

ALBANY

Nanotechnology impacts plumbing skills

BY JASON SUBIK
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When Dan Bliven first became a plumber in 1989 he didn't picture himself dressed in a white gown and rubber gloves, with little particle-catching bags over his boots. Since the University at Albany's College of Nanoscale Science and Engineering was established in 2001, Bliven's career has changed.

"With this [nanotechnology] industry, plumbers can last longer than we used to, physically," Bliven said. "We have to use our brains more than our backs these days." Plumbers & Steamfitters Local No. 7 Business Manager Edward Nadeau said the huge influx of nanotechnology-related plumbing and pipe fitting jobs over the past six years has required his union members to upgrade skills.

"Pipe is pipe, but the procedures are different," Nadeau said.

Local 7 estimates that its members have put in more than 1 million man hours working at the NanoCollege and related high-tech job sites over the past six years, totaling approximately \$50 million in payroll and benefits. Of that work, the union estimates 330,000 hours were done using skills that local plumbers did not have prior to 2000.

When the NanoCollege was first constructed, Local 7 had to call on United Association of Plumbers and Steamfitters members from Texas to help train its members in the pipe welding and tube shaping techniques used for the complex plumbing that supports a nanotechnology clean room. Clean rooms are used to keep out all unnecessary particle contamination when scientists work with nanoscale materials and applications. A human hair is roughly 80,000 nanometers thick.

The plumbing that supports clean rooms requires "orbital welding" techniques that make welds so strong they will prevent contamination of the chemicals and gasses pumped through them. Local 7 now has its own \$60,000 orbital welding machine to train its members and apprentices for that work. Local 7 also learned skills that have made bending tubes faster for all pipe fitting jobs.

Nadeau said the new nanoplumbing skills have been learned by about 110 of its 1,049 members, placing them in an elite category of about 60,000 of the United



JASON SUBIK/GAZETTE REPORTER

Dan Bliven of Plumbers & Steamfitters Union Local 7 works with an orbital welding machine Wednesday afternoon in the basement under the "clean room" at the CESTM at the University at Albany NanoCollege.

330,000-member organization. He said the nanoplumbing skills have enabled local plumbers to market themselves for jobs around the nation.

"We've got five guys on a job in Utah right now," Local 7 Business Agent Frank Natalie said.

Bliven said he was at first skeptical of how much nanotechnology plumbing work would be available, but has since become proficient in techniques enough to accept side work from his union instructing apprentices. He said old industrial plumbing and pipe fitting jobs tended to require heavy lifting of 6-inch pipes. He said he's enjoyed trading them in for quarter-inch tubes.

"It's kept me working and provided [the opportunity to teach]," he said.

M+W Zander Regional Manager Chris Walton said his company, which is a general contractor for high-tech jobs, was teaching a clean room safety course at the Watervliet Arsenal for the last three years using a grant from New York state. He said the free training ended in April, but before that most of the attendants were plumbers.

"We taught them about the gases and chemicals that are important to the micro

taught] how to recognize different gases and chemicals and what to do if gas alarms go off or if you saw a liquid on the floor and you weren't sure what it was."

Nadeau said his union will pay its own members to train apprentices in clean room safety until the state issues another grant for a free program. He said Local 7 has 29 apprentices starting this month and will look to train more than 100 new plumbers over the next five years to replace retirements. The union is now seeking to sell its Wolf Road headquarters and move to a bigger location.

Dr. Alain E. Kaloyeros, vice president and chief administrative officer of the NanoCollege, said he thinks that the high-tech skill sets required from tradesmen to support the region's burgeoning nanotechnology industry should be supported with training programs.

"[The trade unions] are basically building what we're doing here," Kaloyeros said. "We talk about retention of skill sets in New York and how do we keep our kids, this is the type of program that will ensure we are provided with the key support we need."

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Association of Plumbers and Steamfitters' electronics industry," Walton said. "We 395-3198 or jsubik@dailygazette.net.