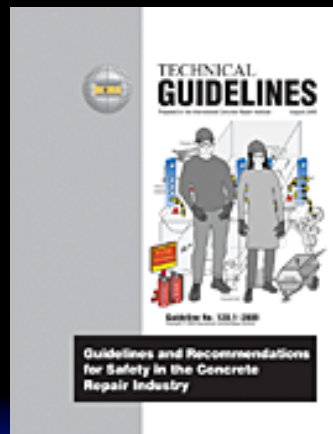


# ICRI Environmental, Safety and Health Committee

ICRI Technical Guideline No. 120.1-2009 -  
Guidelines and Recommendations for Safety  
in the Concrete Repair Industry



# ICRI Environmental Safety and Health Committee

- ◆ Vision 2020
  - Committee formed in 2006
  - **Develop environmentally and worker friendly repair methods, equipment and materials that will greatly reduce the adverse effects on workers, the public and the earth's ecosystem.**
- Primary Strategies Identified
  - ◆ Strategy #1 Create guidelines & recommendations for abrasive blasting, concrete demolition to minimize airborne hazards to workers, the public and the environment

**SILICA IN THE REPAIR ENVIRONMENT: WHAT YOU NEED TO KNOW ABOUT THE ISSUES AND SOLUTIONS**

BY THE ICRI ENVIRONMENTAL HEALTH AND SAFETY COMMITTEE:  
SCOTT GREENHAUS, CHAIR, STEVE BECHTEL, BETH WAMBOLD, BAP SAHLE, PATRICK WIVLER

Every year, millions of workers who use are exposed to crystalline silica. Occupational exposure to crystalline silica dust can cause silicosis, a lung disease that is incurable and can be fatal. Silicosis is caused by the inhalation of respirable crystalline silica dust. Silica is a major component of sand and gravel. Crystalline silica, or free silica, is a hazard for the repair industry because it is often used in the form of sand and gravel. Silica is the most abundant, crystalline, and microscopic. Exposure results from quartz in the form of respirable dust produced by chipping, grinding, sandblasting, and mixing operations. Activities such as jack hammering, rock drilling, concrete mixing, concrete drilling, brick and concrete block or slab cutting, and chiseling are also associated with potential exposure to crystalline silica dust.

**WHAT IS DUST?**  
Dust is the general name for minute solid particles with a diameter of less than 500 micrometers. Dust is generated from a wide range of activities, both industrially and domestically. Activities such as mining, construction, demolition, and agriculture are industries that are large contributors to general atmospheric dust levels. Dust is followed by a very wide range of sizes. To settle out of the air, larger particles have a higher velocity to the air.

Dust exposure is contingent on the amount of dust created and the physical characteristics of the material, in addition to the methods of handling of material. Dust exposure generally occurs from activities not limited to, coming in contact with dust while one or more of the following tasks:

- Abrasive blasting involving harmful materials;
- Demolition of concrete and masonry structures;
- Breakage or crushing of ore; and
- Release of previously generated dust through the loading or dumping of materials.

**WHAT ARE THE HAZARDS OF DUST?**  
In construction, demolition, and renovation situations, dust is created from a variety of sources. In addition to being a potential health problem for workers, dust emissions, in some sectors, also create another threat by increasing the probability of fires or explosions. Health risks occur when workers are exposed to excessive amounts of harmful dust. The health effects

