



Control of Wood Dust from Horizontal Belt and Large-Diameter Disc Sanders

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Hazard Controls

Control of Wood Dust from Horizontal Belt and Large-Diameter Disc Sanders

From the National Institute for Occupational Safety and Health

Control of Wood Dust from Horizontal Belt Sanders

Definition of Hazard

The use of horizontal belt sanders in woodworking creates significant amounts of wood dust. Workers exposed to wood dusts have experienced a variety of adverse health effects such as eye and skin irritation, allergy, reduced lung function, asthma, and nasal cancer. Therefore, the National Institute for Occupational Safety and Health (NIOSH) recommends limiting wood dust exposures to prevent these health problems.

Description of Controls

Surveys by NIOSH researchers indicated that wood dust from the horizontal belt sanders used in woodworking was not effectively controlled. As a result, researchers developed an inexpensive auxiliary ventilation system for the horizontal belt sanders that significantly reduced wood dust emissions into the workroom.

Auxiliary ventilation system. Typically, belt sander emissions are controlled only by an exhaust hood covering the drive pulley. The new ventilation system reduced wood dust emitted into the workroom by more than 75 percent and can easily be built into new belt sanders or added to existing ones. The system consists of two devices: a narrow auxiliary hood and an air jet stripper (See

Figure 1). The auxiliary hood is located between the belt surface and the worktable downstream from the sanding operation. The air jet stripper is located inside the main exhaust hood. These two devices, in combination with the main exhaust hood, decrease wood dust in the workroom without affecting the sanding operations. In addition, the jet stripper cleans the belt, reducing the frequency of belt changes. This dust control device is not commercially available. Call NIOSH for more information.

Control of Wood Dust from Large-Diameter Disc Sanders

Definition of Hazard

The use of large-diameter disc sanders creates significant amounts of

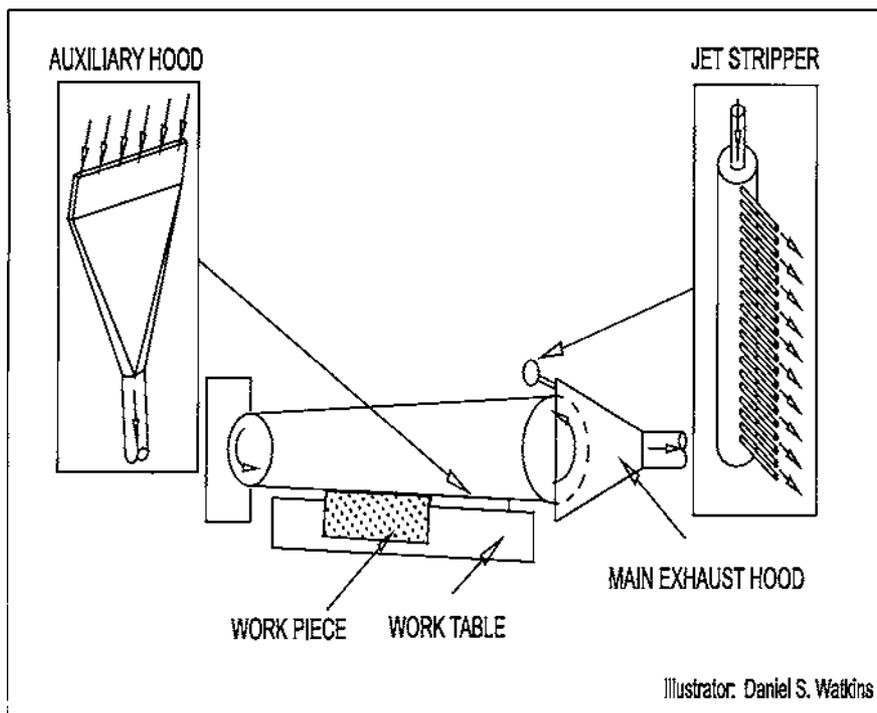


FIGURE I

Top view of belt sander with auxiliary ventilation system.

wood dust. Workers exposed to wood dusts have experienced a variety of adverse health effects such as eye and skin irritation, allergy, reduced lung function, asthma, and nasal cancer. Therefore, NIOSH recommends limiting wood dust exposures to prevent these health problems.

Description of Controls

Surveys by NIOSH researchers found that wood dust created by large-diameter disc sanders is often not effectively controlled. To address this problem, researchers designed a ventilation control system that significantly reduced wood dust emissions into the workroom.

