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LIKE IT OR NOT, TECHNOLOGY CONTINUES TO TRANSFORM OUR TRADE

I just don't get it.

Maybe if they had a high-tech moniker, like NexVent or Airion. Maybe if they were made of heavy brass stock and cost a hundred bucks or more. Maybe if they were more complicated than an RPZ. Maybe then people would accept them.

Instead, the air-admittance valve industry gets unfairly bashed on a regular basis. The unspeakable crime—daring to offer simple, reliable, and affordable technology to the plumbing masses. What a country!

No matter that AAV manufacturers have spent considerable time and tremendous sums of money navigating the approval maze. No matter that AAVs have amassed a track record of 30 years and millions of installations both here and overseas. No matter that AAVs have been accepted by most of the model codes, including the International Plumbing Code, or that they carry a lifetime warranty.

Some people just don't like them.

Much of the ill will can be traced back to its ignoble predecessor, the ProVent. The black ABS imposters were developed in the 1960s. They were used extensively in mobile homes as a substitute for through-the-roof venting. ProVents were true mechanical devices that relied on a flimsy rubber diaphragm attached to a spring for maintaining the seal. They didn't work too well.

Air-admittance valves are entirely different creatures. Instead of a spring, an AAV relies on the most basic of physical forces—gravity—to maintain its seal. The high-tech membrane is extremely durable and resistant to chemicals. AAVs must comply with ASSE 1051, which calls for a battery of rigid tests, including a 500,000-cycle test at extreme high and low temperatures.

I feel like screaming whenever I hear plumbers refer to air-admittance valves as "ProVents." It's a sure sign that confusion still exists in the field.

THEIR TURN IN THE BOX

As I look back on my years in the trade, I can recall plenty of new stuff that raised hackles at first. For example, I remember my very first no-hub job back in the mid-1960s. The old-timers complained that no-hub clamps sucked because the pipe still wobbled back and forth. But as a young helper, I liked no-hub cast iron for one simple reason—it was lighter than bell-and-spigot!

So I was really happy a couple of summers later when the first load of PVC hit the job site. Why did plumbers make the switch so quickly from lead pots to glue pots? That's simple—plastic pipe proved cheaper, lighter, easier, and faster.

Enter the socially conscious 1970s, as plumbers got their first taste of wheelchair accessibility, affectionately known as the "handicapped code." The tape measure ruled, and plumbers were busy busting up

floors and walls, moving toilets, and lowering urinals. The '70s also gave us the energy code, and the first generation of water-conserving plumbing fixtures. Remember those controversial toilets that flushed on a mere 3 ½ gallons?

In the 1980s, ASTM E814 ushered in the firestopping era. Plumbers were no longer permitted to stuff holes with cement bags and mud them up. We struggled through a muddled mess of UL systems, fire collars, intumescent caulks, and silver tape.

The 1990s will likely be remembered as the decade of the 1.6 gpf water closet, anti-scald valves, and the consolidation of the codes. And air-admittance valves.

Plumbers have learned to adapt to all sorts of new materials and methods over the years. Technology continues to transform our trade. First we gripe, then we tolerate, finally we embrace. Plastic pipe, accessibility, firestopping, low-flow fixtures—as controversial as they once were, are now accepted as progress. Maybe it's just AAV's turn in the box.

In today's tight labor market, can you imagine trying to find workers willing to lug around heavy cast iron pipe, handle molten lead, and eager to smack their thumbs with a ball peen hammer?

Like it or not, air-admittance valves are here to stay. They have gained tremendous popularity throughout the country. It's funny—the plumbers who have used AAVs tend to like them, and those who haven't tend to hate them. I have never seen a product that was the subject of so much prejudice and misunderstanding.

JUMPING IN WITH BOTH FEET

Let me tell you about my personal experiences with AAVs. My good friend Gary Duren introduced me to them back in 1990. "Check this out, bud," Gary quipped. "I'm telling you, this little gizmo is gonna turn plumbing on its ear!"

Gary described how the valve worked. As the drainage system needed air, like when a fixture drained, the diaphragm lifted up a wee bit. It closed by gravity when the system no longer needed air. That's all there was to it. He said that they were rapidly gaining acceptance in the codes, and that I might see an opportunity to use them.

It just so happened that I was involved in the early stages of a new apartment project. The layout was pretty awkward and labor-intensive, with a lot of offsetting and revents from floor to floor. Firestopping all of those vent penetrations would be costly. I thought to myself, "This would be a perfect job for those whatchamacallit vents."

Back then, AAVs needed to be part of an engineered system. But by a stroke of luck, I had worked with this owner and engineer on previous projects, and they were quite receptive, especially when I projected a

(continued on page 34)

(continued from page 33)

cost savings of over \$45K. They let me redesign the plumbing using AAVs.

But there was still the plumbing inspector to deal with. By more good fortune, the project was being built in my hometown, where I enjoyed a good working relationship with the inspector. I gave him a sample valve and a big stack of paperwork. When I called him back the next day, he chuckled and said, "Hey, babe, if the code allows it, and the owner okays it, go for it. It's your butt on the line, not mine."

Long story short—we installed over 1,700 AAVs on that project. We vented kitchen sinks with them. We vented washing machines with them. We vented bathroom groups with them. A typical two-story, 12-unit building had just two 3-inch VTRs, and 46 air-admittance valves. Talk about jumping in with both feet!

