



## SAFETY

### **New Silica Rule Hammer Comes Down**

*OSHA's revised rule on how much respirable crystalline silica construction workers can be exposed to is finally being enforced, putting contractors in action and worry mode.*

Tom Zind | Oct 16, 2017

With an expected enforcement date bearing down, Rob Valderrama scrambled this summer to get his employer right with the Occupational Safety and Health Administration's (OSHA's) tougher standard on respirable crystalline silica. It was a whirlwind.

“It's been a very large project for us because it's extensive in its scope, and requires you to have written and detailed exposure control plans,” says Valderrama, chief project delivery officer for Sprig Electric, San Jose, Calif. “As an electrical contractor, we're a lightweight when it comes to generating silica dust. But we still had to look at everything we do. Silica exposure now has to be addressed in injury and illness prevention plans, and it took 26 new pages to cover it in our plan.”

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When OSHA announced in April it was postponing the stricter standard's effective date — from June 23 to September 23, 2017 — Valderrama began preparing in earnest, convinced another delay was unlikely. He organized training sessions for foremen and tool box safety talks for field employees, designating “competent persons” to monitor compliance. He worked to specify new tools needed to limit exposure to silica, a naturally occurring mineral in many construction materials that is commonly kicked up and released in tiny inhalable particle form when those materials are cut or disturbed, posing what OSHA classifies as a “significant health risk.” Used to complying with California's strict worker safety rules, Valderrama found the new OSHA rule equally, if not more, demanding.

“The state has had (silica) regulations for some time, but OSHA’s new requirement has things over and above Cal/OSHA (the state’s Division of Occupational Safety and Health) like medical monitoring, surveillance, and control exposure plans,” he says. “This wasn’t new, but it’s more stringent.”

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Sprig isn’t alone. To varying degrees, thousands of other affected contractors — electrical and otherwise — have been preparing to conform to the revised standard. Despite construction industry wariness of the new rule from the outset, most probably saw the rule as a *fait accompli*, but remained unsure about the timetable and may have postponed action.



Issued in March 2016, the tougher standard slashes the permissible exposure limit (PEL) for crystalline silica. It goes from 250 micrograms per cubic unit of air ( $\mu\text{g}/\text{m}^3$ ), averaged over an eight-hour period, down to 50  $\mu\text{g}/\text{m}^3$ , and mandates a stricter monitoring and documentation regimen.

Contractors at the time were given a year to get ready, but in the spring OSHA (convinced that many remained far from compliant and operating under a new administration sympathetic to calls for less regulation) announced a three-month delay. Now though — ready or not — construction contractors must comply and are newly subject to OSHA penalties if they don’t. But less than a month in, it’s still unclear how well-prepared contractors were to meet the standard on day one, and also what OSHA’s stance will be on the timing and scope of enforcement.

Given the substantial cut in the PEL — and the extent of changes in work practices that select contractors will need to make — OSHA could take an accommodating approach, at least initially. But the magnitude of the fivefold PEL decrease also suggests OSHA has grown more concerned about exposures, and could be vigilant about enforcement.

## Routes to compliance

Compliance isn't likely to come easy. Beyond having to mitigate the risk by reducing the production of silica-containing dust and worker exposure to it, some contractors could be saddled with a host of additional duties. For heavy producers of silica dust, such as masonry contractors, those include air monitoring, detailed recordkeeping, and even medical surveillance of exposed employees. For many more, the standard could prove disruptive. It will change how routine tasks are performed, activities are documented, and communication with other contractors is handled. Beyond that, there's lingering uncertainty in some quarters about what the new standard ultimately requires and who bears responsibility as well as questions about its practicality, workability, and even its need.

While there will be rocky roads to compliance for some contractors, others, like electrical contractors whose cutting and drilling work for hole boring for anchoring and conduit runs is limited, have what looks to be a relatively straightforward, if not necessarily easy, path.

For 18 construction tasks that have the potential to produce silica in amounts above the new PEL, the standard lays out specific engineering controls, work practices, and respiratory protection guidelines that can mitigate exposure. Those tasks are referenced in the standard as "Table 1." Contractors who properly deploy the prescribed "specified exposure control methods" for the task in question are deemed in full compliance. Another option is to use "alternative exposure control methods." With this approach, contractors must use air monitoring to determine the actual amounts of respirable silica a worker may be exposed to in performing a task. If the PEL is exceeded, appropriate control methods must be used. The alternative method may be used with the 18 tasks identified, but must be used with any construction task not included in Table 1 of the standard.

Given their limited involvement in tasks that involve cutting into materials that release silica — chiefly handheld and stand-mounted drilling using impact or rotary drill types — electrical contractors may find compliance relatively easy. The **Table** shows a small subset of the guidelines outlined in the comprehensive OSHA "Table 1." This section demonstrates that handheld and stand-mounted drills must be equipped with a commercially available shroud or cowling with a dust collection system that provides at least the minimum air flow recommended by the manufacturer. The dust collection system must include a filter cleaning mechanism and be equipped with a filter with 99% or greater efficiency. In addition, the tool must be operated and maintained in accordance with manufacturer's instructions to minimize dust emissions. For more information on the entire standard, visit <https://www.osha.gov/Publications/OSHA3902.pdf>.

