occupational Noise* Web site:
http://depts.washington.edu/occnoise
or contact the Field Research and Consultation Group at 206-543-9711
or *cnstsafe@u.washington.edu*

For more information about noise and its effects on hearing

NIOSH web page: *http://www.cdc.gov/niosh/topics/noise/*
or WISHA hearing conservation web site:
http://www.lni.wa.gov/Safety/Topics/AtoZ/NoiseHearing/default.asp

For assistance in developing a hearing conservation program

Contact the WISHA consulting service for the nearest consultant
http://www.lni.wa.gov/Safety/KeepSafe/Assistance/Consultation/default.asp
or call 800-547-8367
Or contact Build It Smart, a local labor/management organization for the construction industry, at *www.builditsmart.org*
or 360-596-9200

What is OSHA currently looking at Changing?

Potential Health Effects From Over Exposure to Respirable Silica

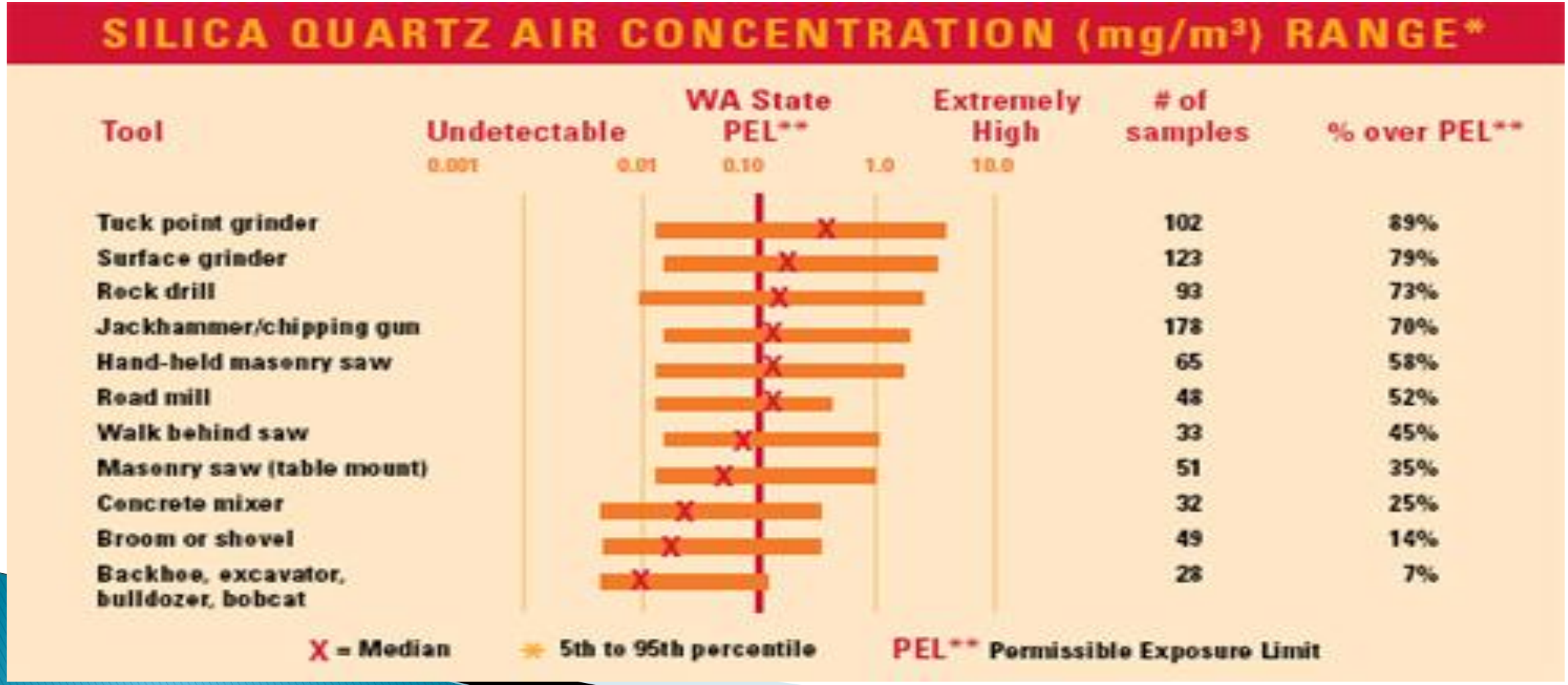
- **This information is based on current United States federal OSHA requirements**
  - **29 CFR 1910 and 29 CFR 1926**

- Silicosis - progressive lung disease:
  - Nodules in the lung
  - Cough, wheezing, chest illness

- Tuberculosis – workers with silicosis more susceptible.

- Lung Cancer – suspect human carcinogen*.
  - *International Agency for Research on Cancer, American Conference of Governmental Industrial Hygienists, National Institute for Occupational Safety and Health, US National Toxicology Program

Silica Concentrations on Job Sites – University of Washington Field Research and Consultation Group



Percent of samples over 50% of PEL – University of Washington Field Research and Consultation Group

- Surface grinding and tuck pointing – 100%.
- Concrete demolition – 88%.
- Floor sanding – 80%.
- Concrete cutting – 77%.
- PEL = 0.1 mg/m3.

Source: University of Washington – Field Research and Consultation Group

1996 OSHA Special Emphasis Program on Silica

- Focused Inspection:
  - Specific for silica
  - Many things can trigger an inspection

2008 OSHA National Emphasis Program

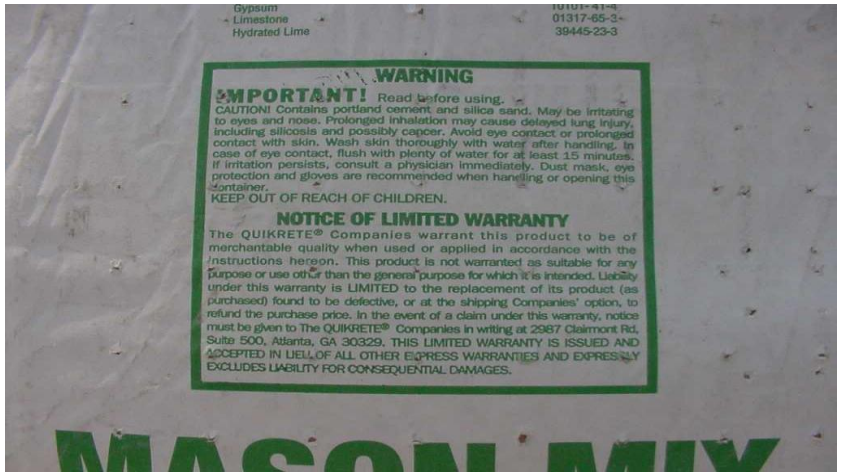
- Expands on SEP.
- Construction and General Industry.
- Details inspection procedures.
- Targeting of worksites.
- **Mandatory follow-up if overexposure is determined.**

2008 National Emphasis Program – Focus Industry Groups

- General Contractors-Residential Buildings Other Than Single-Family
- General Contractors-Industrial Buildings and Warehouses
- Highway and Street Construction, Except Elevated Highways
- Bridge, Tunnel, and Elevated Highway Construction
- Water, Sewer, Pipeline, and Communications and Power Line Construction
- Heavy Construction
- Masonry, Stone Setting, and Other Stone Work
- Roofing, Siding, and Sheet Metal Work
- Concrete Work
- Excavation Work
- Wrecking and Demolition Work

2008 National Emphasis Program

- Inspection focus:
  - Air monitoring (29 CFR 1926.55)
  - Engineering controls (29 CFR 1926.55)
  - Ventilation (1926.57)
  - HazCom (1926.59)

