Power Sander Does the Job

By Don Procter

Just over a year ago I wrote a column in this space about an ergonomic study on drywall contractors using tools designed to eliminate overexertion injuries caused by drywall finishing and sanding. The tests observed 11 drywall finishers using an electric Porter-Cable drywall sander on a long pole with attached vacuum. The tests were done over several months in controlled conditions at the training center of the Interior Systems Contractors’ Association of Ontario in suburban Toronto.

The objective was to determine the potential reduction of musculoskeletal injuries and dust exposure. In the trade, most drywall finishing/sanding is done manually. The work accounts for a high percentage of all lost-time injuries in the drywall trade. Back and shoulder injuries are most common. Consequently, the folks at ISCA decided to see if power tools could help its members cut down the number of injuries.

The Construction Safety Association of Ontario conducted the testing by creating two rooms coated with identical amounts of drywall compound. Finishers were randomly assigned to sand and finish the rooms, using either the power sander with attached vacuum or a manual sander on a long pole. Each finisher was hooked up to electromyography equipment to measure muscular activity while sanding, says CSAO Ergonomist Peter Vi.

Going into the study, tradespeople to be tested were skeptical about the power equipment, but after using it they were quick toendorse it. That is because despite the fact that it weighed eight pounds and the manual pole sander weighed less than two pounds, the power sander minimized stress on forearm and shoulder muscles during sanding. “It takes most of the physical exertion out of the job,” Vi explains.

Those tested also liked the attached vacuum, which substantially minimized dust exposure and cleanup. “The tests show the sanding machine with vacuum can reduce concentrations of dust by 96 percent,” says Dru Sahai, industrial hygienist, CSAO, noting workers wouldn’t require respirators while sanding when using the vacuum.

The workers were hooked up to dust measuring equipment to assess the respirable fraction (particulate that enters the lungs) of the dust. Prolonged exposure to drywall compound dust can cause eye, nose, throat and respiratory tract irritations. In worst-case scenarios, the silica particulate, a natural product in drywall compound, has been linked to causing serious health problems, such as lung cancer.

Sahai says that not all drywall compounds contain the same amount of silica—some may contain as little as 0.1 percent while others contain upward of 6 percent. Manufacturers would likely have to conduct ongoing batch testing to determine precise amounts.

The majority of the dust in the compound is calcium carbonate, not a carcinogenic but, nonetheless, a respiratory burden when inhaled over prolonged periods.

As good as the power tool and vacuum may be, the industry has yet to embrace them. One of the reasons is price—the power sander costs about $650 (all figures in Canadian dollars), and the vacuum attachment is roughly $500. “Many in the trade are self-employed, so they might not want to invest in the machine,” Vi says.

What’s more, while the power tools eliminate injuries and minimize dust cleanup time in controlled conditions, it is unknown how effective they would be on a construction site where confined space, accessibility and a host of other obstacles could negate their efficacy. That is why the CSAO, in conjunction with ISCA, hopes to embark on real-site testing next year.

ISCA in conjunction with the International Union of Painters & Allied Trades and the CSAO conducted the $59,000 study, which also included testing workers using a pneumatic drywall finishing machine made by Apla-Tech. Results are expected late this year. Watch this space for details. The study was funded through the aid of a grant provided by the Workplace Safety Insurance Board of Ontario.

About the Author
Don Procter is a free-lance writer in Ontario, Canada.