

CASE STUDY

HIGH-PROFILE \$220 MILLION DEVELOPMENT PROVES CPVC CAN HANDLE ADDITIONAL DEMANDS OF HIGH-RISE CONSTRUCTION WHILE REDUCING INSTALLATION TIME & COSTS

Steven Feller P.E., Inc.

Fort Lauderdale, Florida

Established: 1979

Fort Lauderdale's Prestigious W Hotel Converts to FlowGuard Gold® and Corzan® CPVC Pipe & Fittings; Utilizes BlazeMaster® CPVC Piping for Fire Sprinkler Systems

A lot can change in the building industry over five years—especially prices. The owners of The W Hotel and Residences in Fort Lauderdale discovered that harsh reality after five years of construction delays due to permitting issues and redesigns. When construction finally did move forward in 2005, the owners were presented with new budgets as the result of skyrocketing material costs.

"The copper piping alone had increased several hundred percent during that time," said Mike Torrey, head of the plumbing department at Steven Feller P.E., Inc, the engineering firm responsible for specifying materials and design for the new hotel.

"So when the contractor suggested we look at other materials, CPVC was the first choice, because we were already familiar with many of its benefits, including its corrosion resistance, noise reduction and, of course, its tremendous cost savings," said Torrey.

Driving the decision to substitute materials was Miami-based mechanical contractor Fred McGilvray, Inc. (which also has offices in Fort Lauderdale). Project Manager Bill Brooks noted that filing a substitution request is becoming a lot more common practice these days in light of record-high copper prices. "There's no reason not to use CPVC," said Brooks. "It's just that so many firms have gotten complacent with their use of copper that it took outrageous copper prices to force more people to look at alternatives. The FlowGuard Gold® CPVC product is a sound product. It lasts a long time and it's easier to install. I have always been a fan of copper, but even have CPVC in my own home."

Brooks elicited help from the area FlowGuard Gold/Corzan pipe and fittings technical representative in making his case for CPVC to Torrey.

"My preference would be to use CPVC a lot more often because of its cost and labor benefits," said Brooks. "The engineering firms would probably specify it more often if they were more familiar with it. Now, with copper prices out of sight, a lot more people are being forced to pay attention to alternatives."

Torrey's firm already had experience with FlowGuard Gold® CPVC pipe and fittings for a number of other low- to mid-rise condominium projects less than 20 stories. But The W Hotel marked the first time the company had specified nearly an entire project – risers and branch lines – with FlowGuard Gold and Corzan pipe and fittings for a large, high-rise project.

The W Hotel and Residences, scheduled for completion in 2008, actually consists of two-23 story towers on top of three pedestals. The East Tower is a 346-room hotel. The West Tower includes 171 luxury, one- and two-bedroom hotel condominiums. The entire development, located on a 4-1/2 acre site on Fort Lauderdale Beach, is estimated at \$220 million. Upon completion, the two-tower complex will include two heated swimming pools with a separate deck off the pool that leads to a luxurious 10,000-square-foot destination spa and fitness facility.



"We had always used copper in the past on projects over 20 stories, because we were unsure if CPVC could handle the higher pressures," said Torrey. But working with the FlowGuard Gold/Corzan field representative and technical department, Torrey and his team learned that CPVC pipe and fittings routinely handle pressures of 250-350 psi and above.

FlowGuard Gold pipe is produced (1/2" through 2") in SDR 11 dimensions with CTS (Copper Tube Size) outside diameters. SDR, or Standard Dimension Ratio, means the wall thickness is directly proportional to the outside diameter. This results in all diameters carrying the same pressure rating of 400 psi at 73°F. Corzan pipe is produced in schedule 40 and 80 systems with IPS (Iron Pipe Size) outside diameters. This results in the pressure capability varying with the size of the pipe. For example, 8" Schedule 80 CPVC pipe is rated for continuous service of 250 psi at 73°F while 3" schedule 80 CPVC pipe is rated at 370 psi at 73°F. All CPVC pressure ratings incorporate a safety factor of two.

"After reviewing all of the technical data, we decided that FlowGuard Gold and Corzan CPVC were smart alternatives," said Torrey. "And of course, the hotel's owner didn't have a problem with the change, especially once he saw the new budget numbers and heard about the product's successful track record."