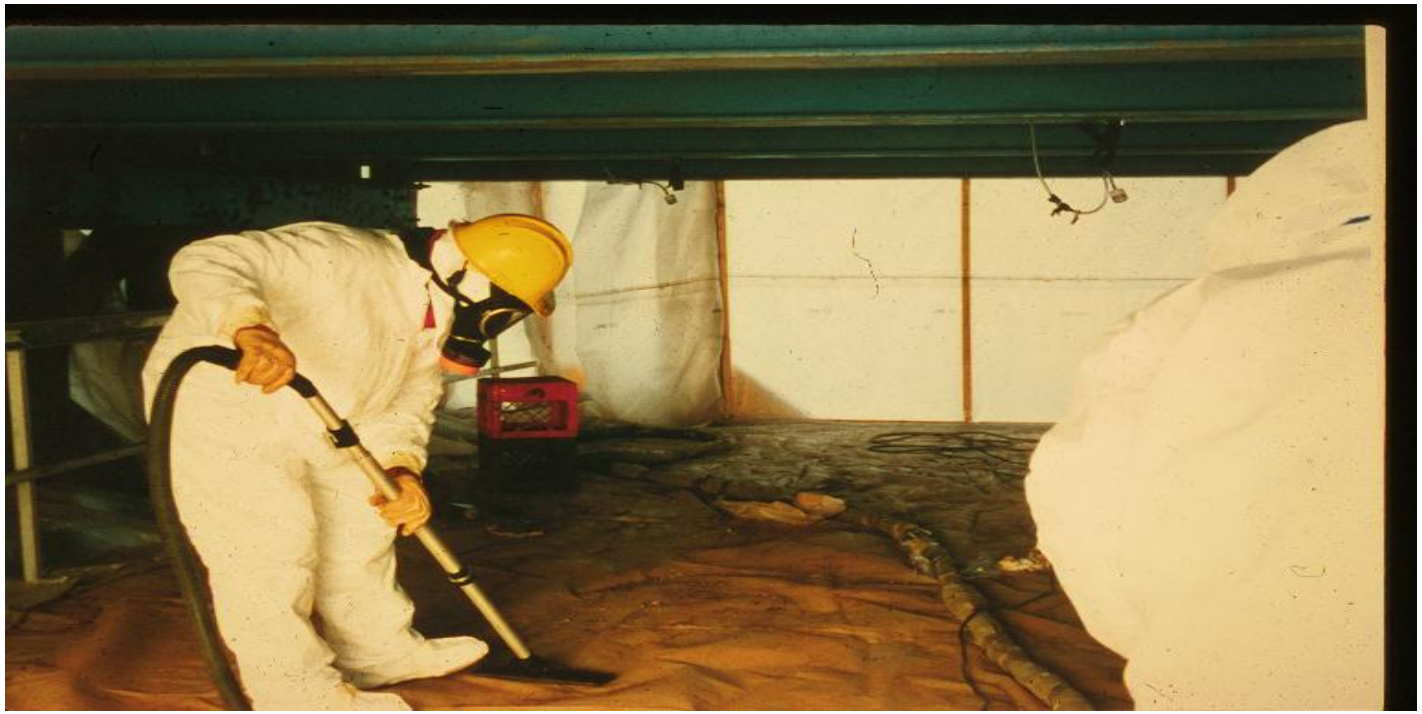


2008 National Emphasis Program

- Hygiene facilities (1926.27; 51)
- PPE (1926.28; 100; 101; 102)
- Respiratory protection (1910.134)
- Accident prevention signs (1926.200)

2008 National Emphasis Program

- Access to medical and monitoring records (1926.33).
- Employee training (1926.21).
- Housekeeping.



Examples of State Regulations

- New Jersey* – banned dry cutting unless:
  - Wet cutting shown infeasible
  - Full face respirator used
  - Local exhaust ventilation used

*N.J.S.A. 34:5-182

- CalOSHA** ban dry cutting with limited exceptions.

**Construction Safety Orders, Section 1530.1

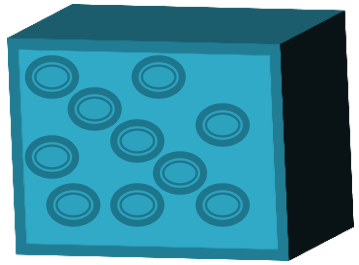
- Other states may have regulations – check in your work area.

Assigned Protection Factors (APF)

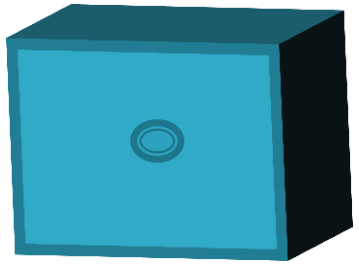
Half Facepiece Respirators = 10 APF

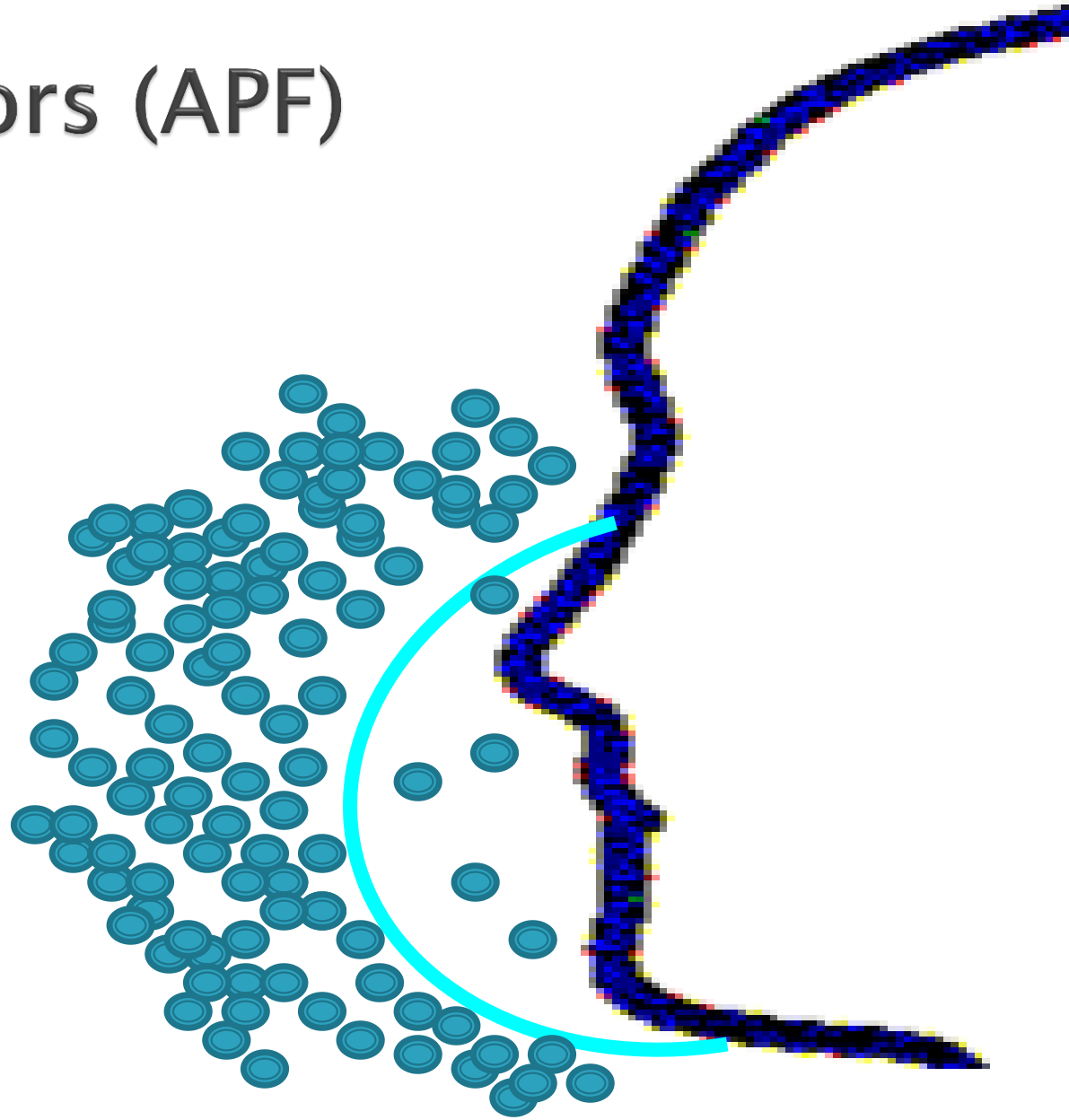
APF 10 = 10X reduction inside respirator

Outside Mask Concentration



Inside Mask Concentration





Respirator APFs

- Half face piece (negative pressure)
  - APF = 10


- Full face piece (negative or positive pressure)
  - APF = 10 Qualitative Fit Test
  - APF = 50 Quantitative Fit Test
  - APF = 1,000 in positive pressure mode



