#### CDC's National Institute for Occupational Safety and Health



# **Evaluation of Respirable Crystalline Silica Exposures During Drywall Sanding**

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## Background

#### **HHE Request and Background**

#### Employer request

 Concerned about employee exposure to respirable crystalline silica during drywall sanding activities

#### History of the request

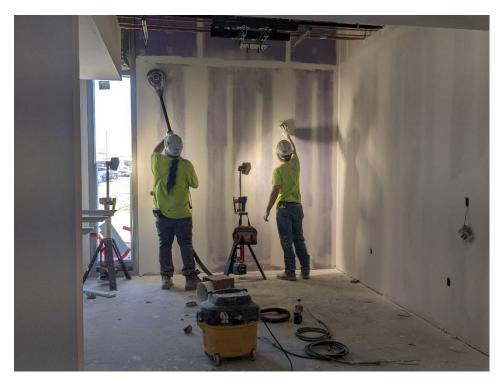
- Conducted previous HHE with company in 2019 at a commercial construction site
  - Sanded joint compound that had been applied between sheets of hanging drywall
- 2023 visit was at a hospital site
  - Applied skim coat to drywall board and then sanded smooth

#### Workplace

- Three-employee crew
- Monday-Friday
- 8-hour shifts
- Sanding occurred approximately once every 4 days
  - Amount and frequency of sanding could change depending on the project
  - For this visit, sanding took 8 hours
- Represented by International Union of Painters and Allied Trades (IUPAT)

### **Drywall Finishing Process**

- Walls were skim coated
- One employee operated a power sander
  - Allows a large area of drywall to be sanded quickly but cannot get into corners or small spaces
- Two employees sanded by hand with a sanding sponge



## What we did

#### **Methods**

- Conducted initial walkthrough of the worksite in February 2023 and returned in April 2023
- During return visit we:
  - Observed work processes, PPE use, and workplace conditions
  - Collected full-shift personal air samples for respirable crystalline silica and respirable dust
  - Collected bulk samples of sanding dust and wet joint compound to determine their silica content
  - Conducted semi-structured interviews with employees to discuss PPE use during current work processes and whether they have health or safety concerns

## What we found

### **Key Findings**

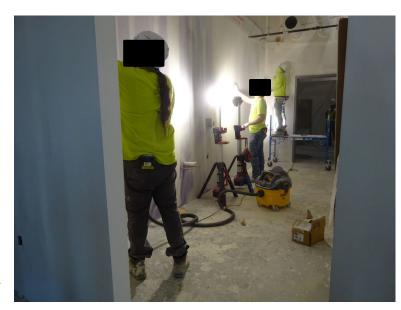
- One employee was exposed to respirable crystalline silica above the OSHA PEL and NIOSH REL
- All three employees' exposures to respirable crystalline silica were above the OSHA action level (AL)

NIOSH REL 50 μg/m<sup>3</sup> OSHA PEL 50 μg/m<sup>3</sup>



#### **Key Findings**

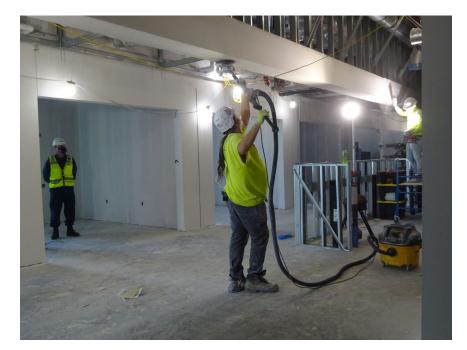
- Work practices may have contributed to exposures
  - Employees sanded the tops of walls and ceilings while other employees were sanding directly below
  - We saw the vacuum attached to the power sander being used without a disposable bag, which can put more dust into the air when the vacuum is emptied
    - There were visible dust clouds created when an employee emptied the vacuum later in the shift
  - Employees shook dust off their clothes at the end of their shift
  - An employer who voluntarily wore an N95 respirator did not have the straps positioned correctly



## What we recommended

# Recommendation: Keep employees' exposures to respirable crystalline silica below the OSHA PEL and NIOSH REL

- Change work practices so that employees do not sand above other employees.
- Create clear instructions for employees to operate and maintain the vacuum.
- Use a vacuum with a HEPA filter and disposable bag to clean dusty clothing.



# Recommendation: Keep employees' exposures to respirable crystalline silica below the OSHA PEL and NIOSH REL



• **Improve** the existing respiratory protection program.



- Educate employees on the health effects of silica exposure. Tell them
  what workplace tasks can expose them to silica and how they can
  limit their exposure.
- **Review** the OSHA *Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction*.

# Recommendation: Continue to conduct exposure monitoring at regular times



• Do additional personal air sampling for respirable dust and silica.



 Assess exposures again when there is a change in how the work is done, who does it, or what equipment is used.

# Recommendation: Address other health and safety issues we identified during our evaluation



 Consider keeping nonemployees out of work areas where drywall sanding is taking place.



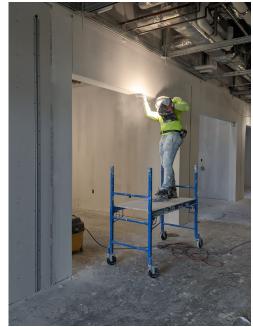
 Do not eat or drink in the work area.



### **Personal Protective Equipment**

# Recommendation: Address other health and safety issues we identified during our evaluation

- Provide head lamps to employees. Ask them not to hold portable work lights on their shoulders while working.
- Explore other personal protective equipment and procedures.
  - Different types of PAPRs can combine a hard hat and face shield.
  - Drywall sanding requires close inspection of the work surface, presenting challenges to eye and face protection.
- Ensure employees use a harness when they are operating the powered man-lift.



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https://www.cdc.gov/niosh/hhe/default.html

https://www.cdc.gov/niosh/hhe/reports/pdfs/2023-0028-3396.pdf

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