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Type of Construction:
Hotel

Installation Type:
New

CORZAN®
PIPING SYSTEMS
FLOWGUARD GOLD®



The labor savings alone represented a significant cost reduction. Torrey estimated labor time to be about a third of what a typical copper installation would take as a result of the faster, easier installation process. Unlike copper, CPVC does not require soldering. A solvent cement joining system creates a reliable bond within minutes. "Our contractors really liked the fact that they didn't have to solder, because that eliminated a major fire risk and other hassles," said Torrey. "We were immediately attracted by the reduced labor requirements. That was years before copper prices started going through the roof. With current prices, the material savings afforded by switching to Corzan and FlowGuard Gold CPVC are amazing."

CPVC was first used in southern Florida primarily for fire protection. In fact, BlazeMaster® fire sprinkler systems, which utilize the same CPVC compound technology as the FlowGuard Gold and Corzan systems, were also installed by McGilvray's team in the W Hotel. According to Keith Hansen, the construction manager overseeing the installation of the fire sprinkler systems for McGilvray, his company has been installing BlazeMaster CPVC piping for the entire 16 years he has been with the company.

"We found it to be a major competitive advantage, even before steel prices went through the roof," said Hansen. "It's faster to install, cleaner and easier, especially in high-end condos where space is limited for the placement of sprinkler pipe."

For McGilvray, one of the largest mechanical contractors serving Florida and the Caribbean, not any CPVC fire sprinkler system would do. "For as long as we've used CPVC, we've been installing only BlazeMaster systems," said Hansen. "They were the first ones to introduce CPVC to this market, and that means they know what they're doing. We've heard stories from people who have tried other CPVC systems, but there were problems with performance and reliability. We consider ourselves a type A contractor, so that type of inconsistency is just not acceptable. We have never had any problems with the BlazeMaster fire sprinkler system. So for us, it's an easy choice to keep using it."

Although cost savings was the initial attraction for switching to a FlowGuard Gold/Corzan water distribution system for Torrey, he soon realized a number of other benefits over copper. "Noise is really no longer an issue, because CPVC is more forgiving," Torrey explained. "It actually absorbs water hammer." An NSF International test, in fact, confirms that FlowGuard Gold CPVC piping systems are actually four times quieter than copper piping systems.

Corrosion resistance is another major advantage of using CPVC. Although the problem is not as severe in southeast Florida, Torrey is quite familiar with its damaging effects on copper pipe in projects located in northern Florida markets, especially Jacksonville.

With 50 engineers on staff (ten of which are in the plumbing department), Steven Feller P.E., Inc. organized in 1979, is one of the largest engineering firms in Southern Florida and works extensively throughout the state, as well as surrounding states. In Southern Florida specifically, nearly all of the design work for high-rise condominiums is done by Steven Feller. The firm is also responsible for much of the work on the island hotels and those on the west side of Florida in areas such as Naples, Ft. Meyers and Bonita Springs.

Torrey has been with the company for 25 years and has seen a lot of repeat and referral business. "The difference I see today is much more pressure to control the budget and use materials that are manufactured in the U.S. In addition, we are committed to using products known for high quality and high efficiency."

Torrey's experience with the FlowGuard Gold CPVC product dates back nearly five years. "Early on I actually attended FlowGuard Gold CPVC University in Cleveland to get hands-on experience with the product," said Torrey. "I was extremely impressed with what I saw and heard regarding the product's long history and the numerous tests it has undergone."

Since then, FlowGuard Gold/Corzan technical field representatives have visited Feller's offices several times to conduct *Lessons Over Lunch*™ sessions as a means of familiarizing more engineers with the benefits of CPVC. Such familiarity helps to build the team's confidence in the Corzan and FlowGuard Gold products, which is especially important for a high-profile project like The W Hotel and Residences.

"I see a lot of potential with this product, especially because of its ease of installation," said Torrey. "As engineers, we look for inventive methods and solutions to maintain the integrity of the design, comply with applicable codes and work within specified budgets. The Corzan and FlowGuard Gold CPVC plumbing systems fit well within that philosophy. They definitely are a part of our future."

Since Lubrizol Advanced Materials, Inc. (as part of BFGoodrich Performance Materials) developed CPVC plumbing systems over 50 years ago, more than four billion feet of CPVC pipe has been installed in homes, condominiums, buildings, apartments and hotels, including more than 12 million homes. For more information on the FlowGuard Gold® plumbing system, including pipes, valves, joining cement, caulks, sealants and tools, call 888-234-2436, x447-7393, or visit www.flowguardgold.com.



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