

NORTH CAROLINA Department of Transportation





2020 AGC/NCDOT WORKSHOP

DAVIDSON

MARCH 5, 2020



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2020 AGC/NCDOT WORKSHOP

Safety

- Fall Protection
- Crane Safety
- Excavation & Trenching
- Equipment Safety
 - Respirable
 Crystalline Silica



Durham Trench Collapse

January 15, 2020

Gas Station Construction

- Approximately 10 feet deep
- 4 workers in trench
- 1 fatality





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Excavation Hazards

- Cave-ins are the greatest risk
- Other hazards include:
 - Asphyxiation due to lack of oxygen
 - Inhalation of toxic materials/fumes
 - Water accumulation



- Machinery moving near edge of excavation causing a collapse
- Severing underground utility lines
- Falls



Cherie Berry, Commissioner of Labor

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Trenching & Excavation Safety

- 5 feet or deeper require a protective system
- A competent person must be on site
- 4 feet or deeper requires a means of egress within 25 feet of all workers
- Surcharge loads must be at least 2 feet from trench edges
- Check for hazardous fumes and toxic gases



Respirable Crystalline SiO₂

- Contained in sand, brick, concrete, mortar, ceramics, and stone
- Can effect lungs (cancer/silicosis), immune system, and kidneys



29 CFR 1926.1153

- Went into effect September 23, 2017
- Decreased permissible exposure limit (PEL) from ~200 µg/m³ to 50 µg/m³ over 8-hour TWA



Respirable Crystalline Silica

Awareness training for NCDOT/CEI inspectors

RIGHT

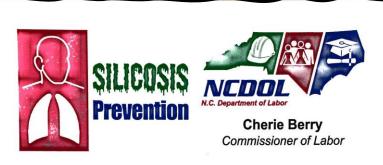






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Silicosis is caused by exposure to respirable crystalline silica dust. Crystalline silica is a basic component of soil, sand, granite and most other types of rock, and it is used as an abrasive blasting agent. Silicosis is a progressive, disabling and often fatal lung disease. Cigarette smoking adds to the lung damage caused by silica.

Effects of Silicosis

- · Bronchitis/chronic obstructive pulmonary disorder.
- · Possible renal disease.
- Lung cancer—silica has been classified as a human lung carcinogen.
- **Tuberculosis**—silicosis makes an individual more susceptible to TB.
- Scleroderma—a disease affecting skin, blood vessels, joints and skeletal muscles.

Symptoms of Silicosis

- Shortness of breath; possible fever.
- Fatigue; loss of appetite.
- · Chest pain; dry, nonproductive cough.
- Respiratory failure, which may eventually lead to death.

Sources of Exposure

- Sandblasting for surface preparation.
- · Crushing and drilling rock and concrete.
- Masonry and concrete work (e.g., building and road construction and repair).
- Mining/tunneling; demolition work.
- · Cement and asphalt pavement manufacturing.

Preventing Silicosis

- Use all available engineering controls and local exhaust ventilation. Avoid using compressed air for cleaning surfaces.
- Use water sprays, wet methods for cutting, chipping, drilling, sawing, grinding, etc.
- Substitute noncrystalline silica blasting material.
- Use respirators approved for protection against silica; if sandblasting, use abrasive blasting respirators.
- Do not eat, drink or smoke near crystalline silica dust.
- Wash hands and face before eating, drinking or smoking away from exposure area.

Adapted from OSHA Quick Card 3266-09N-05, U.S. Department of Labor.

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Printed 9/07

500 copies of this public document were printed at a cost of \$40, or \$.08 per copy.

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