Pneumatic Finisher Tested
By Don Proctor

If you read my column in the December 2003 issue on the ergonomics of power sanders in the drywall industry (Power Sander Does the Job), then you might be interested in the results of another ergonomic study on drywall finishers. This time, the objective was to compare the muscular output required by tapers to finish a room with a pneumatic finisher versus the muscular output required to finish it manually using a hawk and trowel. The results are rather interesting, if not a bit surprising.

Seven journeyperson tapers and three apprentices were hooked up to electromyography equipment (electrodes attached to muscles) to measure their muscular activity while applying drywall compound to flat and corner joints. Conducted by the Construction Safety Association of Ontario, the controlled study was done in a 58.2-square-foot room at the Interior Systems Contractors Association’s training center in suburban Toronto.

How the pneumatic tool works is simple. Drywall compound is inserted into a hose with a trowel-like head, and then it is applied to drywall seams. For the study, a finisher made by Aplatech was used, but testers indicate that other pneumatic finishers on the market, such as Renegade Tool, would likely produce similar results.

Perhaps the most surprising result from the study was how fast tapers applied compound to the room using the pneumatic tool. On average, it took workers more than 31 minutes to apply compound manually, while it took them only 11 minutes to apply it with the Aplatech tool, explains CSAO ergonomist Peter Vi.

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The test findings on muscular activity were equally interesting. In manual applications, the most common musculoskeletal injuries were to the back. Hand and then arm injuries were the next. Interestingly, the pneumatic equipment wasn’t necessarily less taxing on all muscle groups than manual finishing. For example, there was noticeably more stress on the right forearm and the left and right shoulders. Those results, however, don’t indicate that this higher stress would result in injury to most workers, points out Vi, noting that the Aplatech tool weighed 15 pounds when loaded with compound. A hawk loaded with compound weighed less than four pounds.

Where the pneumatic tool excelled is in the actual application of compound. Workers required considerably less force to push the compound into joints, thereby minimizing potential musculoskeletal injury. What’s more, the tool has up to a 12-foot reach, so workers don’t require benches, scaffolds and ladders to apply compound. That is a big plus because falls from ladders and benches are a sorepoint in the industry.

The study is significant because the rate of lost time due to injuries (particularly of the musculoskeletal type) is higher in the drywall trade than most other building trades. That is largely due to the repetitive muscular movements required in finishing.

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The study’s results are indeed convincing, not everyone will be sold on the pneumatic tool’s performance because the tests were done under controlled conditions at ISCA’s training center. Vi says the CSAO is applying for a grant through the Workplace Safety Insurance Board of Ontario to conduct field testing that could prove the tool’s real mettle.

ISCA, in conjunction with the International Union of Painters & Allied Trades and the CSAO, put the ergonomic study on with financial aid from the WSIB.

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