

# CASE STUDY

AWARD-WINNING CUSTOM BUILDER  
SOLVES AGGRESSIVE WATER AND NOISE  
PROBLEMS WITH HIGH-PERFORMANCE  
CPVC PLUMBING SYSTEM

## Four Square Builders

*Sandy Hook, CT*

*Established: 1986*

### Four Square Builders Selects FlowGuard Gold® CPVC Pipe & Fittings as Primary Plumbing Material for Multimillion-Dollar Homes in the Northeast

For award-winning custom homebuilder Four Square Builders, what's behind the walls of a home is as important as what's in front. So the company continually seeks to incorporate high-performance materials, even for parts of the home that homeowners may never see, such as the plumbing system. To ensure consistent quality throughout its homes, one of the signature building products Four Square Builders has come to rely on is FlowGuard Gold® CPVC pipe and fittings.

Since 1986, Connecticut-based Four Square Builders has earned a stellar reputation in the northeast for building luxury custom homes based on a solid foundation of delivering on promises. In building these homes that value as much as \$3 million, Four Square Builders President Neal Berko described the company's approach toward each project as being "meticulous, careful and honest." That translates into using only products that bring value to a property – both those items you can see and those behind the walls – including FlowGuard Gold® plumbing systems.



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"We build very expensive homes using only state-of-the-art materials. Our houses have won awards not just because they're pretty, but because we use high-performance building products and push them to the peak of their abilities," said Berko. "That's why we use FlowGuard Gold® CPVC pipe and fittings. We don't use the system

because it's less expensive than copper, although it does save us money; we use it because of its superior performance characteristics."

### System Appeases the Senses

Four Square is somewhat of a pioneer in the northeast in that it was one of the first of a growing number of companies in that region to have adopted CPVC as their primary plumbing material. While CPVC has more than 40 years of proven performance, Berko first began evaluating FlowGuard Gold® pipe and fittings while trying to solve the corrosion and water quality problems generated by aggressive well water. The water caused rapid corrosion in copper systems causing a strong metallic taste in the water. FlowGuard Gold® CPVC pipe and fittings, however, will never corrode, pit, or scale which means elements will not leach into the water. That also means that there is a significant reduction in the risk of callbacks, premature failures and costly re-piping.

"We found that with FlowGuard Gold® pipe and fittings, you get absolutely no metallic taste. That's one of the biggest reasons we use this system," said Berko. "When you have standing water in copper, it picks up the taste of the pipe, but with FlowGuard Gold® pipe and fittings, there is no aftertaste. The water maintains the same quality as it travels through the pipes to the faucet as it did when it entered."

As a luxury homebuilder, Four Square Builders was also concerned about reducing noise levels, including water hammer, which is the banging sound that is common with copper pipes. Water hammer is caused by pressure fluctuations that develop in a pipe when the water flow is suddenly changed. CPVC as a thermoplastic has the ability to expand slightly and absorb some of the energy noise. Since the CPVC material used in the FlowGuard Gold® system can absorb more noise than copper, the maximum theoretical shock wave is lower, which means it significantly reduces (or virtually eliminates) water hammer. In fact, in May of 2001, NSF International conducted testing designed to compare noise levels of FlowGuard Gold® CPVC pipe and copper pipe. NSF International test results concluded that, as the human ear interprets sound level, FlowGuard Gold® CPVC pipe was four-times quieter than copper pipe.



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**Type of Construction:**  
Residential –  
Single Family

**Installation Type:**  
New

**FLOWGUARD GOLD®**  
PIPE & FITTINGS  
**NOT A DROP OF DOUBT.**

# FLOWGUARD GOLD®

Further reductions in the potential for noise come by the way of proper installation. FlowGuard Gold® pipe and fittings should be supported with smooth straps or hangers that provide appropriate added space to allow for movement associated with normal expansion and contraction. Tightly anchoring pipe to supports or risers will only restrict movement and intensify even the most minute sounds generated from these fluctuations.

"FlowGuard Gold® CPVC pipe and fittings are very quiet when they expand," said Berko. "We experience absolutely no noise as opposed to copper, which is very noisy when it expands and contracts, especially with hot water.



Olson Photographic, LLC

"On the subject of hot water, FlowGuard Gold® CPVC pipe and fittings also maintain temperature well, so hot water stays hotter and cold water stays colder than in copper systems," said Berko. "Copper gives off heat very quickly, so it loses and gains where CPVC maintains."

## Spreading the Word

According to Berko, when Four Square Builders first began using FlowGuard Gold® CPVC pipe and fittings, he expected to have to overcome initial objections from his customers. Those objections were never voiced. But Berko did have to convince Steve Plotkin, owner

of Steve's Plumbing, of the product's performance capabilities when he began working with the company.

"I was reluctant to use FlowGuard Gold® CPVC pipe and fittings because I had never worked with the product before," said Plotkin. "Now I thoroughly enjoy installing the system. It's faster to work with because the pipe and fittings only require simple hand tools and they use a one-step solvent weld for the joints instead of torches.

"Because they are naturally corrosion resistant, I think FlowGuard Gold® CPVC pipe and fittings are perfect for homes with wells and, compared to copper, they really deliver a very quiet system," he said.

According to Berko, his fellow builders have been slow to accept CPVC plumbing in the northeast simply because of a general lack of knowledge about the product. But, in his role as vice president of the Fairfield County Home Builders Association, he's doing his part to help spread the word.

"Builders install copper as a matter of tradition. That's what has always been used," said Berko. "In addition to homebuilding, I've also been in the pipe business for 20 years, which means I'm very familiar with all of the materials that are available. CPVC has been around for a long time, so I know what it's capable of. I try to share that with the members.

"FlowGuard Gold® pipe and fittings are good products. I believe in them," said Berko. "They're tried and true. When I believe in something, I always stand tall behind it."

Since Lubrizol's development of CPVC plumbing systems over 45 years ago, more than three (3) billion feet of CPVC pipe has been installed in homes, condominiums, buildings, apartments and hotels, including twelve (12) million homes. For more information on the FlowGuard Gold® plumbing system, including pipes, valves, joining cement, caulks, sealants and tools, call 1-888-234-2436, X7393, or visit [www.flowguardgold.com](http://www.flowguardgold.com).

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