TABLE 29-F

EXHAUST HOODS FOR GRINDER AND CUTOFF WHEELS

Wheel		*Good Enclosure*		*Poor Enclosure*	
Diameter (in)	*Width (in)*	*Duct Diameter (in)*	*Cfm*	*Duct Diameter (in)*	*Cfm*
Up to 9	1½	3	220	3½	330
Over 9 to 16	2	4	390	5	600
Over 16 to 19	3	4½	500	5½	750
Over 19 to 24	4	5	610	6	920
Over 24 to 30	5	6	880	7	1,300
Over 30 to 36	6	7	1,200	8	1,600

Note These figures should be considered adequate only for nontoxic metals such as gray iron Where toxic metals or alloys are encountered, these types of hoods are not adequate for control

From American Standard Z43 1, Ventilation Control of Grinding, Polishing, and Buffing Operations

polishers, with the polishing head only an inch or so in diameter, can be controlled by placing a tapered rectangular hood at each station The face opening may be approximately 4 × 8 in , with a 3-in flange on four sides

To permit adjustment of the hood, there can be a section of flexible metal pipe back of the hood, or swivel and telescopic connection pieces can be inserted

A branch duct 4 in in diameter can handle 350 cfm at about 4000 fpm Ducts smaller than 4 in in diameter are unwise because the friction loss in flexible piping smaller than 4 in in diameter becomes prohibitive with a 4000 fpm duct velocity

The low-volume, high-velocity exhaust system is a relatively new design for controlling dust from portable hand tool and machining operations Capture velocities are high but the exhaust volume is low because air is exhausted directly at the point of dust generation by means of close-fitting, custom-made hoods and light-weight plastic hoses

More details are given in the American Conference of Governmental Industrial Hygienists' *Industrial Ventilation—A Manual of Recommended Practice*

Woodworking

The woodworking industry was one of the first to recognize the value of local exhaust systems They are applied almost universally in production shops, their benefits being better housekeeping, improved working conditions, and decreased fire hazard Many states have specific codes covering this type of ventilation, and these, of course, should be complied with

Higher cutting speeds developed for woodworking machinery have led to higher production, which in turn means more shavings, chips, and dust Exhaust ventilation must be increased correspondingly In fact, with some of the newer machines, more air should be exhausted than is called for by the codes, which often lag behind technological progress

The ACGIH *Industrial Ventilation* Manual gives recommended exhaust volume and branch duct diameter for average-sized woodworking machines, together with excellent drawings of typical hoods Exhaust volume will vary with cutting speeds, length of cutter heads, length of sander drums, and diameter of saws In general, saws require 4- to 6-in , and occasionally 8-in branches, most cutting heads, a 5-in branch

Conveying velocities are generally 4000 fpm in branches and 3500 in main ducts Where exhaust air is used to convey material pneumatically, as, for example, after it has been through a hog, or when it is picked up from the discharge of a dust arrester, velocities of 4500 to 5000 fpm are needed, with an