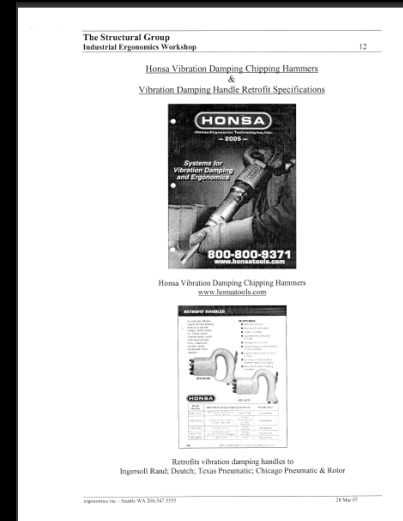


20 CONCRETE REPAIR BULLETIN | SPRING/SUMMER 2010

# ICRI Environmental Safety and Health Committee

## ◆ Vision 2020

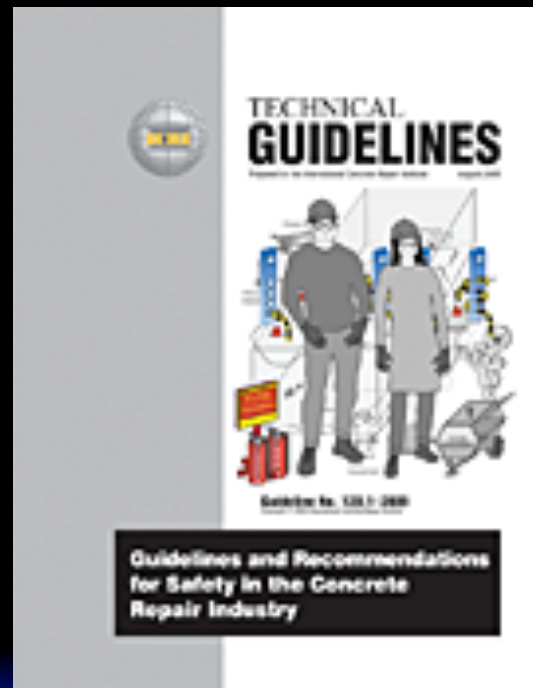
- Strategy #2 - Promote development of demolition equipment that is quiet, dust free and has low impact to the body



# ICRI Environmental Safety and Health Committee

## ◆ Vision 2020

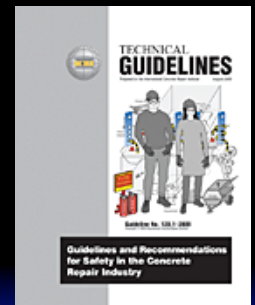
- Strategy # 3- Develop a series of Industry Safety Guides



# ICRI Environmental Safety and Health Committee

## ◆ Guideline Objectives

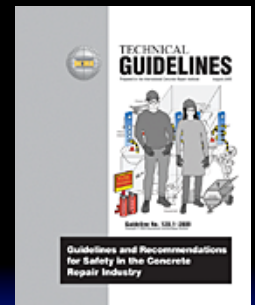
- Provide visual training and information tool specific to our industry
- Target audience-
  - ◆ Field Managers- Superintendents and Foremen
  - ◆ Field Technicians
  - ◆ Project Management/Estimators
  - ◆ Executive Management
  - ◆ Inspectors/Owners/Owners Reps



# ICRI Environmental Safety and Health Committee

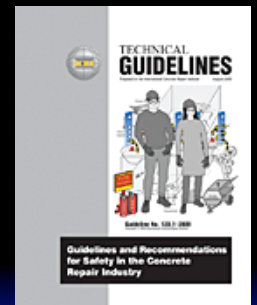
## ◆ Guideline Uses:

- Training events
- Weekly tool box meetings
- Preproject planning
- Task specific training
- Safety observations
- Procedure development
- Communication to owners/public



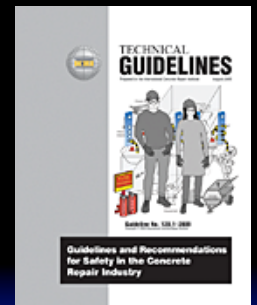
# ICRI Environmental Safety and Health Committee

- ◆ **Industry Responsibilities and Benefits**
  - Provide safe work environment
  - Training and education
  - Reduction in injuries and associated pain and suffering
  - Increased profitability



# Guideline for Safety in the Concrete Repair Industry

- ◆ PPE
- ◆ Fall Protection
- ◆ General Job Safety
- ◆ Work Area Protection
- ◆ Electrical Safety
- ◆ Compressed Air and Gas
- ◆ Dust and Mist
- ◆ Fire Safety
- ◆ Confined Space
- ◆ Hot Applied Membranes
- ◆ Equipment/Tool Safety
- ◆ Access/Scaffold Safety





