

Hazard Controls

Control of Wood Dust from Random Orbital Hand Sanders and Orbital Hand Sanders

From the National Institute for Occupational Health and Safety

Control of Wood Dust from Random Orbital Hand Sanders

Definition of Hazard

Random orbital (rotating) hand sanders have been found to create 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

NIOSH researchers found that wood dust created by random orbital hand sanders is often poorly controlled. To address this problem, researchers designed and tested a new control system for these

hand sanders that significantly reduced dust emissions.

Additional Exhaust System. Random orbital hand sanders are widely used in woodworking applications. The dust generated by these tools is sometimes controlled by an aspirator in combination with a perforated sanding pad. The aspirator creates a vacuum to draw wood dust up through holes in the sanding pad. It was found that, in spite of this control, large amounts of wood dust were still emitted into the workroom. A new control system that uses Additional Exhaust and a Slotted Sanding Pad was implemented to increase dust control (See Figure 1). The increased suction of the additional exhaust alone causes the sanding pad to be pulled to the work surface, making the tool difficult to use. To alleviate this problem, curved slots are cut into the sanding pad. This relieves the pressure caused by the extra suction and provides additional dust control at the pad periph-

ery. The new dust control system reduces dust emissions by approximately 90 percent compared with the currently used aspirator-controlled sander. The new sander does not interfere with the operator, requires no special maintenance, and is inexpensive to operate. This dust control device is not currently commercially available. Call NIOSH for more information.

Control of Wood Dust from Orbital Hand Sanders

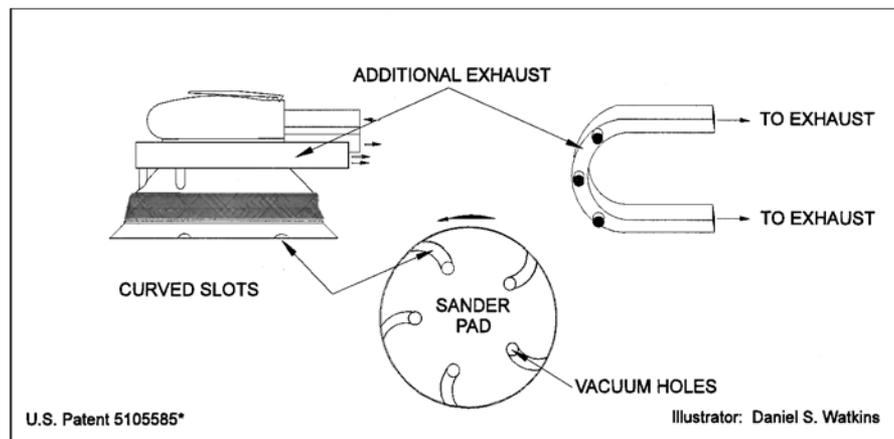
Definition of Hazard

Orbital hand sanders have been found to create 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, NIOSH recommends limiting wood dust exposures to prevent these health problems.

Description of Controls

NIOSH researchers found that the wood dust generated by orbital hand sanders is often poorly controlled. To address this problem, researchers designed and tested a new control system for these hand sanders that significantly reduced dust emissions.

Dust Control System. Orbital hand sanders are extensively used in woodworking processes. The dust from these sanders is generally not controlled although some are equipped with dust removal capabilities. However, even the sanders having dust removal do not effectively control the wood dust generated by the sanding operation. Therefore, a new control approach was developed. A



*For other than single use, contact NIOSH Technology Transfer Coordinator (513/841 4321).

FIGURE 1

Additional exhaust and slotted sanding pad for hand sanders.

Dust Control Plenum was designed and tested on an orbital sander (See Figure 2). The plenum fits between the sanding pad and the sander body and has a series of exhaust slots along its edges. An exhaust connection on the top of the sander pad connects the plenum with a vacuum source. Laboratory tests show that the plenum reduces wood dust emissions by approximately 90 percent. The plenum does not interfere with the operator's activities, requires no special maintenance, is inexpensive to operate, and can be used on any sander, pneumatically or electrically powered. This dust control device is not currently commercially available. Call NIOSH for more information.

For More Information

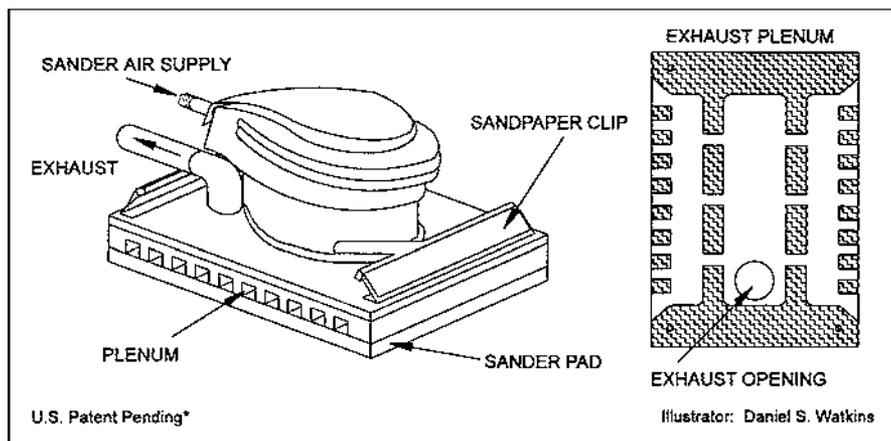
To obtain more information about controlling this hazard, or for information on other occupational health and safety issues, call NIOSH at: 1-800-35-NIOSH (1-800-356-4674).

A technical article (Control of Wood Dust from Rotational Hand-Held Sanders, *Appl Occup Environ Hyg* 7(4): 263-270 [1992]), has been published on this subject. Also, a videotape on this topic (New Control for Use with Rotating Hand Sanders, Tape #207, five minutes) may be borrowed free of charge. A technical article (Controlling Wood Dust from Orbital Hand Sanders) has been accepted for publication. Also, a videotape (New Control for Orbital Hand Sanders,

Tape# 208, 5 minutes) may be borrowed free of charge.

These documents are one in a series of seven Hazard Controls concerning wood dust control techniques listed below that are available free upon request from NIOSH:

- HC4 Control of Wood Dust from Horizontal Belt Sanders
- HC5 Control of Wood Dust from Shapers
- HC6 Control of Wood Dust from Automated Routers
- HC7 Control of Wood Dust from Large-Diameter Disc Sanders
- HC10 Control of Wood Dust from Table Saws



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FIGURE 2

Dust control plenum for orbital hand sanders.

Acknowledgments

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

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