Jet stripper system. The standard dust control arrangement for disc sanders usually consists of an exhaust hood under the worktable that covers the lower half of the disc and a cover around the back of the sanding disc above the work-

table. Even with this control, significant amounts of wood dust are emitted into the workroom. A Jet Stripper System was designed to improve dust control (See Figure 2). The Jet Stripper supplies pressurized air to the disc inside the hood. The jet of high-speed air blows the dust particles out of the disc air layer so they can be captured by the exhaust hood. Also, the jet removes the dust particles embedded in the sanding disc. The Jet Stripper System reduced wood dust emissions by an average of 60 percent in laboratory studies. The advantages of this control are that it does not interfere with the operator, requires minimal maintenance, and is inexpensive to operate. The Jet Stripper may also extend the life of the sanding discs by dislodging the wood dust from the sanding surface. This dust control device is not commercially available. Call NIOSH for more information.

For More Information

To obtain more information about controlling these hazards, or for information on other occupational health and safety issues, call NIOSH at: 1-800-35-NIOSH (1-800-356-4674).

A technical report, *Control of Wood Dust from Horizontal Belt Sanding* (Am Ind Hyg Assoc J 46(10):567-577[1985]), has been published. Also, a videotape on this topic, *Innovations in Belt Sander Ventilation* (Tape #180, 8 minutes), may be borrowed free of charge.

A technical article *Control of Wood Dust from Disc Sanders*, Appl Occup Environ Hyg 6(11):938-944(1991), has been published. Also, a videotape *New Ventilation System for Disc Sanders*, Tape #206, 4 minutes, may be borrowed free of charge.

These Hazard Controls are included in a series of seven documents concerning wood dust control techniques listed

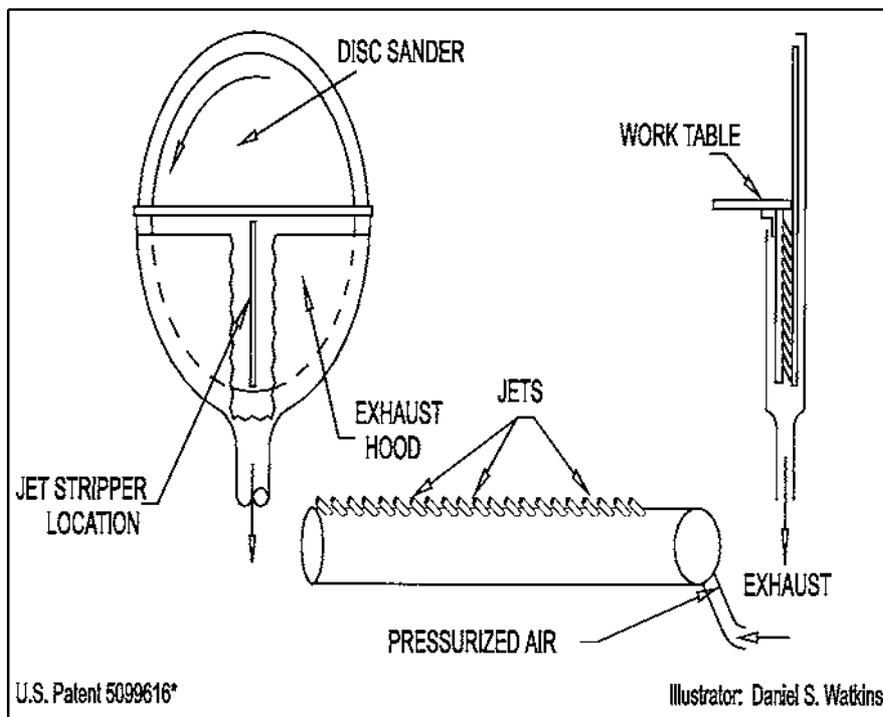


FIGURE II

Disc sander with jet stripper installed in exhaust hood.

below that are available free upon request from NIOSH:

- HC5 Control of Wood Dust from Shapers
- HC6 Control of Wood Dust from Automated Routers
- HC8 Control of Wood Dust from Random Orbital Hand Sanders
- HC9 Control of Wood Dust from Orbital Hand Sanders

- HC10 Control of Wood Dust from Table Saws

Acknowledgments

The principal contributors to these Hazard Controls are Jennifer L. Topmiller, Division of Physical Sciences and Engineering, and Jerome P. Flesch, Education and Information Division, NIOSH.

The documents are in the public domain and may be copied or reprinted. NIOSH encourages all readers of this Hazard Controls to make it available to all interested employers and workers. Control of Wood Dust from a Horizontal Belt Sander is DHHS (NIOSH) Publication No. 96-121. Control of Wood Dust from Large-Diameter Disc Sanders is DHHS (NIOSH) Publication No. 96-124.