

PROJECT SNAPSHOT

- The designers of Muskogee Community Hospital sought to create a facility that minimized energy consumption and maximized operational savings
- Lubrizol CPVC piping systems, a safe, efficient, sustainable alternative to copper and steel, was used for the project
- Hospital construction was completed on time and received multiple environmental recognitions thanks in part to the easy installation of Lubrizol CPVC products



MORE INSIDE™ :: LUBRIZOL'S CPVC PIPING SYSTEMS PART OF LEED® GOLD AND EPA ENERGY STAR® —CERTIFIED MUSKOGEE COMMUNITY HOSPITAL

Muskogee Community Hospital, located in Muskogee, Okla., earned a unique distinction in 2009 when it became the first hospital in the world to achieve LEED® Gold certification, the U.S. Environmental Protection Agency's (EPA) ENERGY STAR® recognition for superior energy performance, and compliance with Green Guide for Healthcare (GGHC) standards—an accomplishment made possible by adherence to sustainable building practices that resulted in sizable energy savings and lower maintenance costs.

To earn these prestigious recognitions, Muskogee Community Hospital adopted a wide variety of energy-saving features into its design, including an expansive geothermal energy system, daylight-maximizing workspace positioning, native plants and trees to mitigate heat island effects, daylight harvesting systems with clerestory windows and light shelves, occupancy sensors and photocells to control lighting, and other energy-efficiency building materials.

FLOWGUARD GOLD
PIPE & FITTINGS

BlazeMaster
FIRE SPRINKLER SYSTEMS

CORZAN
INDUSTRIAL SYSTEMS

TempRite



Also important to meeting the hospital's goals was the choice to construct piping systems from Lubrizol CPVC piping technologies. All of Lubrizol's CPVC piping compounds, including the FlowGuard Gold®, BlazeMaster® and Corzan® brands, are excellent alternatives to copper or steel in plumbing and fire protection systems. With few exceptions, such as the mechanical room which is required by code to be plumbed with metallic pipe, Lubrizol technology was used throughout the hospital's plumbing system, and BlazeMaster piping composed the facility's fire sprinkler system.

According to hospital President Mark Roberts, "When it came to choosing materials for the plumbing and fire sprinkler systems, we didn't have to run the numbers side-by-side; the financial benefits afforded by using these CPVC products were obvious when you considered both the material and labor cost savings. Lubrizol CPVC piping materials simply delivered the best value, and we were pleased to discover they were approved for use by local building codes and the Oklahoma State Department of Health."

Lubrizol CPVC compounds have a number of environmental advantages over other piping material options, too. "The consultants on the project who guided the LEED and ENERGY STAR-compliant design of the hospital had no objections to the

use of CPVC," explained Roberts. "It has a relatively low petroleum content compared to other plastics and is produced using a very energy-efficient process, unlike the manufacture of metallic piping systems." A recent life-cycle analysis of BlazeMaster Fire Sprinkler System piping and steel piping also documented that BlazeMaster piping contributed much less than steel with regard to many environmental degradation factors.

President Roberts felt strongly that Lubrizol CPVC compounds had a number of additional advantages over copper, specifically. "I knew we wouldn't use copper," Roberts reflected. "It costs too much, is prone to job site theft, takes too long to install, has a short, limited warranty and the joints frequently fail—something I've experienced personally. The joining process used for Lubrizol CPVC pipe and fittings is highly reliable, though; we have had no problems with the piping systems that use Lubrizol products since the systems were installed several years ago."

Material impacts on health and safety are key considerations in any hospital construction, and FlowGuard Gold, BlazeMaster and Corzan piping systems score high marks in this category. Multiple international studies document the superior antimicrobial performance of CPVC when compared with most other piping materials, and it outperforms nearly every other material with regard to its ability to resist biofilm formation. Lubrizol CPVC piping also offers superior flame and smoke characteristics—it does not support combustion thanks to a high limiting oxygen index, which is why it is even approved for use in return air plenums.

Lubrizol CPVC piping also offers notable operational benefits as compared to alternative piping materials. These benefits include reduced noise—four times less flow noise than copper—and virtually no water hammer as confirmed by NSF International testing, no adverse effect on the taste or smell of drinking water due to leaching and the best resistance to absorption of disinfectants used in water treatment when compared to copper, high-density polyethylene (HDPE), epoxy-lined and cross-linked polyethylene (PE-X) piping as confirmed by the Civil and Environmental Engineering Department of Virginia Polytechnic Institute and State University.

Timing was a key factor in making the final decision about which piping material to use in the hospital's plumbing and fire sprinkler systems, as the hospital was partially financed by new market tax credits that came with certain deadline constraints. "We were very focused on speed," Roberts explained. "The solvent cement joining system used in Lubrizol CPVC piping systems is not only reliable, but faster and easier than soldering metallic pipe. For this reason, we were able to finish construction on schedule without a problem."

"I can honestly say that the decision to use Lubrizol products for our plumbing and fire sprinkler systems was one of the easiest ones I had to make during the construction project," Roberts stated. "It was a no-brainer—the value was obvious. From my standpoint, it is amazing that anyone would build a hospital or other facility any other way."



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Hospital President



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