New OSHA Rule for Respirable Crystalline Silica

By Mason Guarino

OSHA has created new regulations for respirable crystalline silica. While this doesn't directly affect the shotcrete industry, it does indirectly affect us. As of June 23, 2017, the permissible exposure limit (PEL) for an 8-hour work period will become five times stricter. The current PEL for respirable crystalline silica is 250 micrograms; the new limit will be set at 50 micrograms. Most are familiar with the dangers associated with overexposure to respirable crystalline silica and it is very easy to access in-depth information about it at **www.osha.gov**, so this article will not cover the dangers, but will cover where it comes from, how it affects us, and what we can do to be ready for it.

Respirable crystalline silica comes from the destruction of quartz, which is a predominant component of building materials such as stone, sand, brick, concrete, mortar, and other materials that contain products manufactured from the earth's crust. We come in contact with this through the dust created by saw-cutting, grinding, jackhammering, and other forms of breaking up concrete, rock, and other construction building products. The application of shotcrete does not destroy existing components containing silica, but it does contain elements that contain mostly undamaged silica sand and many of our companies do demolition in addition to shotcrete installation.

While we do demolition work, which is often a direct contributor to respirable silica, we should also be aware that there is some in the shooting process itself. In previous tests performed by our safety company and by OSHA, respirable crystalline silica was present. It was well below the PEL at the time and is still below the new PEL; however, instead of being 10 times below the previous PEL and considered to be an ignorable amount, it is now at 50% of the new PEL. These tests were performed in a moderately ventilated area where the dust levels were also below the PEL threshold. So under normal circumstances, when we are working outdoors or in moderately to well-ventilated areas, we should be within the limits. If your jobsite has tight confines or poorly ventilated areas, some additional steps should be taken, as a lot of us already do.

When we are working in the demolition portion of our jobs, there are a number of ways to handle this. A lot of these methods are already practiced regularly with ventilation fans and respirators. If respirators are to be used, it is important to make sure your employees are properly fit tested and trained for proper use. Moving forward, more eyes will be on us doing these things the right way. OSHA first looks to see if you could have eliminated the hazard before checking to see if personal protective equipment (PPE) is being used properly. Ways to eliminate the hazard include using water to suppress any dust, using tools that have vacuum attachments to capture the dust, using equipment to better ventilate the working area, and isolating the work area to protect others working in the same area. Water and vacuums are self-explanatory and, when demolition work is being performed, should always be used in one way or another. Equipment manufacturing companies use many different ways to adapt water or vacuums for a wide variety of demolition tools.

Making safety equipment easy to use is a good way to keep your employees safe. Using a small tool, such as a 4.5 in. (115 mm) grinder, creates a significant amount of dust, but a 0.75 in. (19 mm) garden hose or 2 in. (50 mm) shop-vac hose aren't necessary to suppress the dust it creates. Small air compressor hoses or other small tubing can easily be adapted to add a small amount of water to the cutting area to control the dust while being much more easily maneuvered than a 0.75 in. (19 mm) garden hose. Additionally, smaller suction lines can be fitted to a shop-vac to contain the dust. Both of these tricks can be used with a number of different tools. Making dust control easier will make it more likely your

Fig. 1: This image shows an asbestos-like containment room to contain concrete repair work to its own area so that other trades could safely work around them

employees will use them. Containment also helps manage this work. If your jobsite is indoors in one part of a building and there are other trades in the area, it is your responsibility to contain the dust produced by your work and not make a carpenter's work area hazardous due to your dust. This goes for demolition and the shotcrete placement application. I have had good luck with building asbestos-like containment rooms around my work area and adding air scrubbers to them to capture any dust in the air. This creates a safer work environment for everyone on the jobsite.

Safety is important to the American Shotcrete Association and should be for you and your employees, too. Education and training is crucial in ensuring that everyone goes home safe every day and, in the case of respirable crystalline silica, continues to be able to work safely for years to come. Visit the OSHA website (**www.osha.gov/silica**) to familiarize yourself with the new regulations and the preferred ways to mitigate them.

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