- Loose-fitting Headgear (positive pressure)
  - APF = 25

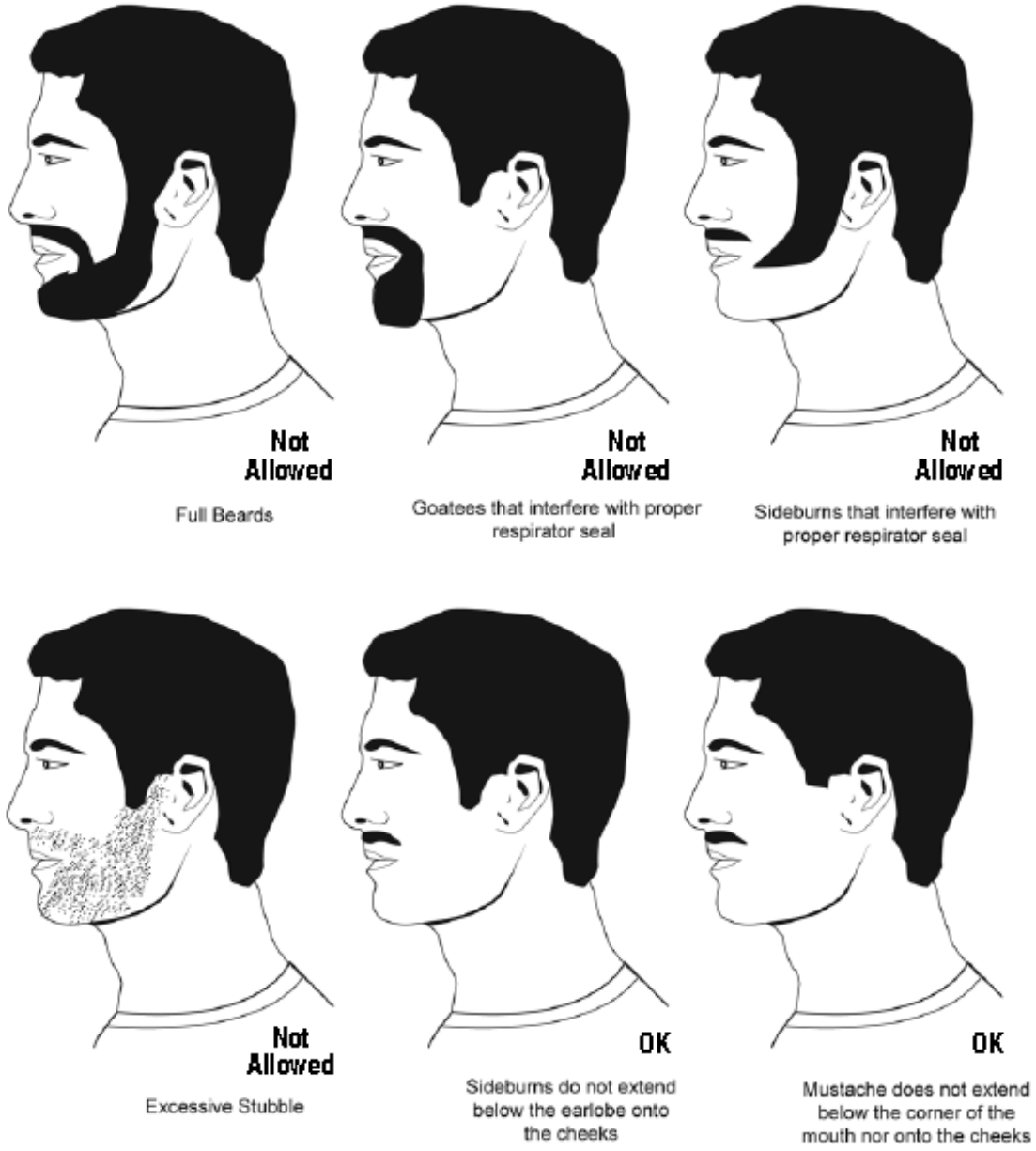

- Hoods and helmets (positive pressure)
  - APF = 25/1,000*

  * Requires manufacturers certification



4.2 Facial Hair for Respirator Use

If your job requires the use of a respirator, then the following applies:



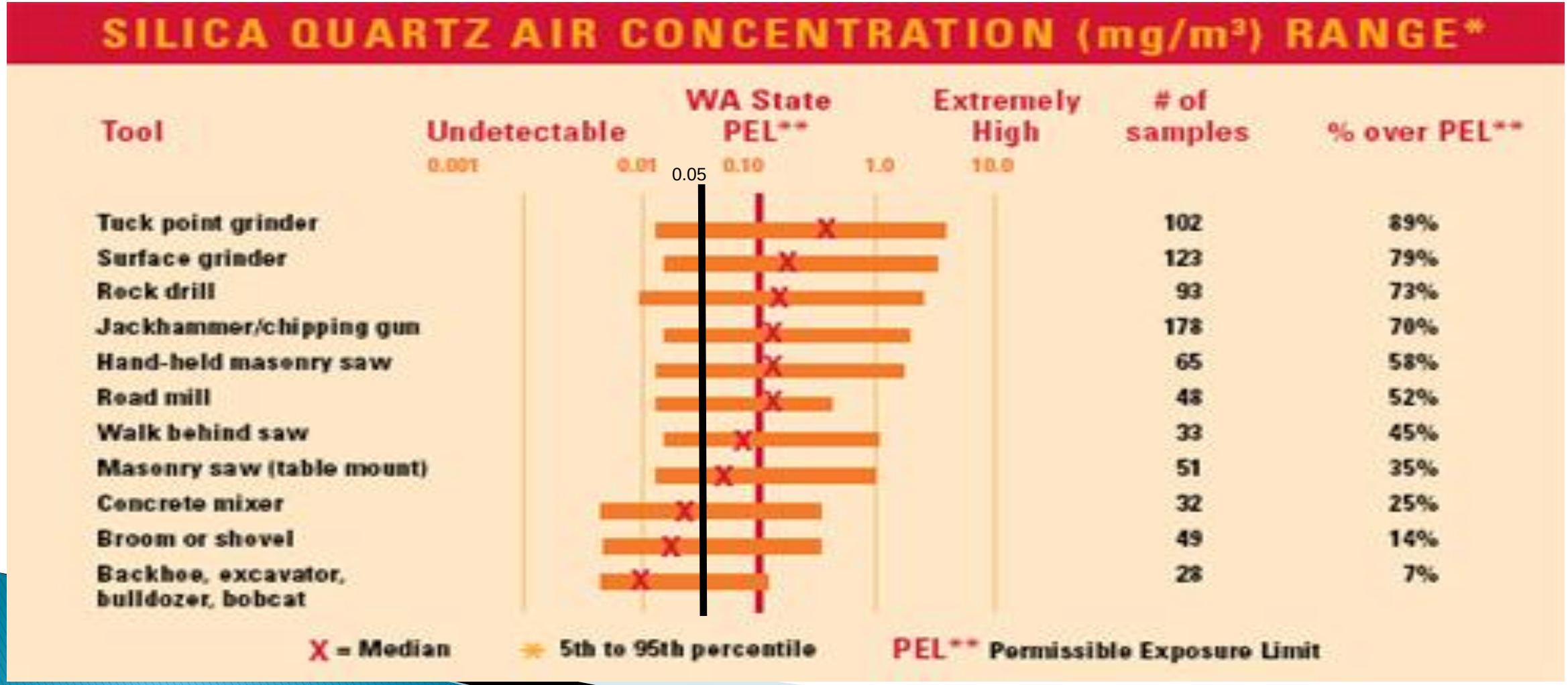
Assigned Protection Factors – USA

- Hazard Ratio = worker exposure level divided by the OEL.
- APF must be greater than the Hazard Ratio.

