

Respirator Use and Practices in Lumber and Wood Products Manufacturing Establishments:

Results of a National Survey of Private Sector Employers

By: Brent Doney,¹ Mark Greskevitch,¹ Dennis Groce,² Girija Syamlal,¹ Ki Moon Bang¹

¹ National Institute for Occupational Safety and Health (NIOSH), Division of Respiratory Disease Studies

² EG&G Technical Services, Inc., Pittsburgh, PA

*Corresponding Author

National Institute for Occupational Safety and Health
Centers for Disease Control and Prevention

Introduction

In 2001, the Survey of Respirator Use and Practices gathered information on respirator use from 40,002 randomly selected U.S. establishments.¹ The survey collected data on the types of respiratory protection used by workers at an establishment, types of respirator fit tests performed, and presence of substances that prompted the decision to use respiratory protection.

The findings of the survey raised questions regarding respirator usage practices and how these practices compare with Occupational Safety and

Health Administration (OSHA) regulations² and National Institute for Occupational Safety and Health (NIOSH) recommendations.³

Respiratory Protection Program Quality Indicators

Each of the indicators listed below (developed on the basis of OSHA requirements² and NIOSH recommendations³) is an important part of an effective respirator program. If the answer to any of these questions is *no*, it may indicate that an operation's overall quality of respiratory protection is

inadequate and improvements may be needed:

- Does the program include a trained respirator program administrator?
- Has management adopted a written respirator program that determines how respirators are used?
 - Does the program include written procedures for maintaining respirators?
 - Are wearers of tight-fitting respirators fit tested?
 - Are employees assessed for medical fitness to wear respirators?
 - Does the program provide training regarding the need, use, limitations, and capabilities of respirators?

- Do written procedures include a periodical evaluation of the effectiveness of respirators used at the establishment?

- Are airline respirator couplings incompatible with other gas systems at the establishment?

- Does the program require use of the manufacturer user's instructions or NIOSH certification labels to adjust the airflow for airline respirators?

- Is there a written change-out schedule for air-purifying gas/vapor filters?

- Are dust masks used (filtering-facepiece respirators) to protect only against dusts, but not gases or vapors?

This report focuses on information from the respirator use and practices survey collected from the *Lumber and Wood Products, Except Furniture* (hereafter referred to as *Lumber and Wood Products*) establishments engaged in cutting timber and

pulpwood; merchant sawmills, lath mills, shingle mills, cooperage stock mills, planing mills and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in manufacturing finished articles made entirely or mainly of wood or related materials (Standard Industrial Classification 24).⁴

Findings and Discussion

Approximately 5.3% or an estimated 1,897 establishments in the *Lumber and Wood Products* manufacturing industry used respirators for required purposes in 2001. This percentage (5.3%) was slightly higher than the percentage of establishments with respirator use in *All Private Industry* (4.5%). Among the types of respirators used, dust masks were used in 66.5% (1,261 of 1,897) of the *Lumber and Wood Products* respirator-using establishments compared to 71.3% (200,995 of 281,776) of *All Private Industry* establishments. Also, employees in *Lumber and Wood Products* were as likely to use respirators as were *All Private Industry* employees as a whole (both 3.1%).¹

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Operations in the *Lumber and Wood Products* industry (e.g., logging, sawmill work, planing, cabinet making, sanding, staining, painting and applying urethane coatings) can result in exposures to airborne contaminants and agents. For example, workers in this industry may be exposed to isocyanates, formaldehyde, and paint vapors from formaldehyde resins in making particleboard, coating

and painting, and wood dusts from sawing, planing, and sanding.⁵ Exposure to wood dust and isocyanates can cause asthma.⁵⁻¹⁰