# Guideline for Safety in the Concrete Repair Industry

## 2.1 Personal Protective Equipment for Concrete Repair Tasks



### Low-Pressure Water Cleaning

 Face Shield & Safety Glasses	 Foam Ear Plugs	 Leather Work Gloves	 Steel Toed Work Boots	 Rain Suit
OR				
 Anti-fog Goggles	 Ear Muffs			

### Detergent Scrubbing

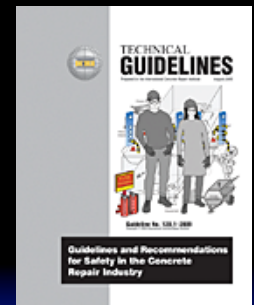
 Face Shield & Safety Glasses	 Foam Ear Plugs	 Leather Work Gloves	 Steel Toed Work Boots	 Rain Suit
OR				
 Anti-fog Goggles	 Ear Muffs			

### Chemical Stripping

 Goggles	 Slip On Over Shoe Neoprene Boots	 Chemical Apron	 Chemical Resistant Gloves	 HEPA Filters Appropriate Chemical Cartridge 1/2 Face, Dual Cartridge
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### Grinding

 Face Shield & Safety Glasses	 Foam Ear Plugs	 2 Strap Dust Mask Approved for Silica	 Coveralls	 Powered Ventilation
		OR		
		 HEPA Filters 1/2 Face, Dual Cartridge		



# Guideline for Safety in the Concrete Repair Industry

## 5.1 Eye Protection



Safety Glasses with Side Shields



Goggles



Clear Plastic Face Shields  
& Safety Glasses



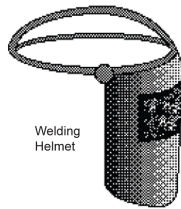
Wire Mesh Face Shields  
& Safety Glasses



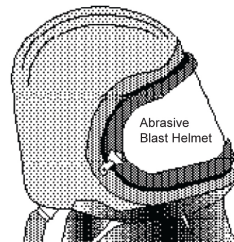
Burning Glasses



Burning Goggles



Welding  
Helmet

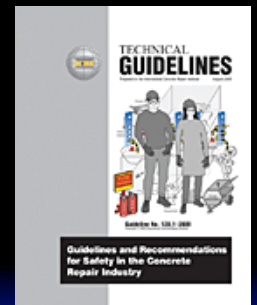


Abrasive  
Blast Helmet



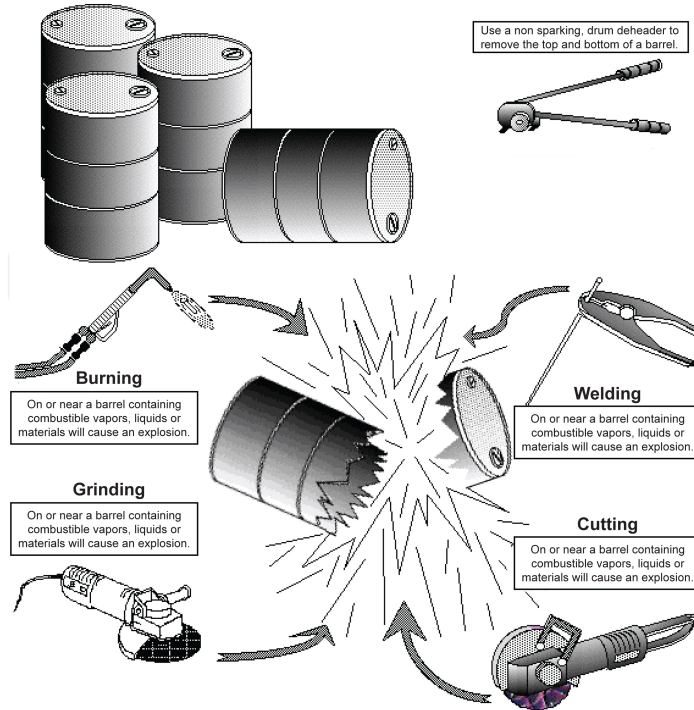
Full Face,  
Dual Cartridge or  
Air Fed Respirator

Specific conditions may involve additional regulations which are not covered on this page  
Revised 03/2009