  - Grinding tungsten carbide tools
  - Exposure to cobalt is 0.6 mg/m3. OEL = 0.1 mg/m3
  - 0.6 /0.1 = Hazard Ratio = 6 APF must be at least 6

  - Tuckpointing
  - Exposure to silica is 7 mg/m3. OEL = 0.1 mg/m3
  - 7 / 0.1 = Hazard Ratio = 70 APF must be at least 70

Silica Concentrations on Job Sites – University of Washington Field Research and Consultation Group



Assigned Protection Factors – USA

Rework the numbers with an OEL = 0.05mg/m3

- Hazard Ratio = worker exposure level divided by the OEL.
- APF must be greater than the Hazard Ratio.

  - Grinding tungsten carbide tools
  - Exposure to cobalt is 0.6 mg/m3. OEL = 0.05 mg/m3
  - 0.6 /0.05 = Hazard Ratio = 12 APF must be at least 12

  - Tuckpointing
  - Exposure to silica is 7 mg/m3. OEL = 0.05 mg/m3
  - 7 / 0.05 = Hazard Ratio = 140 APF must be at least 140

Powered and Supplied Air Respirator Advantages

- Depending on specific respirator system:
  - A higher assigned protection factor than negative pressure respirators (APF = 1000).
  - No requirement to do fit-testing of worker.
  - Potential cooling effect for worker due to air movement.
  - Potential for less physical strain on worker.

PPE - Respirators

- Abrasive blasting:
  - Only NIOSH certified abrasive blast helmet system can be used.
  - Always a air supplied system – PAPRs not currently certified.
  - Air quality must be ensured.

***Respirators must always be used in compliance with:
29 CFR 1910.134 Federal OSHA respirator regulations or applicable state, local or national regulations.

Respirator manufacturers user instructions.

PPE - Respirator

- *Silica Exposure on Construction Sites: Results of an Exposure Monitoring Data Compilation Project* UW has developed a list of suggested respirators for 12 different tools used on construction sites.

- This list can be used by safety professionals ***to make an initial determination of respiratory requirements until site specific exposure assessments can be completed***.

- The website is at http://depts.washington.edu/silica

Example is as of: Feb. 27, 2014

The Right Respirator For The Job

Tool: **Jackhammer/Chipping Gun**

Environment: **Open**

RESPIRATOR

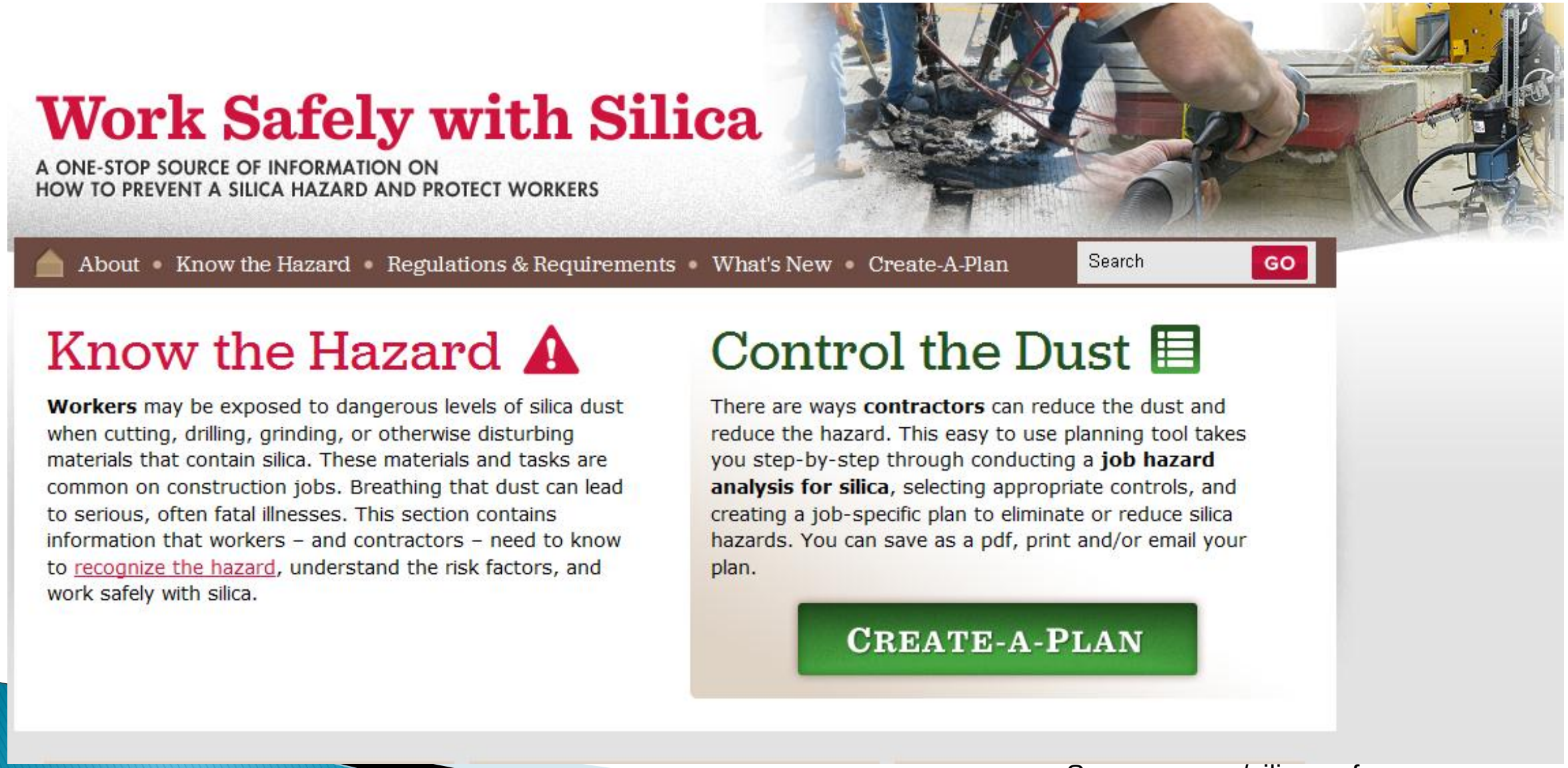
Full Face Cartridge Respirator (PF=50)

Once the project is under way, verify that this is the appropriate respirator with air monitoring for your project, tool, and site conditions.

If you wear a respirator:

- **Make sure the respirator has NIOSH approval label**
- **Have a medical review to make sure you can perform the work while wearing a respirator**
- **Have a fit test of the respirator annually**
- **Inspect, clean and store the respirator with each use**

What are some of the dangers?



Source: www/silica-safe.org

Work Safely with Silica

A ONE-STOP SOURCE OF INFORMATION ON
HOW TO PREVENT A SILICA HAZARD AND PROTECT WORKERS

About • Know the Hazard • Regulations & Requirements • What's New • Create-A-Plan

Search GO

Know the Hazard

Know the Hazard > Why is Silica Hazardous?

Why is Silica Hazardous?

Silica, often referred to as quartz, is a very common mineral. It is found in many materials common on construction sites, including soil, sand, concrete, masonry, rock, granite, and landscaping materials.

The dust created by cutting, grinding, drilling or otherwise disturbing these materials can contain crystalline silica particles. These dust particles are very small. You cannot see them. This respirable silica dust causes lung disease and lung cancer. It only takes a very small amount of airborne silica dust to create a health hazard.

Recognizing that very small, respirable silica particles are hazardous, the Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.55(a) requires construction employers to keep worker exposures at or below a Permissible Exposure Level (PEL) of 0.1 mg/m3 (click here to learn more about the PEL). The National Institute for Occupational Safety and Health (NIOSH) has a lower Recommended Exposure Level (REL) of 0.05 mg/m3. (See Step 2 of the "Create-A-Plan" section of this website for information on using air monitoring to measure exposure levels.)

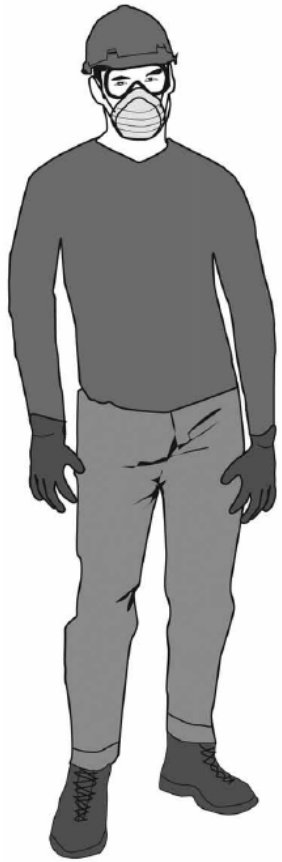
To learn more about the hazard...

