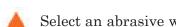# Safe Operation of Abrasive Wheel Grinders

There are two types of abrasive wheel grinders in use around construction sites. One is the fixed bench or pedestal grinder that is found in just about every maintenance shop and on many maintenance trucks. The portable type of grinder is often used to remove metal from flat and cylindrical surfaces. There are also two types of abrasive wheels—those mounted on the machine so that only the flat side of the wheel is designed for grinding, such as when removing excess metal after welding pipes together, and those where the grinding is done on the circumference of the wheel, such as when a bench grinder is used to sharpen a chisel.

Despite its flat surface, an abrasive wheel is still a cutting tool that can revolve at thousands of revolutions per minute. Striking a hand or finger against a rotating wheel surface can cost you a piece of that hand or finger. Additionally, the wheels can send particles of metal or flying chips into a worker's eyes and face. Inhaling dust and metal fumes generated by the grinding activity can cause respiratory problems. Therefore, only trained and authorized workers should be permitted to use grinders.

Admittedly, working safely every minute of every day in the face of time and peer pressures is not easy. It takes not only commitment, but also focus.

Selecting and installing abrasive wheels:

▲ Select an abrasive wheel of the proper size and speed rating; using a wheel that has too large a center hole for the shaft of the machine, or that is rated too low for the machine, can cause a wheel to disintegrate.

▲ Install the flanges (rings) provided with the machine on each side of the wheel to distribute stresses and to properly transmit the driving force.

▲ "Ring test" the wheel before installing it on the machine to detect flaws or damage to the wheel. To ring test it, tap gently on the side of the wheel with a non-metallic device such the handle of a screw driver about one or two inches in from the edge at about 45 degrees from the vertical center line. Listen for a clear metallic "ping," which indicates that the wheel is in good condition. A dull thud indicates that the wheel may be cracked.

▲ Install all machine guards and adjust them properly; the tool rest on bench grinders must be adjusted to within ⅛ of an inch of the face of the wheel.

▲ Store new supplies of wheels in a dry area where they will not be damaged.

Before you start using the grinder:

▲ Inspect the machine and electrical cord and plug for damage.

▲ Inspect the abrasive wheel to make sure it is in good condition and the wheel is evenly worn and without substantial nicks, scrapes or indications of cracks.

▲ Make sure the work area has adequate illumination and ventilation.

▲ Check to see that bench grinders are secured to the bench or pedestal.

▲ Check to see that guards are in place and properly adjusted.

▲ Remove flammable and combustible materials from the work area, so will not be ignited by sparks.

▲ Check to see that you are clear of other workers before you switch on the grinder.

During operation of a grinder:

- ▲ Wear personal protective equipment (PPE), including safety glasses, full face shield, hearing protection, properly fitted gloves and a dust mask in dusty areas.
- ▲ Do not wear loose clothing or jewelry.
- ▲ Allow the grinder to come up to full speed before making contact with the material you intend to grind.
- ▲ Maintain a solid footing and firm grip of the tool.

An abrasive grinder is a very useful tool that can save you a lot of time and effort. Just make sure that you follow the safety procedures and rules discussed above to avoid injuries.
go home uninjured at the end of the work day.