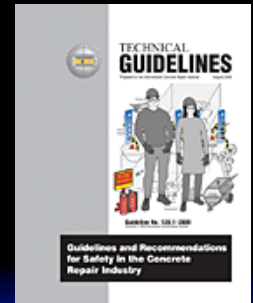


# Guideline for Safety in the Concrete Repair Industry

## 14.5 Barrel Safety



Specific conditions may involve additional regulations which are not covered on this page  
Revised 03/2009



# Guideline for Safety in the Concrete Repair Industry

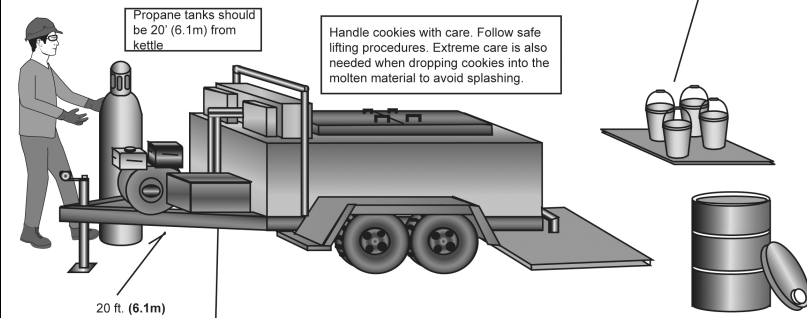
## 17.1 Hot Applied Membrane Safety



Membrane material, sometimes called "Cookies", should be stored in a safe dry place. Be careful moving the loaded barrels or when lifting the material.



Minimize the clean up by putting drop cloths, tarps, or plywood under the areas that typically get messy. This will protect the building or plaza deck and save on cleanup time.

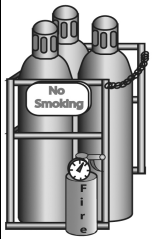
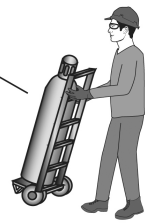


The kettle's burners must have a thermostatic control to prevent over heating the material.



Use cylinder carts to move them from one location to another.

Provide proper storage for both full and empty cylinders



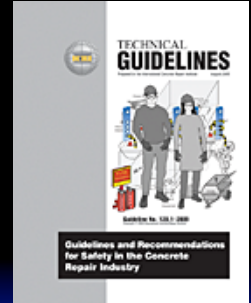
Store propane cylinders away from open flames and the kettle's burners.

### Planning Considerations

For employees doing hot applied membrane work

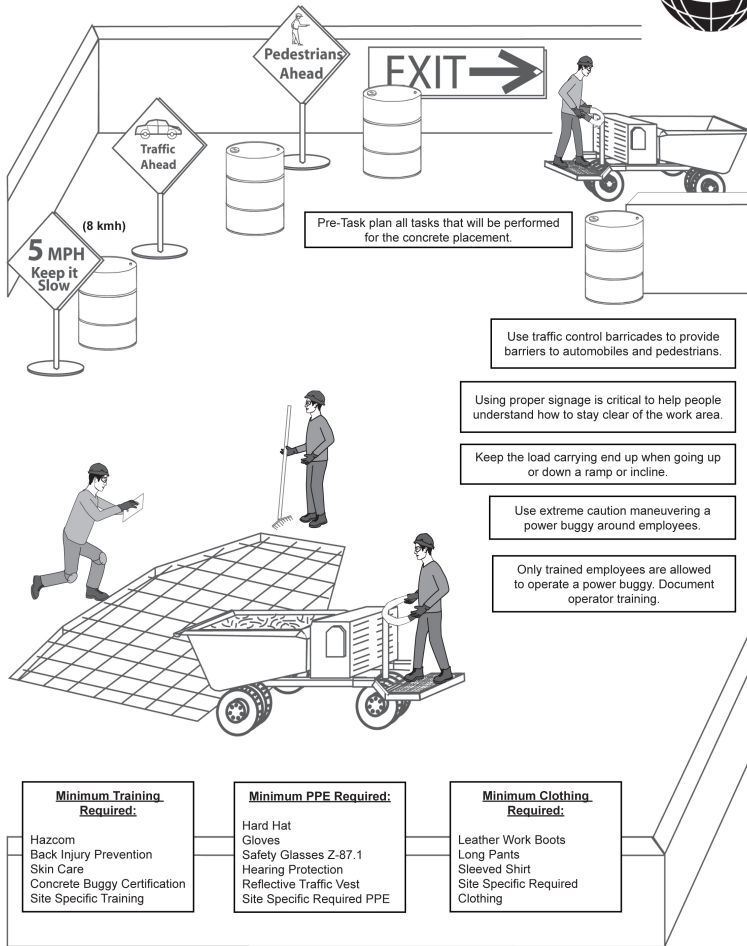
- PreTask Planning
- Standard Orientation Training
- Site Specific Training
  - Hazcom
  - First Aid treatment for burns
  - Hot Kettle Procedures
    - Material Storage
    - Handling and adding cookies to kettle
    - Initial heating and temperature control
    - Keeping water away from hot liquid membrane
- Claims management Procedures
  - Emergency Action Plan
  - Fire Extinguisher training (Hands On)
  - Manufacturer's equipment safe work rules
  - Proper barricades
  - Changed condition awareness
  - Safe lifting
  - Compressed gas cylinders safety
- Maintenance of the kettle and other equipment