- Silica Exposure *(video)*, WorkSafe BC
- OSHA eTOOL: Silica – Frequently Asked Questions
- CALOSHA Hazards of Silica in Construction *etool*
- "Crystalline Silica Primer," U.S. Department of the Interior
- Silica Manager for the Construction Industry, Georgia Tech's Safety and Health Consultation Program.

Common tasks on a rehabilitation project

3.0 Personal Protective Equipment (PPE) and Clothing

3.1 Demolition PPE and Clothing



Job Site

Clothing
- Hard Hat
- Short- or Long-Sleeved Shirt
- Long Pants (not athletic or loose clothing)
- Leather Work Boots

Demolition Tasks

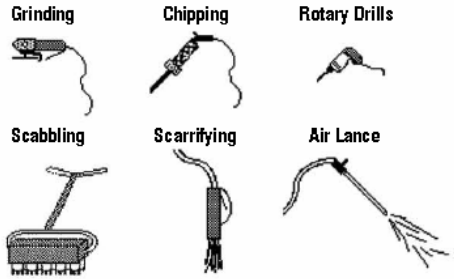
Respiratory Protection
- Two-Strap Disposable Dust Mask or Equivalent

Eye Protection
- Goggles
- Safety Glasses
- Goggles
- Face Shield

Hearing Protection
- Ear Plugs or Equivalent

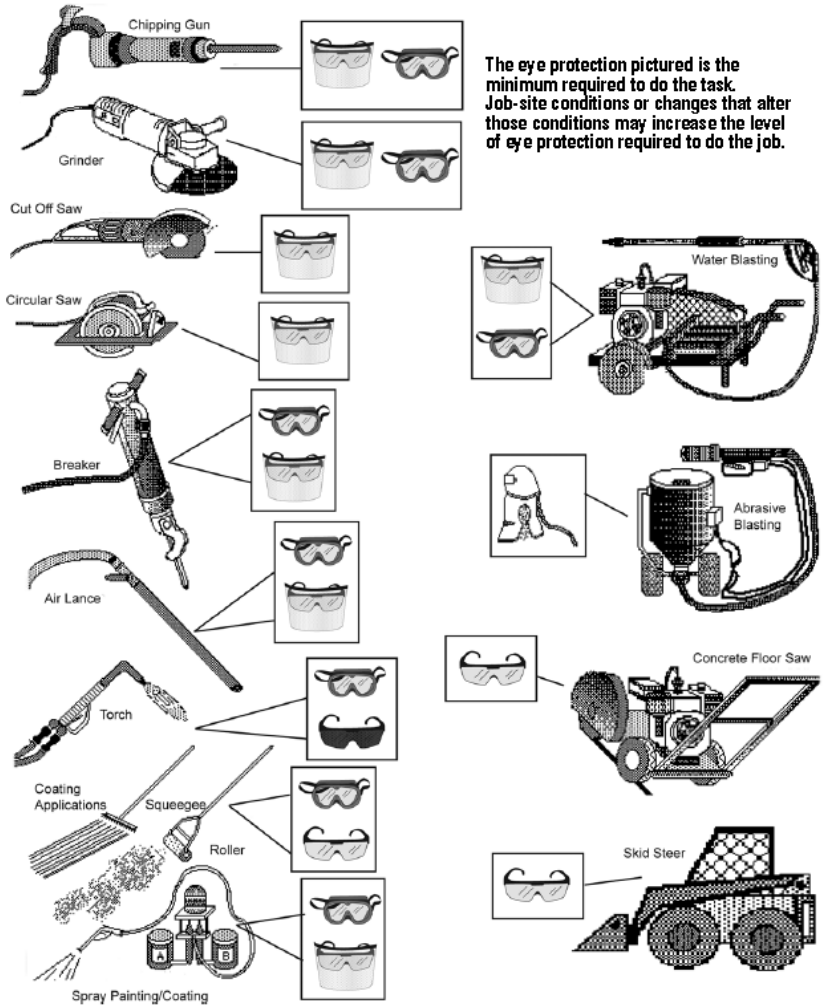
Body Protection
- Work Gloves
- Long-Sleeved Shirt
- Knee Pads (if kneeling)
- Full-Length Pants
- Loose-Fitting Clothing That Can Become Tangled in Equipment Should Be Avoided

Some Demolition Tasks



Specific conditions may involve additional regulations that are not covered on this page

5.2 Recommended Eye Protection for Concrete Repair Tasks

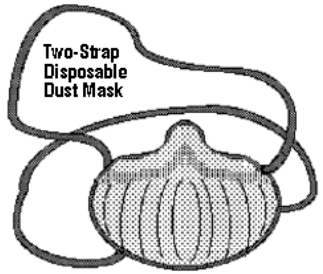


The eye protection pictured is the minimum required to do the task. Job-site conditions or changes that alter those conditions may increase the level of eye protection required to do the job.

Specific conditions may involve additional regulations that are not covered on this page

4.0 Respiratory Protection

4.1 Respirators



Written standard operating procedures.

Respirator chosen for specific hazard.

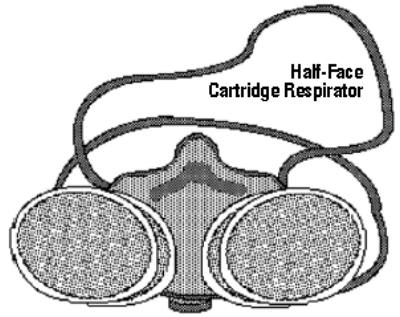
The user shall be instructed and trained in the proper use and limitations.

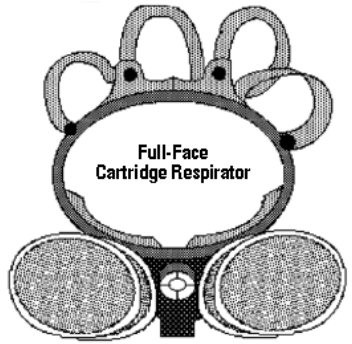
Respirators shall be stored in a convenient, clean, sanitary location.

Respirators shall be inspected during cleaning; and worn, damaged, or deteriorated parts shall be replaced. Self-contained breathing apparatus (SCBA)-type respirators shall be inspected on a monthly basis.

Appropriate surveillance of work area conditions and degree of employee exposure to stress shall be maintained.

Respirators shall be NIOSH approved and shall meet ANSI standards.





Respirators shall be cleaned and disinfected daily.

Regular inspections and evaluations shall be made to determine the continued effectiveness of the respiratory protection program.

Persons should only be assigned to tasks requiring use of respirators when physically able to perform the work and use the equipment. Training, fit test, and appropriate medical screening/questionnaire are required.

The respirator furnished shall provide adequate respiratory protection against the particular hazard for which it is designed.

Specific conditions may involve additional regulations that are not covered on this page

Protective Eyewear Categories


Safety Glasses


Safety Goggles


Safety Readers


Safety Sunwear


6000 Series


6500 Series


7500 Series


6000 Series


Ultimate FX FF-400


7800 Series


Particulate Protection


Gas and Vapor Protection


Combines Particulate and Gas and Vapor Protection


For all 6000, 7000 and FF-400 Series Respirators

Dual Airline Supplied Air Respirator


For 6000 and 7000* Series Full Facepiece Respirators

Face-mounted PAPR† (available for 6000 FF only)

