

Masonry r2p Partnership



SAFETY INTERVENTIONS CUTTING MASONRY

Situation

- There are several types of equipment commercially available to cut masonry materials. Some are explicitly recommended by the equipment manufacturers for this task, others are not.
- Most circular saws are designed and marketed to cut wood. When equipped with a masonry blade, however, they can cut brick, flat slab stock, stone, terracotta, concrete, mortar and other masonry materials.
- These saws can be used for both vertical and horizontal cuts and in a backward cutting motion.
- Circular saws range in weight from 9 pounds to 29+ pounds. A typical weight is about 10 or 11 pounds.

Safety Issues

- The saw's lower guard inhibits visibility when used in a backward cutting motion, creating a potential hazard for the operator.
- Disabling the lower guard or holding it open to improve visibility is not recommended by the saw manufacturers and has been cited by OSHA under 29 C.F.R.:

1926.300(b)(1) -- "tools designed to accommodate guards... shall be equipped with such guards when in use."

1926.702 (i) 1 -- "Masonry saws shall be guarded with a semi circular enclosure over the blade."

- Even though immobilizing or even removing the lower guard maintains an enclosure of 180 degrees in compliance with

1926.702(i), performing such a field modification on an engineered safety feature (lower guard) is not recommended and has never been allowed by the manufactures.

- The saws typically do not provide an option for wet cutting to keep the blade cool.



7/4" Circular Saw with water drip from hose cutting stone

- Some manufacturers specifically warn against using their circular saws with abrasive wheels.
- The Underwriters' Laboratory (UL) standard for circular saws (UL 60745-2-5), which goes into effect March 31, 2014, states that these saws are not designed for use with abrasive wheels:

UL 60745-2-5: HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – Part 2-5: particular requirements for CIRCULAR SAWS

1 Scope: This clause of part 1 is applicable, except as follows:

Addition:

This standard applies to circular saws, which hereinafter will be referred to as saws.

This standard does not apply to saws designed for use with abrasive wheels.

NOTE Saws designed for use with abrasive wheels as cut-off machines are covered by IEC 60745-2-22.

8.12.2 a) Addition:

101) Instructions not to use any abrasive wheels.

- ANSI approved the UL change March 20, 2012. As a result, manufacturers may stop producing abrasive wheels that fit circular saws to avoid potential liability.

Intervention

- OSHA, UL and ANSI requirements should be considered when selecting equipment to use when cutting masonry materials. Several commercially available saws and large angle grinders offer alternatives and address the safety issues.
- The Masonry r2p Partnership met with two major equipment manufacturers at the BAC/IMI International Training Center to provide them with a hands-on demonstration of the challenge and get their suggestions for equipment alternatives. As the Partnership continues to review options, the following are two alternatives suggested by these manufacturers:

1. **Bosch Large Angle Grinder:**

- The Bosch 1994-6 model fits a 7- or 9-inch blade, weighs 11.8lbs – comparable to a typical circular saw, and allows the user to rotate the handle. To control the dust generated by cutting stone, concrete and other masonry products, the grinder works with a 19DC-9 dust collection guard attached to the Bosch Airsweep™ 13 Gallon Wet/Dry Vacuum Cleaner with Power Broker™ (#3931A-PB). Click on this link to [learn more](#) about the equipment and watch a video testimonial (click on the ▷ on the site), or visit the manufacturer at www.boschtools.com.

2. **Hilti DCH 230 Electric Diamond Cutter:**

- The Hilti DCH 230 Electric Diamond Cutter fits a 9" blade and weighs roughly 19 lbs. The saw works with Hilti's VC 20-U or 40-U vacuums to control the dust generated by cutting stone, concrete and other masonry products. Click on these links to [learn more](#) about the equipment, watch a [video with](#)

[and without dust control](#), or visit the manufacturer at www.us.hilti.com/.

The following are examples of other commercially available options:

- **Metabo** W24-180 Angle Grinder fits a 7" blade and weighs 13.3lbs. It can be used with a Dustless 7" Convertible Shroud and an ASR 2050 HEPA Vacuum. Click here to [learn more](#) or go to www.cpometabo.com/.
- **Hitachi** G18SCY UVP Low Vibration Angle Grinder uses a 7" blade and weighs 11.2lbs. It can be used with a Dustless DustBuddies 7" Grinder Vacuum Dust Guard (D1848) and Dustless HEPA Vacuum. Click here to learn more about the [Hitachi Grinder](#) or go to www.hitachipowertools.com. Click here to learn more about the [Dustless Products](#) or go to www.ohiopowertool.com.

Learn More

To find additional information about how to deal with hazards and find solutions, or to learn more about the Partnership's work visit:

- The [IMI Tool Kit](http://www.imiweb.org) at www.imiweb.org
- [Work Safe with Silica](http://www.silica-safe.org) at www.silica-safe.org
- [CPWR Construction Solutions](http://www.cpwrconstructionsolutions.org) at www.cpwrconstructionsolutions.org
- [The Electronic Library of Construction Occupational Safety & Health](http://www.elcosh.org/) at <http://www.elcosh.org/>
- [Masonry Research to Practice Partnership](http://www.masonryr2ppartnership.com) at www.masonryr2ppartnership.com

Share Your Solution

As equipment is retired and replaced, it is important to consider safer alternatives. To share your thoughts on the options mentioned or provide one of your own email: [IMI's National Training Director Robert Arnold at \[BArnold@imiweb.org\]\(mailto:IMIs.National.Training.Director.Robert.Arnold@imiweb.org\)](mailto:IMIs.National.Training.Director.Robert.Arnold@imiweb.org); or [National Safety Coordinator Mike Kassman at \[MKassman@imiweb.org\]\(mailto:National.Safety.Coordinator.Mike.Kassman@imiweb.org\)](mailto:National.Safety.Coordinator.Mike.Kassman@imiweb.org).