Electrical contractors are likely to favor the specified method, opting to fast-track compliance by employing approved practices rather than assessing employee exposure using air analysis and monitoring. Still, getting in line with the new standard — and avoiding citations — will demand changes in work processes and require diligence, attention to detail, and, like most new safety mandates, money.

## New tools

Consulting the standard's prescription for controlling silica exposure in drilling, Bill Sandvik, safety director at O'Connell Electric Co., Victor, N.Y., concluded that specially designed and equipped tools and accessories that capture and contain dust would likely be the answer.

"We're not in position to put our people in respirators, and we can comply with the standard without doing that," he says. "We've already purchased about a dozen drill devices and a half-dozen large dust extractors, and we're in the process of fielding the equipment that we're going to use."

To extract residual dust, a HEPA-filtered vacuum must be used to capture it — either alone or with the use of compressed air or a hole-cleaning kit. Also, when drilling indoors or in enclosed areas where dust can build up, contractors must provide additional exhaust. Respiratory protection is not needed if all these steps are followed.

New types of drills and vacuum attachments provide a ready way for contractors to capture and contain silica-containing dust, but tool changeovers could be complicated. In addition to the cost, issues of tool availability, manufacturer brand compatibility, and getting workers trained with and comfortable using new tools and related procedures are tangible obstacles.



Thanks to the new OSHA standard, overhead drilling tasks should no longer produce a cloud of silica dust.

Valderrama, whose firm had about 80 rotary hammer-compatible HEPA-filter vacuum attachments back-ordered with a supplier ahead of the effective date, worries about the universal adaptability of tools. There's not only the issue of potential conflicts arising from different tool brands, he says, but also corded and cordless tools/accessories having to work together.

"The tooling-up process could turn out to be a rabbit hole," he says. "If you have a lot of tools of different manufacturer origin, they may require different attachments to meet the required engineering controls. We're standardized, and all of our tools are the same make and model, but there may be other guys who will have to make some decisions about a mix of different tools and attachments that aren't in compliance."

After determining that vacuums it had for working with lead wouldn't be adaptable, O'Connell, Sandvik says, decided to purchase from a single supplier the needed new containment tools that fit around a drill. A universal device, it will accept any drill brand, eliminating the need to buy an entire family of tools specifically for that product. O'Connell also purchased hollow-stem drill bits that capture dust for situations when the other device might not work well.

"I'm impressed with the products that are out there for handling this," Sandvik says. "When you use this equipment properly, almost nothing gets out."

## Changing procedures

While the tools are generally described as user-friendly, their now required widespread and routine use could pose challenges, at least initially. Workers who may have never or only occasionally used them will have to get accustomed to regularly using them on specific tasks. It may prove only a minor hurdle, but some contractors are taking steps to make sure employees are prepared.

Kurt Hombaker, project manager with Homestead Electric, a contractor based in Ingleside, Ill., says workers have been assembled in small groups on job sites to learn about the new requirement and how to use the dust-capture tools.

"Our concern is the individual who may just be in a hurry to get something done and doesn't follow what the standard calls for," he says. "So we've assigned job foremen to roll this out in a controlled environment where workers can witness putting these tools together and using them in the actual application."

But for Homestead and many other contractors, the tools and the process of controlling dust aren't entirely foreign. Some general contractors (GCs) have required it, and some job types demand that exposure be controlled. Now, though, the requirements and the processes are more rigid and spelled out.

"We had been doing it some, especially when we worked in the IT environment where we had to use vacuum attachments," Hombaker says. "And in some others, we wouldn't necessarily use HEPA vacs, but maybe just use water for dust control."

The flip side, though, is that for many other contractors (especially smaller ones), the requirements will be completely new and possibly raise compliance problems. That will be a concern not only for those contractors, but potentially others who work alongside them.

Adrienne Graham, safety director with Inglett & Stubbs, LLC, an Atlanta-based electrical contractor, envisions scenarios where her company's work schedule could be disrupted if another contractor is falling short of dust capture requirements. She worries that smaller contractors who have not paid attention or have dragged their feet on compliance might run afoul of OSHA and be in a position to bring job-site work to a standstill.

"If there's a drywall finisher that's not compliant, my employees can't work in those areas because they'll be exposed to the hazard," Graham says. "There's been confusion about this new rule, with some contractors thinking that they'd have more time to put programs in place. This definitely takes planning, and compliance could be costly for some. There's no more pouring water from a water bottle when you're drilling into concrete."