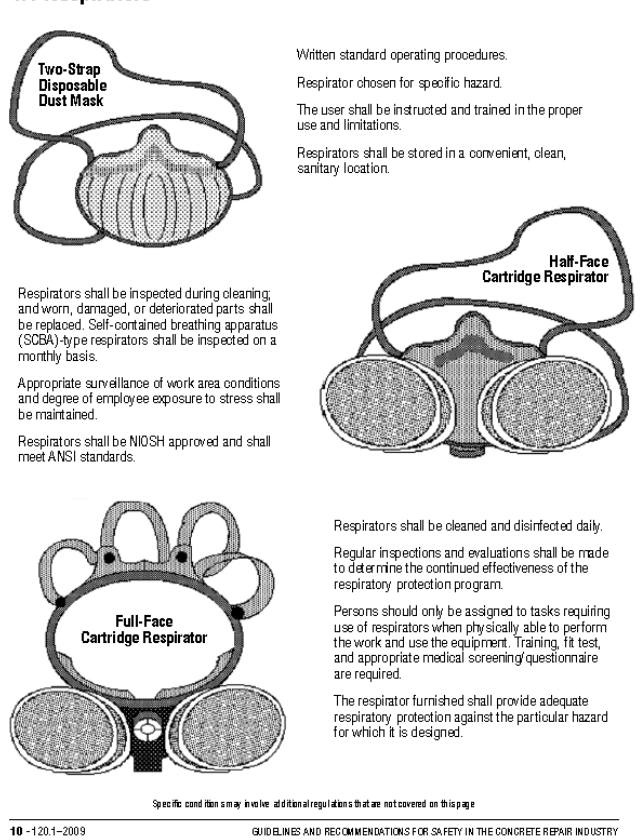
Belt-mounted PAPR†

*Powered Air Purifying Respirator
†Belt-mounted PAPR only

Table 1: Construction Tasks

Task	Open Location	Additional PPE		Enclosed Location	Additional PPE
Abrasive Blasting	I	E		I	E
Back hoe Operator	A, C	E, F, H		A, C	E, F, H
Broom Sweeping	A, C	E, F, H		A, C	E, F, H
Bulldozer Operator	A, C	E, F, H		A, C	E, F, H
Concrete/Grout Mixing	A, C	E, F, G		A, C	E, F, H
Chipping Gun	B, C (D)	E, H		B, C (D)	E, H
Drilling concrete	A, C	E, F, H		B, C (D)	E, H
Drywall hand sanding	A, C	G, H		A, C	G, H
Jack hammer	B, C (D)	E, H		B, C (D)	E, H
Road Milling-concrete	B, C (D)	E, H		B, C (D)	E, H
Saw – Hand held	A, C	E, F, H		B, C (D)	E, H
Saw – Mason table	A, C	E, F, H		B, C (D)	E, H
Saw – Walk behind	A, C	E, F, H		B, C (D)	E, H
Tuckpointing	B, C (D)	E, H		J	E, F

PPE Codes:
A – 6000 Series half facepiece respirator
B – 6000 Series full facepiece respirator
C- 2071 P95 particulate filter
D – 2091 P100 particulate filter – NIOSH recommends a 100 filter when exposures exceed 10x the PEL.
E – Push-in style ear plugs
F – Virtua CCS – foam gasket safety glasses
G – Lexa Dust GoggleGear
H – H-700 vented hard hat
I – W-8100B abrasive blast helmet with GVP-122 breathing tube, V-300 air regulator, W-9435 air hose
J – TR-300 Powered air respirator with BT-40 breathing tubeM-405 helmet



NOTE: These suggestions are based on the current OSHA PEL of 0.1 milligrams respirable silica per cubic meter of air (mg/m3). The National Institute for Occupational Safety and Health (NIOSH) recommends an exposure limit of 0.05 mg/m3. The American Conference of Governmental Industrial Hygienists (ACGIH®) recommends a 0.025 mg/m3 limit. The reader should take these lower exposure limit recommendations into consideration when using Table 1 and making respirator selection decisions.

A respirator program meeting the requirements of 29 CFR 1910.134 must be implemented when respirator use is required. Employers and workers must read, understand and follow the procedures

3M Personal Safety Division

Improvements in Technology

Old Technology
100% Tyvek Suit

New Technology 85% Tyvek
+ 15% Breathable Suit

New Technology 60% Tyvek
+ 40% Breathable Suit

TASK
Abrasive blasting
Bushhammering
Cutting/sawing
Demolishing/disturbing
Drilling
Earthmoving
Grinding
Jackhammering
Milling
Mixing
Polishing
Roofing
Sacking/patching
Sanding
Scabbling
Scarifying
Scraping
Sweeping/cleaning up

15 concrete related tasks

CONSTRUCTION MATERIAL
Asphalt (for paving)
Brick
Cement
Concrete
Concrete Block
Drywall
Fiber Cement products
Grout
Gunite/Shotcrete
Mortar
Paints containing silica
Plaster
Refractory Mortar/Castables
Refractory Units
Rock
Roofing tiles & pavers
Sand
Soil (fill dirt and top soil)
Stone (including: granite, limestone, quartzite,sandstone, shale, slate, cultured, etc.)
Stucco/EIFS
Terrazzo
Tile (clay, ceramic, concrete, etc.)

Silica Containment Plan

Your Silica Control Plan

Company:
XYZ

Person Completing the Plan/Title:
Mr. Smith

Jobsite/Project:
ABC Bridge

Description of Work:
Rehabilitation of bridge deck, structural members and approach ramps. Concrete overlay to be grooved.

Competent Person
Mr. Jones - Corporate Safety Officer

1 Material: Concrete Task: Abrasive blasting

Equipment and Controls:
Respiratory Protection - Abrasive Blasting

Task/Control Description
cleaning concrete and rebar.

2 Material: Concrete Task: Bushhammering

Equipment and Controls:
Hammer w/Bushing Tool & Vacuum

3 Material: Concrete Task: Cutting/sawing

Equipment and Controls:
Hand-Held Masonry Saw with Vacuum

4 Material: Concrete Task: Demolishing/disturbing

Equipment and Controls:
Heavy Equipment with Cab Filtration System

5 Material: Concrete Task: Drilling/coring

Equipment and Controls:
Hand-Held Drill with Vacuum

6 Material: Concrete Task: Grinding

Equipment and Controls:
Hand-Held Grinder with Vacuum

7 Material: Concrete Task: Jackhammering

Equipment and Controls:
Jackhammer

8 Material: Concrete Task: Milling

Equipment and Controls:
Highway Milling Machine with Water

9 Material: Concrete Task: Mixing/pouring

Equipment and Controls:
Respiratory Protection

10 Material: Concrete Task: Sacking/patching

Equipment and Controls:
Respiratory Protection

11 Material: Concrete Task: Sanding

Equipment and Controls:
Respiratory Protection

12 Material: Concrete Task: Scabbling

Equipment and Controls:
Walk-Behind Scabbler with Vacuum

13 Material: Concrete Task: Scarifying

Equipment and Controls:
Walk-Behind Scarifier with Vacuum

14 Material: Concrete Task: Scraping

Equipment and Controls:
Respiratory Protection

15 Material: Concrete Task: Sweeping/cleaning up

Equipment and Controls:
Sweeping Compound

Safety of Others:
We will use vacuum and water for dust control. We will also place signage and redirect vehicular traffic and temporarily prohibit pedestrian traffic. Note: This bridge is in an urban area and we can only shut down one side of the bridge at a time.

Worker Training:
Proper fitting of personal protective gear by the manufacturer. worker to sign achknowledgement of training certificate at end of training. Equipment manufacturers will be at the jobsite to train and verify properuse of equipment and dust collection systems.

Housekeeping:
Our crews and subcontractors are to clean up and dispose of materials/debris daily before leaving the job.

Other Considerations:
Weather will play a factor as well as disposal of dust into dumpsters.

Work Safely with Silica

A ONE-STOP SOURCE OF INFORMATION ON
HOW TO PREVENT A SILICA HAZARD AND PROTECT WORKERS

About • Know the Hazard • Regulations & Requirements • What's New • Create-A-Plan

Search GO

Know the Hazard

Know the Hazard > What are the Health Effects?

What are the Health Effects?

Inhaling crystalline silica can lead to serious, sometimes fatal illnesses including silicosis, lung cancer, tuberculosis (in those with silicosis), and chronic obstructive pulmonary disease (COPD). In addition, silica exposure has been linked to other illnesses including renal disease and other cancers.