We had only one AAV-related callback on the entire project. A kitchen sink made a gurgling sound as it drained. Upon investigation, we found that there was a main line blockage downstream, and that this gurgling sound was actually an early warning. We were able to clear the blockage (construction trash) before it created bigger problems.

In 1998, the AAV manufacturer contacted me about getting their hands on some installed devices for testing. Did I know of any old jobs where they might find some?

"Sure," I said. "I know just the place. Our very first AAV job is right down the road. It's been done for over six years. How many do you need?"

I paid a visit to the apartment project's maintenance supervisor and asked for permission to remove a few of his AAVs for testing. To my surprise, he didn't even know what I was talking about. "You know, it's those little white things underneath the sinks," I explained. "They vent the plumbing fixtures. Surely by now you've had to replace a few."

Nope, he said. In his six years there, he couldn't recall any complaints. He gave us permission to remove a few random samples. We sent them back to the manufacturer, who conducted a series of tests on them. The valves still checked out good.

Since that earliest experience nearly a decade ago, my company has gone on to install well over 20,000 air-admittance valves, mostly on single-family homes. In my market, virtually every house has at least one AAV.

Their increasing popularity is partly due to the changing styles of today's homes. Island sinks are everywhere. Tall ceilings and pot shelves make venting through the roof not only difficult, but in many cases, unsafe. I get nervous watching my guys crawling around in the rafters running stacks through the roof.

Many new homes today have kitchen sinks that are centered on a window. Often, there is a column or poured cell on either side of the window, making it impossible to run a waste arm from either side. AAVs offer a simple and inexpensive solution.

On multi-family work, firestopping is a big deal. The prudent use of AAVs can minimize floor-to-floor penetrations and tie-backs, lowering the costs associated with firestopping.

GAMES PEOPLE PLAY

Most of my customers like AAVs. They like the idea of fewer roof penetrations, and they appreciate the labor savings. If a builder balks, it is usually because he doesn't understand them. It is very easy to fall victim to the prevailing attitude that AAVs are just cheap mechanical substitutes for real plumbing. Sitting down with the builder usually sets things straight.

Even inspectors have warmed up to air-admittance valves. Sure, there are still a few dinosaurs roaming around, but most inspectors today are pretty open-minded. It's usually the old-timers—plumbers

and inspectors both—who resist change.

However, if your local inspector doesn't like air-admittance valves, you could be in for a rough ride. I've had inspectors tell me that they are only permitted on true island vents (they're not), that you cannot vent water closets or bathroom groups with them (you can), or that they must terminate above the flood level rim (they don't).

I know of one ugly incident where the plumbing inspector remarked to a builder that, in his opinion, air-admittance valves were "inferior products," and really shouldn't be used except as a last resort. The builder then told his plumber that he doesn't want any more AAVs on his project, and that he had better not make any waves with the building department because he wants his project to go smoothly.

This inspector improperly interfered with a contractor/client relationship. By letting personal prejudices get in the way of enforcing the code, this inspector is inviting a lawsuit. And the poor plumbing contractor is caught between a rock and a hard place.

Another frequent tactic aimed squarely against AAV proliferation is, "Well, sure, you can use them, but they have to be shown on the plans!" We all know what a pain it is getting a plan revision.

My response usually is, "Why do AAVs need to be shown on the plans? Can you name for me any other code-approved material or method that must be on the plans in order for me to use it? If I want to use CPVC instead of copper, does it have to be shown on the plans? If I use ball valves instead of gate valves, does it have to be shown on the plans? If I add a hot water circulating system, does it have to be shown on the plans?"

The only plumbing information to be found on most house plans is some goofy riser diagram that nobody pays attention to. For the life of me, I can't figure out why it is even there. Yet some cities are positively anal about riser diagrams. Let plumbers plumb and let inspectors inspect, I say.

Anyhow, you get the picture. The inspector is just looking to make things harder, hoping the plumber will say, "Screw it. I don't have time to change the plans. I'll just take the doggone vents through the roof." (Curiously, if the plans happen to show an AAV, but the plumber decides to vent it through the roof, that never seems to be a problem.)

It is sad to see an inspector throw his weight around to indulge his own biases. When a public official discourages the use of proven new technology in the marketplace, the public is the real loser.

The choice of a particular material or method is best left up to the owner and his contractor, as long as it complies with the code. An air-admittance valve is nothing more than a fully approved alternative to a vent through the roof. No sizing changes or redesigning is necessary. As long as there is at least one main vent through the roof, everything else may be AAV'ed.

You can probably tell by now that I like air-admittance valves. From my 10 years of experience with AAVs, I can tell you unequivocally that they work. I wish everything else in the plumbing system worked as well. My company's AAV replacement rate is insignificant, about one per every 1,500 valves installed. Few plumbing products can measure up to that reliability.

Like any other product, AAVs have their limitations and must be installed properly. They do not relieve positive pressure, which is really only a factor in taller buildings. The code does not permit the venting of multiple floors (stack venting) using AAVs. Most of the unflattering AAV stories going around are the result of the product being misapplied.

The code does not require the use of air-admittance valves. If you don't like them, you don't have to use them. Likewise, the code does not require the use of cast iron pipe, Type K copper, or cast brass p-traps. The code offers choices, for the owner, for the designer and for the competition.

The choice is yours. ■