## The role of GCs

Graham, though, expresses confidence that jobs her company takes on will go smoothly when it comes to compliance. Because the firm is a larger contractor that regularly works with good-sized GCs, she's witnessing strong awareness of the new requirements and an intent by these GCs to get all parties in line.

"The ones we work with have had systems in place, and this issue is covered in our contracts," she says. "My concern is dealing with GCs who are not requiring their subs to be onboard."

That's unlikely to be the case with any of the larger and more reputable GCs, says Lisa Capicik, safety director at Brasfield & Gorrie, a Birmingham, Ala.-based GC. Most bear the responsibility of identifying responsible parties when it comes to OSHA compliance, and have processes in place to ensure that all job-specific and regulatory obligations are adhered to by all subs. This should ensure eventual compliance with the new OSHA standard, but she acknowledges that it, like any new rule, poses implementation challenges.

Larger GCs and most medium-to-large trade contractors are close to being ready, she suspects, but "there may be some fine-tuning with a key point or two of the new standard such as managing restricted areas, finalizing employee medical clearances, managing the new tracking and training requirements with a high turnover workforce and waiting on delivery of backlogged equipment."

As with most regulations, interpretation and understanding the fine print of the silica standard as enforcement begins will be a source of concern for contractors, as will its ultimate workability.

While comprehensive, the standard isn't entirely clear on some points; Valderrama, for instance, says he's in the dark about how to safely dispose of collected dust. "We used to just dump it out. We can't do that now, but there doesn't seem to be anything that addresses that."

There's also room for concern among contractors about getting into situations where the exposure requirements become more onerous than they appear. While the standard's Table 1 that lays out specified and alternative control methodologies is precise and gives electrical contractors a straightforward road map for complying, Graham says, there's some wariness about getting into uncharted territory on jobs.

"It doesn't leave much room for error," she says. "If we can't follow Table 1 — and might be in a position where we have to do air monitoring or use respirators — we may have to determine whether we want to accept that work."

Comparatively easy or not for electrical contractors, hewing to OSHA's new rule will bring change, not all of it especially welcome — even if it promises a safer work environment.

"All in all it's a good thing, but it would be nice if it were less Draconian, and we could use state-of-the-art best practices on this without a gun to our head," Sandvik says. "What makes regulations challenging is that we have to do it right every time. The one time you don't — that's when the inspector will be there."

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## SIDEBAR: New Rule, Old Problem

OSHA's new rule on occupational exposure to crystalline silica is a new approach to a very old worker safety problem in the construction industry and others. As long as sand, concrete, stone, and mortar have been processed, tiny airborne crystalline silica particles have been an easily respirable byproduct.

Medical research early in the 20th century left no doubt that prolonged inhalation could lead to silicosis, an incurable, debilitating, and often fatal lung disease — and raise the risk of contracting other respiratory and kidney diseases (even lung cancer). The danger was apparent enough in the late 1930s for the U.S. labor secretary to convene a National Conference to Stop Silicosis.

That never happened, of course, but it did raise awareness and spawned government and industry efforts to limit worker exposure to crystalline silica that continue to this day.

There's evidence that those initiatives have reduced the occurrence of silicosis, especially in recent years, but crystalline silica is far from being suppressed. OSHA estimates that 2.2 million U.S. workers — 85% of them employed in construction — are exposed and at risk. The U.S. Centers for Disease Control and Prevention put the number of deaths from silicosis alone (either a direct or underlying cause) at 2,065 for the years 1999 to 2013.

With its new rule that pairs bolder attempts to get as much crystalline silica out of the environment as possible with better protection for workers from what can't, OSHA hopes to reduce those numbers. The agency has estimated the new approach could save nearly 700 lives a year and prevent 1,600 new cases of silicosis annually. Consensus on the new regulatory approach, though, has been hard to achieve. Construction industry interests have balked, saying progress has been made on reducing exposure and that more mandates will exact too much of an economic toll on the industry without significantly cutting risk.

National Electrical Contractors Association (NECA), part of the Construction Industry Safety Coalition that has lobbied to improve the OSHA final rule on silica to provide a workable and enforceable regulation, remains concerned because of the infeasibility of some of the new provisions.

“NECA has always supported regulations pertaining to worker safety. Our industry and others have implemented best practices, training programs, and engineering controls to reduce exposure in the workplace,” says Wes Wheeler, NECA Director of Safety. “We need to focus on what’s achievable, controllable, and offers the best protection for the entire workforce.”

Others, though, see room for improvement. Hilarie S. Warren, an industrial hygienist and senior research scientist with the Environmental, Safety, and Occupational Health Programs Office at Georgia Tech Research Institute, consults with companies on reducing crystalline silica exposure. She sees progress, but senses more can be done with smarter and tougher regulation.

“Over the past decade, more efforts have been made in all trades with variable exposures, but this new OSHA rule will kick it up a notch,” she says, adding that tougher regulations in Europe have drastically cut exposure and cases of silicosis.

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