Signs & Symptoms

Screening & Treatment

» Return to "Know the Hazard"

Know the Hazard | Training & Other Resources | What's Working | Ask a Question

Work Safely with Silica

A ONE-STOP SOURCE OF INFORMATION ON
HOW TO PREVENT A SILICA HAZARD AND PROTECT WORKERS

About • Know the Hazard • Regulations & Requirements • What's New • Create-A-Plan

Search GO

Know the Hazard

Know the Hazard > Take Action > Contractors can:

Take Action

Contractors can:

- Assign an individual for silica on the job, such as a competent person – someone knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them.
- Use vacuums, water, substitutes, or different work practices to reduce or eliminate the dust.
- Provide workers with respiratory protection when other controls are not enough, which are properly fitted and appropriate for the exposure.
- Use a substitute material instead of sand when abrasive blasting. For a list of substitutes, click here.
- Create a plan for working safely with silica. The "Create-A-Plan" section of this website walks users through simple steps to identify a silica hazards, ways to control the dust, and actions to work safely with silica.

Know the Hazard

Take Action

Workers can:

- Use all equipment and follow work practices provided to them by their employer to control the dust. ***The controls won't work if they're not used.***
- Be aware of the operations and the job tasks that can create crystalline silica exposures and know the steps that should be taken to prevent exposures.
- Participate in training, exposure monitoring, and health screening and surveillance programs to monitor any adverse health effects caused by crystalline silica exposures.
- 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!**
- Be aware of the health hazards related to exposures to crystalline silica. Smoking adds to the lung damage caused by silica exposures.
- Avoid eating, drinking, smoking, or applying cosmetics in areas where crystalline silica dust is present. Wash your hands and face outside of dusty areas before performing any of these activities.
- Provide your doctor with a copy of the Physician's Alert for Silicosis to ensure that you are properly diagnosed and treated. Many cases of silicosis and silica-related illnesses are misdiagnosed because physicians are unaware of their patient's work history and unfamiliar with the signs associated with this occupational illness. Without proper diagnosis and reporting, workers cannot receive suitable medical treatment and advice.

To learn more ....

- Don't Let Silica Dust You! (video)
- OSHA eTool -- Taking Action to Protect Against Silica

Public Comment Period is Now Over

Proposed Rulemaking on OSHA Injury and Illness Recording

The U.S. Department of Labor's Occupational Safety and Health Administration will host a live Web chat to discuss the agency's proposed rule on occupational exposure to respirable crystalline silica from 1 p.m. - 3:30 p.m. EST, Tuesday, Jan. 14. Visit http://www.osha.gov/silica/webchat.html to participate.

The Web chat will provide participants the opportunity to ask questions, get clarification from OSHA on the proposed silica rule and learn how to participate in the regulatory process. OSHA staff will be available to clarify the proposed standards related to silica for general industry, maritime and construction. Staff will also answer questions on OSHA's underlying analysis of health risks, potential costs and benefits, and economic impacts associated with the proposed rule and how to submit comments to the rulemaking record.

The deadline to submit written comments and testimony on the proposal is Monday, Jan. 27. Members of the public may submit comments by visiting http://www.regulations.gov. Read More.

Comment From Guest
what is a work practice control?

OSHA: Examples of a work practice control are practices such as prohibiting dry sweeping, not using compressed air, and limiting number of workers exposed.

Comment From Shawn
Does the DOL have any data showing an increase/decrease in actual Silicosis Illnesses attributed to workplace exposure?

OSHA: Silicosis is almost exclusively an occupational disease. The Centers for Disease Control and Prevention estimates that from 2006 through 2010, silicosis was listed as the underlying or a contributing cause of death on over 600 death certificates in the United States but most deaths from silicosis go undiagnosed. Also, many silica-related deaths are caused by chronic bronchitis, emphysema, lung cancer, kidney disease and other diseases; these deaths are not reflected in the death certificate statistics cited above.

Created for hpgolter@mmm.com | Web Version

JANUARY 6, 2014

Concrete SmartBrief

American Concrete Institute®
Advancing concrete knowledge

News for and about concrete professionals

SIGN UP | FORWARD | ARCHIVE | ADVERTISE

Industry News

Sponsored By IBM

Help for contractors dealing with airborne silica proposals

The Center for Construction Research and Training has created a new website as a resource tool for those needing to deal with new airborne silica proposals. Work Safely with Silica has information about the "latest on regulatory efforts, news articles, examples of what other contractors are doing and related scientific research," and a tool to help you estimate the hazards of particular jobs. ForConstructionPros.com/Equipment Today (1/6)

Share:

Groups split on OSHA's proposed silica-exposure rule

A proposal from the Occupational Safety and Health Administration that would limit workers' exposure to silica dust has received more than 2,700 comments from different groups before its public feedback period ended Feb. 11. The proposal has the support of labor groups and environmentalists but has drawn opposition from business groups because of the increased costs involved. Public advocacy group Center for Progressive Reform said the proposal raises risk for workers because it increases levels of silica exposure before employers are required to provide medical attention. The Hill/RegWatch blog (2/12)

One Solution – Dust Control

Fall Protection

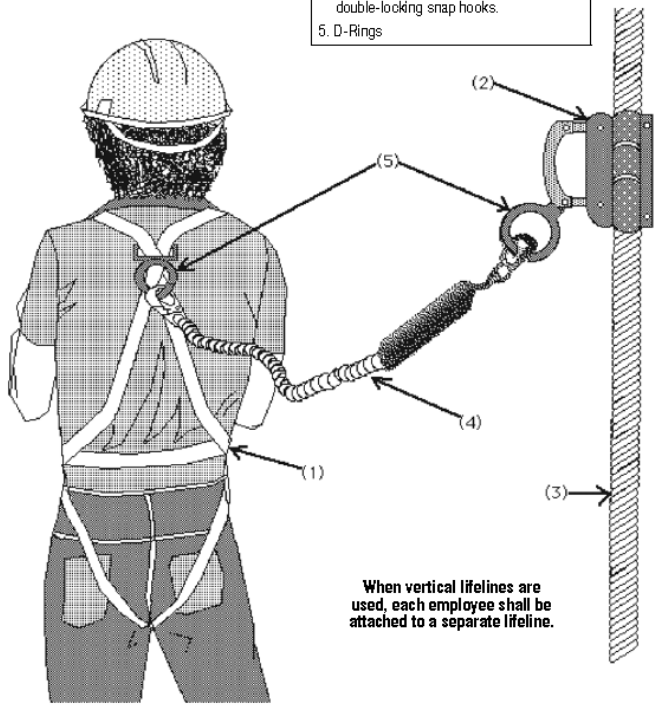
SAIA SCAFFOLD & ACCESS INDUSTRY ASSOCIATION

INTERNATIONAL CONCRETE REPAIR INSTITUTE

8.0 Fall Protection

8.1 Standard Fall Protection

Standard Fall Protection
1. Body harness
2. 3/4 in. (19 mm) rope grab
3. 3/4 in. (19 mm) polypropylene safety line. 8500 lb (3856 kg) breaking strength.
4. 3 to 6 ft (0.9 to 1.8 m) lanyard with double-locking snap hooks.
5. D-Rings



Stay Tied Off At All Times When Exposed To Fall Hazards

Specific condition may involve additional regulations that are not covered on this page

SAIA Competent Person Training - Suspended Scaffold

SAIA Competent Person Training Program is designed for suspended scaffold users and covers all the safety aspects regarding suspended scaffold stages, ropes, regulations, guardrail requirements, fall protection, hoists and installation components. The course format includes a combination of presentation, question and answer, and final exam.

Participants who score 70% or higher on the Competent Person written exam will receive a certificate of completion and wallet card from the SAIA Training Program, certifying completion of Competent Person Training with Suspended Scaffold.