While the survey design does not allow determination of particular substances that prompted respirator use within the *Lumber and Wood Products* industry, results of the survey provide such information for its parent industry, *Manufacturing*. There, *dust, paint vapors, solvents, welding fumes, and silica dust* were the substances for which respirators were most frequently used (Figure 1). Dust (includes wood dust), *paint vapors, solvents, welding fumes, and silica dust* are found in the *Lumber and Wood Products* industry. For example, *paint vapors and solvents* are emitted during process such as

painting particle board that will be used for furniture and welding fumes are emitted during equipment repair. Also, a NIOSH exposure survey from 1981 – 1983 estimated that 34,000 workers were exposed to silica dust and 120,000 exposed to sawdust in the *Lumber and Wood Products* industry.¹¹ Silica expose can result from sanding and from maintenance operations.

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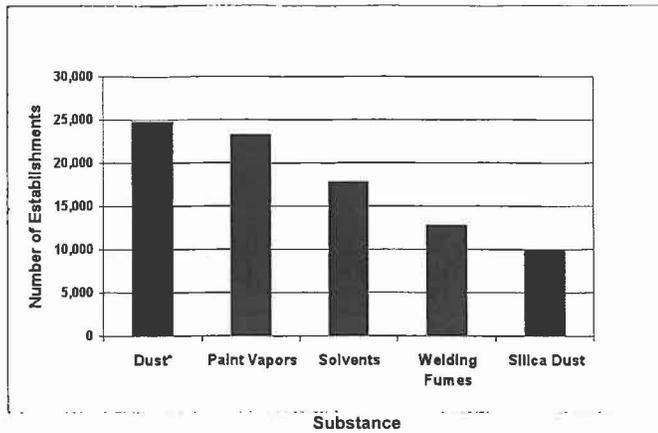
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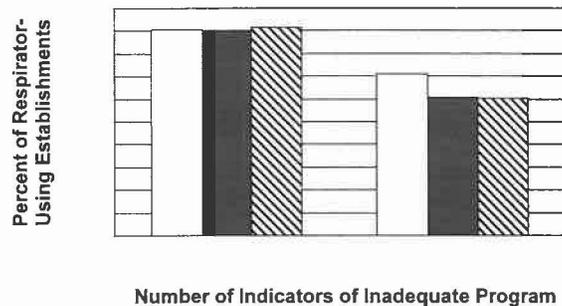
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Figure 1
Number of Manufacturing Establishments Using Respirators to Protect Employees from Specified Substances



* Dust category does not include silica and asbestos

Figure 2
Percent of Respirator-Using Establishments with Specified Number of Indicators of a Potentially Inadequate Respirator Program



Of the respirator-using *Lumber and Wood Products* establishments, 60%, or an estimated 1,143 establishments, had three or more indicators of a potentially inadequate respiratory protection program (Figure 2) as measured against OSHA respirator program requirements and NIOSH recommendations listed in the previous section. OSHA recognized the problem with improper respirator use in this industry. From October 2005 through September 2006, OSHA conducted 100 inspections among *Lumber and Wood Products* establishments and issued 208 citations for respiratory protection.¹²

The survey findings are subject to some limitations. Public sector, self-employed, and agriculture establishments with less than 11 workers were not included in the survey. Although the instructions stated that the person most familiar with respiratory protection should complete the

questionnaire, this may not have always happened. In spite of the cognitive and field testing of the survey at small, medium, and large establishments prior to its mailing, recipients may have misinterpreted the written questions. The survey was not designed to collect exposure information specifically for *Lumber and Wood Products*, though it did collect such information for the broader industry category of *Manufacturing*.

Respiratory Protection Program Consultation Service

Employers who suspect their respiratory protection program is in need of improvement should consider contacting the OSHA free confidential consultation service available for small businesses in every state. OSHA also has a *Small Entity Compliance Guide for the Revised Respiratory Protection Standard* available at <http://www.osha.gov/Publications/secgrev-current.pdf>. Another resource is the American Industrial Hygiene Association list of consultants at <http://www.aiha.org/Content/AccessInfo/consult/consultlisting.htm>. †

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health.

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