Specific conditions may involve additional regulations which are not covered on this page  
Revised 03/2009



# Guideline for Safety in the Concrete Repair Industry

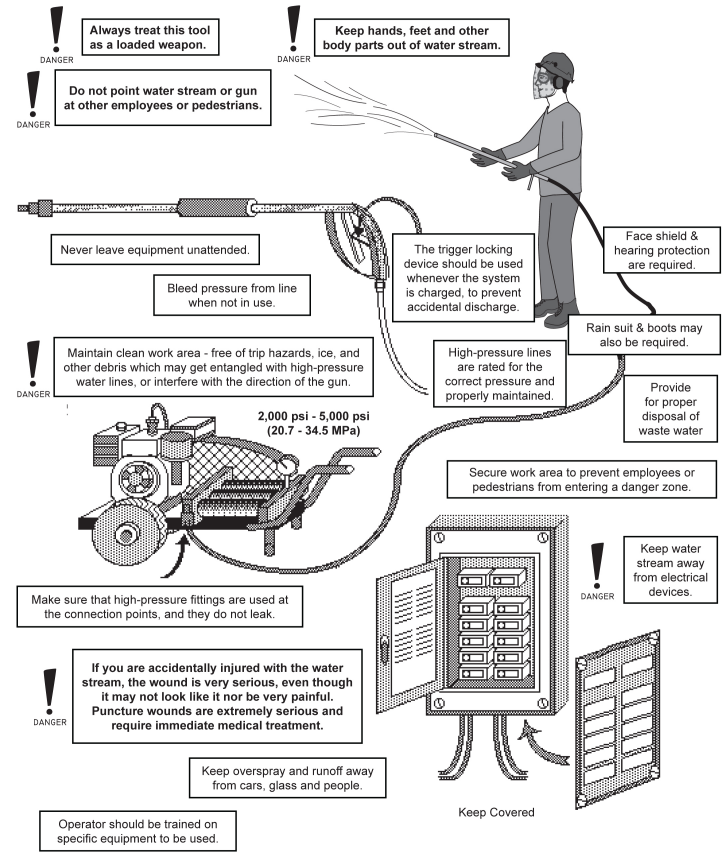
## 19.4 Concrete Power Buggies



Specific conditions may involve additional regulations which are not covered on this page  
Revised 03/2009