* The Course includes the training manual, Safety Training for Suspended Scaffolds, with self-test questions for each chapter.
* The chapter self-tests, are included in the manual. The final exam is largely based on the questions in the self-tests and it is important that students correctly answer all the self-test questions. The correctly completed self-test questions become a very useful study guide to prepare for the final exam.

http://www.saiaonline.org/

INTERNATIONAL CONCRETE REPAIR INSTITUTE

8.2 Fall Arrest Equipment

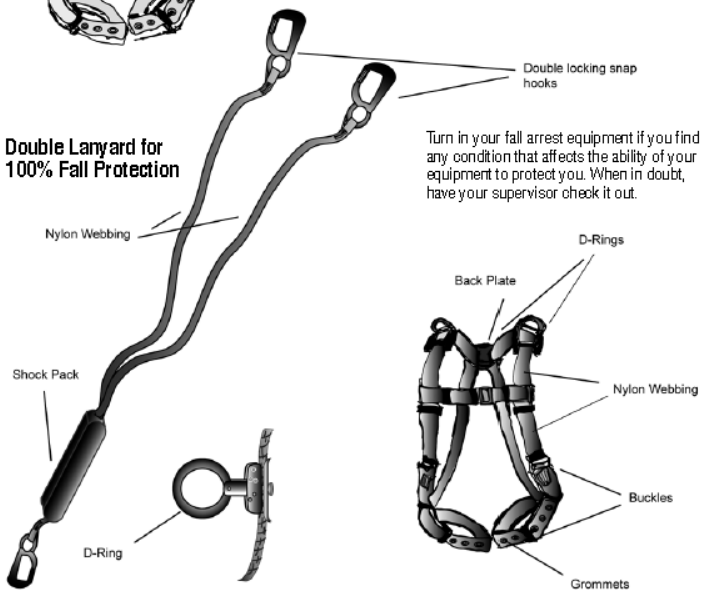
Harness, Lanyard, and Rope Grab Inspection

Your fall arrest equipment requires daily inspection to ensure that it will provide the level of protection required by OSHA.

Look for the following conditions:

- Harness date of manufacturer less than 5 years from current date.
- Lanyard date of manufacturer less than 2 years from current date.
- Damaged or deformed clips, buckles, grommets, or "D" rings.
- Cuts or damaged stitching in webbing.
- Excessive abrasion or wear.
- Burn damage from hot slag, sparks, or other heat sources.
- Chemical damage.
- Double-locking snap hooks working properly.
- Damage to shock pack.
- Worn or damaged parts on rope grab.
- Cracked or damaged back plate.

Full Body Harness



Specific condition may involve additional regulations that are not covered on this page

What is your worker rescue plan?

Uploaded on Jan 5, 2012

While standing on a scaffold at a height of 10ft or higher, OSHA has several requirements to reduce the risk of workers falling down and prevent accidents that could easily end in death. This demonstration can help as a reminder for you and your employees to act proactive and stay safe at all times.

For information on Fall Protection and Supported Scaffolding classes, visit our website at http://www.safetylinks.net/

POP QUIZ – As of January 6, 2014 What is the new height allowance?

Answer: 7 Feet

Jobsite Fire – Tower Crane Rescue – Canada

Photos: Kingston fire: Crane operator plucked away from blaze in dramatic rescue

Photo: 5 of 5 MORGAN DAVIS / TWITTER

The student centre under construction in Kingston, Ont., before it burned down on Tuesday afternoon.

Photos: Kingston fire: Crane operator plucked away from blaze in dramatic rescue

Photo: 2 of 5 / TWITTER IMAGE

A Twitter image from the major fire in Kingston at Princess and Victoria Sts. in Kingston.

What does a Fire Department (Truck) Rescue Cost?

Average $10,000

What does a Fire Department Helicopter Rescue Cost?

Average $25,000

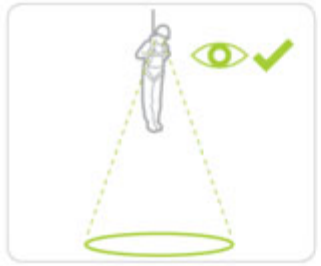
Photos: Kingston fire: Crane operator plucked away from blaze in dramatic rescue

Photo: 1 of 5 / LARS HAGBERG/THE CANADIAN PRESS AND GUILLAUME NOLET

A crane operator was stranded atop the crane when fire broke out at about 2:15 p.m. Tuesday in an apartment building under construction in Kingston.

Self-Rescue Plan

PRD User Instructions



Check the ground below to ensure descent path is clear and a safe landing is possible.

Open the flap on the right shoulder strap to access the release cord.

Pull sharply on the release cord.

Prepare for landing by bending knees.

What do you mean OSHA is on the jobsite?


OSHA
Prevention Video (v-Tool)
Falls in Construction/Fixed Scaffolds
0:03 / 2:58


OSHA
www.osha.gov
1.800.321.OSHA (6742)

What is the correct way for elevated work?

David vs. Goliath – Who wins? Who loses?

http://www.youtube.com/watch?v=W5O3s4xLB2M

Source: www.safety.cat.com

What is wrong with this picture?

http://www.wikihow.com/Make-a-Construction-Site-Safe

How to Make a Construction Site Safe

Edit Article

Edited by WikiBus, Teresa, RMunsonNJ, Maluniu and 6 others

This article is directed to construction site workers who desire a safe work environment.

Steps

1 **Perform a thorough walk through of the site.** Identify and assess any workplace hazards and write down anything that may be considered unsafe. Notify your managers of possible dangers that he/she should know about.

http://workplacesafetyexperts.com/construction-safety/most-common-construction-safety-mistakes/

Most Common Construction Safety Mistakes

Working at a construction site is a difficult and sometimes unsafe job. It is easy to get injured if you do not pay attention to what is happening in your surroundings. The **most common construction safety mistakes** are often preventable. Common sense and a little safe think is all it takes to stop most construction safety mistakes.

List Of Construction Safety Mistakes

Construction safety mistakes that occur most often are generally preventable and could have been stopped if the employees had the proper safety training courses. This is a **list of the most common construction safety mistakes.**

- Not wearing a hard hat. This can result in head trauma that can range from mild to severe. More often than not head trauma is irreversible. That is why it is important to wear a hard hat at all time even if you are just going to be quick.It only takes a second for something to fall and hit you.
- Safety goggles are often over looked. Many people find it hard to believe there eyes could be damaged by something as small as a dust particle but that is really all it takes. The tiniest piece of material could cause unforeseen amounts of damage to your vision.
- Passing by safety signs that are posted without even glancing at them can be the biggest mistake you ever make. They are hung up for a reason. That reason is to warn you of the dangers that are present in the area. Make sure to read and follow all signs.
- You should always were fall safety gear when working at heights of more than four feet. suspensions will reduce your fall and impact which will prevent serious injuries.
- Check all equipment before every use. Make sure it is not broken or compromised in anyway. Faulty equipment can be deadly if it malfunctions while you are using it.

While these are the **most common construction safety mistakes** there are hundreds of different ways you can be injured while working. It is important to always think before you act and follow all safety rules and guidelines. Those are the only real ways to prevent and reduce accidents.

Comments

Leave a Reply

Name (required)

Email Address(required)

Website

Workplace Safety
Safety Articles Recently Written
OSHA's Top 10 Violations In 2012
Best Ergonomic Safety Products For The Office
Cotton Dust Safety, Cotton Mill Employee Safety
Nitrogen Safety Guidelines
List of Chemical Plant Safety Topics
What Is OSHA's Voluntary Protection Program?

Related Safety Materials
Construction Demolition Safety Equipment
Construction Safety Signs
Common Sense Safety Tips
OSHA construction safety requirements
Top 6 Construction Safety Products

Safety Topics
Accident Safety (7)
Chemical Safety (18)
Construction Safety (28)
Demolition Safety (5)
Eye Safety (6)
First Aid (6)
Healthcare Safety (8)
Laboratory Safety (11)
Office Safety (29)
OSHA (28)
Poison Safety (3)
Safety In The News (4)
Site News (4)
Tool And Equipment Safety (4)
Uncategorized (2)
Workplace Diseases (4)
Workplace Safety (40)
Workplace Safety Jokes (12)
Workplace Safety Slogans (6)
Workplace Safety Tips (72)
Workplace Safety Topics (25)

Our Safety Topics List
Safety Meeting Topics and Ideas
Top 5 Office Safety Topics
Funny Safety Pictures
5 Of The Funniest Workplace Safety Posters Ever
Best Safety Cartoons
Top 7 Office Safety Tips
Funny Safety Slogans
Fun Workplace Safety Training Games
Workplace Safety Jokes
Workplace Safety Games
Top 5 Workplace Safety Talks Topics

Additional Resources

References

- University of Washington Field Research and Consultation Group (http://depts.washington.edu/silica)
- Georgia Tech Safety and Health Consultation Program (http://www.oshainfo.gatech.edu/silica-matrix.pdf)
- Ontario Occupational Health and Safety Branch Guideline on Silica Projects (http://www.labour.gov.on.ca/english/hs/pubs/silica/index.php

Thank You – Any Questions?