

TALES FROM THE BIOTECH FRONTIER

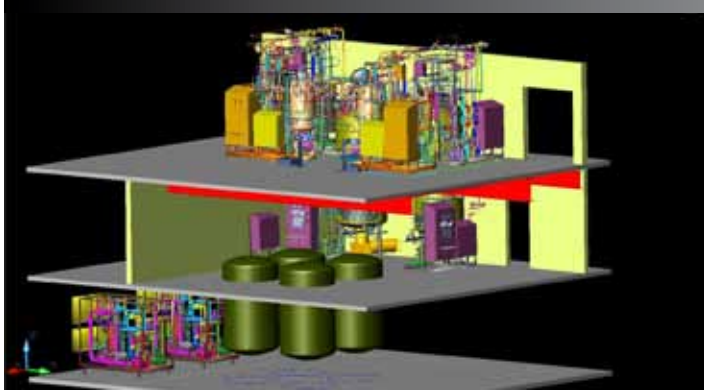
Randy Cotter, pioneer of piping systems for biotech, on creating standards in a nascent industry



No one can accuse Randy Cotter (AS, Mechanical Engineering, UC '69) of resting on his laurels. The semiretired founder of Cotter Corporation just landed a \$50,000 grant from the American Society of Mechanical Engineers (ASME) to continue his study of “dead leg” standards for process skid systems (piping systems) used in the biotech and pharmaceuticals industry.

You're probably wondering, what's a dead leg, and is it painful? It's an area in a piping system where liquid is not exchanged

during the flushing process. Bacteria can build up in a dead leg and recontaminate the piping system. Cotter analyzed the current engineering standards established to protect against this problem and found a flaw. Last year, he mocked up a piping system based on the standards and discovered it didn't work. “You can't get the air out,” he explains. “If you can't get the air out, you can't clean it.”

MANUFACTURING PROFILE**COMPANY SNAPSHOT: Cotter Brothers****FOUNDED**

1979–2001 Cotter Corporation;
2003 Cotter Brothers was founded

LEADERSHIP

Randy Cotter, Jr., *President*
Tim Cotter, *Vice President*

CAPABILITIES

- Custom-fabricated process skid systems (piping systems for biotech manufacturing)

MARKETS

Biotech

HEADQUARTERS

Danvers, Massachusetts
(8,000 square foot facility)

EMPLOYEES

60

www.cotterbrothers.com

As one of the pioneers in the development and installation of process piping systems for the biotech industry, Cotter practically wrote the book on standards at a time when none existed. So when he discovered the dead leg issue, he set to work on getting the standard changed. In March 2010, he documented his findings by videotaping his mocked-up system and posted the video on YouTube. Cotter then applied to ASME for the grant. He expects to complete the dead leg project by the end of the year.

Cotter has made a career out of creating opportunities like the dead leg project, which leverage his skills, curiosity, and unrelenting drive to solve problems. One of his first challenges was finding a way to earn a college degree. When he graduated from high school in 1962, a college education wasn't something he believed was within his reach. At that time, college was considered an elite opportunity. So he attended Wentworth Institute where he earned a certificate in mechanical design and discovered he had a knack for engineering.

Wentworth became his stepping stone to Northeastern's University College, where he earned an Associate's degree in mechanical engineering. "It took four or five years going to school nights," he recalls. "It was sort of the norm for everybody. At that time, 90 percent of people got married and had kids by the time they were 24, then bought a house and started struggling."

“You just do it. You have to have the ability to multitask, to not quit. In addition, Northeastern really taught me how to study. Before that, I struggled.” – **Randy Cotter**

University College brought a college education within reach by enabling Cotter to work full time in the Aircraft Engine Division of General Electric (GE) in Lynn, Massachusetts, while attending classes at night.

A Persistent Drive to Advance

Cotter recalls the work environment of GE’s engineering design group as a big room filled with 100 people—10 rows of 10 seats. He recognized almost immediately that advancing in this environment would be slow and unsatisfying. “I sat in the back corner because I was the last one in,” he recalls. “When the guy in the front died or moved on, everybody moved up. I couldn’t get ahead because of the way the system was.”

In 1969 he moved on, moved up, and eventually moved into a successful career in sales. After 10 years on the road selling, he knew it was time to find his next challenge. He became the New York/New England sales representative for Dimetrics, a maker of automatic welding and thin wall, small diameter tubing, just as biotech was advancing beyond its infancy in Cambridge and Boston. Thin wall tubing and piping were critical for biopharmaceutical facilities. This was the perfect opportunity for Cotter to take the entrepreneurial leap.

With \$2,500 of seed money, he founded Cotter Corporation and spent weekends painting houses while trying to sell process piping systems to area biotech companies during the week.

In the late 1980s, he landed a \$1 million contract to install 5,000 feet of processed piping for Genetics Institute in Andover, Massachusetts. A year later, when the job was completed, Cotter had installed 123,000 linear feet of piping. His company grew rapidly from six to scores of employees, and he was working 10 hours a day, six days a week. “It’s a lot of risk, a lot of aggravation, and a lot of sacrifice,” he says. “I built up a premier process systems fabrications company and did business on a global basis. Eventually, I had 100 people working for me.”

Genetics Institute was only the third plant of its type in the world. Cotter went on to install the piping for the fourth (Amgen) and fifth (Biogen) facilities of this type. At the time, there were no engineering standards for these installations. So in 1989, Cotter and eight other leaders in the industry came together and created the ASME BioProcessing Equipment Standard (ASME BPE).

Welcome Back, Cotter

By 2001, Cotter Corporation was on solid ground. It was one of only a half-dozen Process Skid Systems fabricators in the world serving the biggest names in the emerging biotech business, such as Pfizer, Johnson & Johnson, Genzyme, and Wyeth.

“Here I am going along, everything’s cool, when a guy from ITT comes to me and says I want to buy your business,” recalls Randy Cotter, founder of Cotter Corporation. He wasn’t looking to sell. But ITT said they would be opening an operation in Boston. After initially declining the offer, Cotter became concerned that a conglomerate the size of ITT could quickly put him out of business. So six months later, he called ITT to work out a deal. The deal was supposed to bring job security to Cotter, his three sons, and the company’s employees. But two years later, ITT and Cotter parted ways. His three sons decided to leave and start their own company, Cotter Brothers.

Three years later, ITT closed the business and laid off 600 people. Cotter Brothers moved back into the original Cotter Corporation building, remodeled the facility, and rehired 80 percent of the employees from the original company. “Customers came back and supported everything we were doing because they wanted a competitive industry,” says Cotter. “My sons have built it up a second time around, again making it a premier company.”

When asked how he was able to execute such sophisticated installations without the benefit of any standards, Cotter replies, “You just do it. You have to have the ability to multitask, to not quit. In addition, Northeastern really taught me how to study. Before that, I struggled. I was not an A student for sure. It disciplines you. You just don’t know it until 20 years afterward.” □

In his semiretirement, Randy Cotter continues to consult in the industry. He chairs the ASME BPE steering committee and is a member of the main committee. Cotter is also an active member of the International Society of Pharmaceutical Engineers (ISPE).