## 21.2 Water Blasting

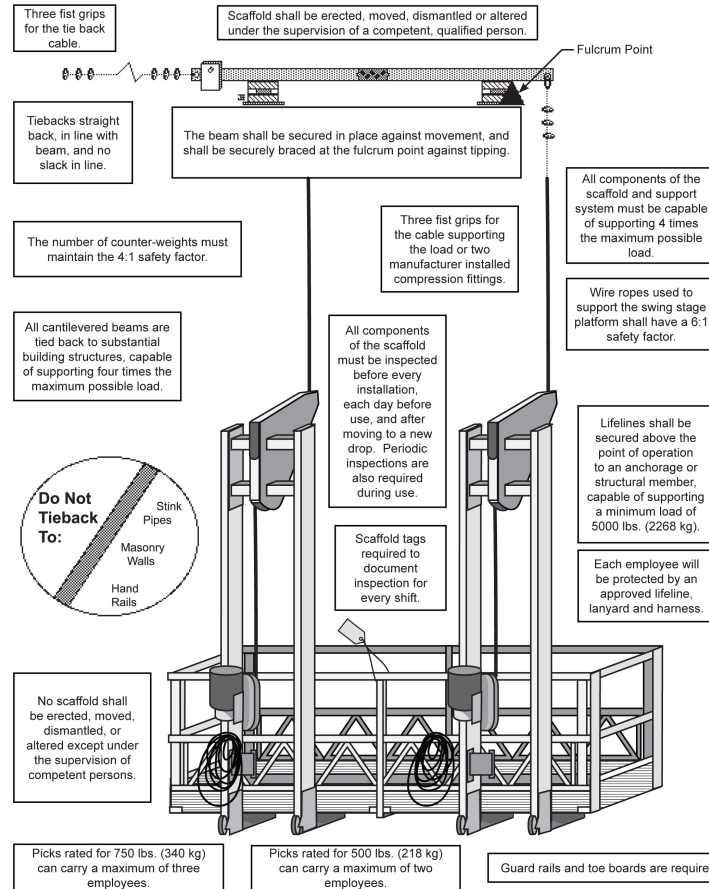
(2000 - 5000 psi) (20.7 - 34.5 MPa)



Specific conditions may involve additional regulations which are not covered on this page  
Revised 03/2009

# Guideline for Safety in the Concrete Repair Industry

## 23.1 Swing Stage Scaffold



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

Revised 03/2009

# ICRI Environmental Safety and Health Committee

## ◆ Objectives- Change the Status Quo



# ICRI Environmental Safety and Health Committee

- ◆ **We need your participation and input**
  - **Presentations**
  - **White Papers**
    - ◆ **Hearing Conservation**
  - **Guidelines**
    - ◆ **Spanish version?**
  - **Resource**
  - **Sharing knowledge and experiences**



# ICRI Environmental Safety and Health Committee

## Thank you

The screenshot displays the ICRI website's online bookstore. At the top, the ICRI logo is on the left, and navigation links for LOGIN, JOIN ICRI, and CONTACT ICRI are on the right. A blue navigation bar contains links for About ICRI, Membership, Chapters, Committees, Events, Publications, Advertising, and Awards. Below this, a shopping cart summary shows a total of \$0.00 with buttons for Clear Cart and Check Out. The main content area features a search bar with Results List and Search Again buttons. A technical guideline is highlighted with the following details:

<b>Title:</b> ICRI Technical Guideline No. 120.1-2009 - Guidelines and Recommendations for Safety in the Concrete Repair Industry	
<b>Author:</b>	
<b>Year of Publication:</b> 2009	
<b>Number of Pages:</b> 114 pgs	
<b>Weight:</b> 0 Ounces	
<b>Nonmember Price:</b> \$55	
<b>ICRI Member Price:</b> \$34	
<b>Order Code:</b> 120.1-2009	

An abstract for the guideline is provided below the table. On the left side of the page, there are instructions for using the shopping cart (increase/decrease quantity, delete item) and member pricing information.

**Instructions:**

- Click **+** to increase qty.
- Click **-** to decrease qty.
- Click **X** to delete item.

**Member Prices**  
To receive member prices on the Bookstore you must be **registered**. If you have already registered and are not receiving member prices, you may need to **log-in**.

**Resume Downloads**  
If for some reason you lose

**Abstract:** This guideline can be used to educate supervisors, craft workers, owners, and engineers in safe work practices for the concrete repair industry. The guideline will have universal appeal, as it has been developed to be a visual tool that depicts the safe performance of specific tasks and the hazards associated with those tasks. The requirements described are based on the most recent OSHA standards and are intended to provide guidance and training in the planning and execution of repair and restoration



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Bobcat

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