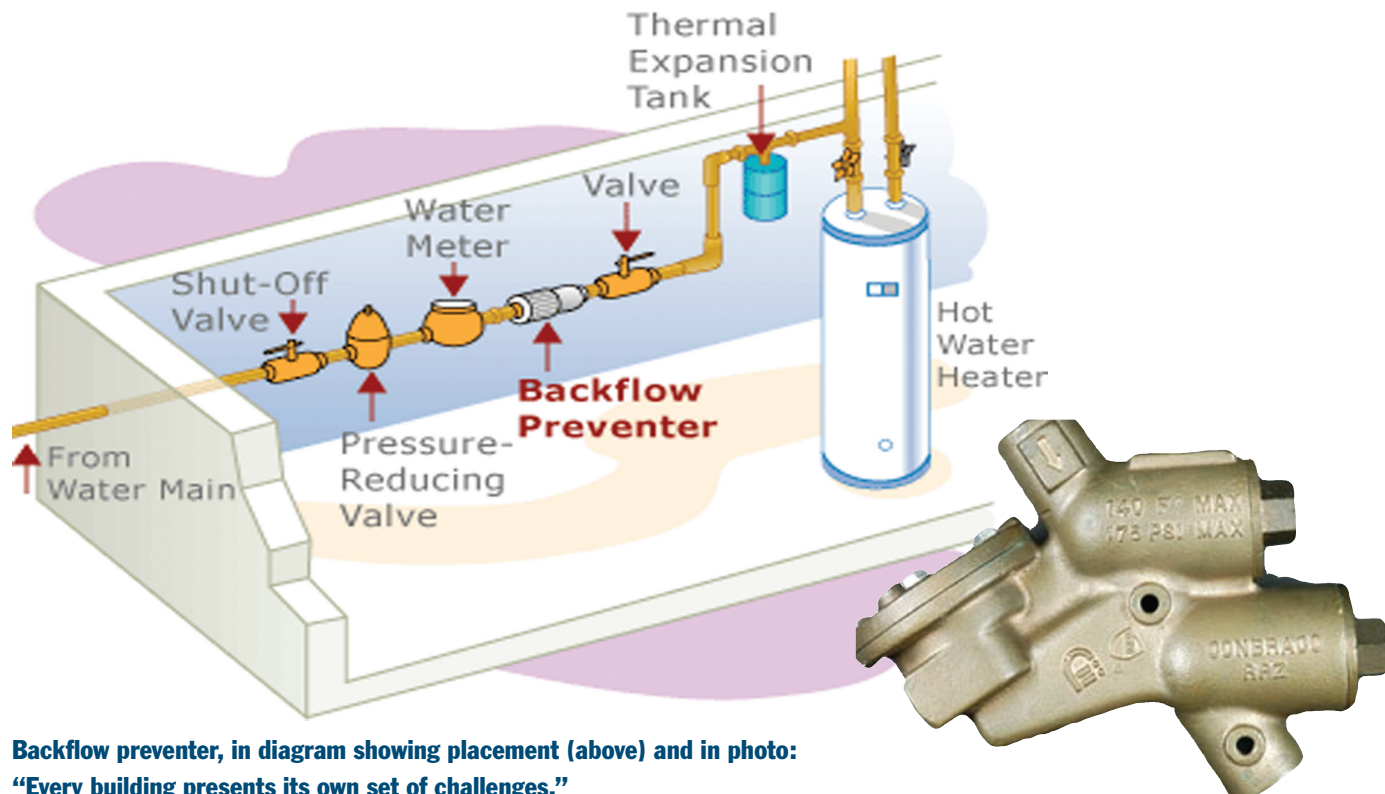


# Backflow!

*A new initiative by the city will protect what you drink – but will require expensive water containment devices.*

*By Tom Soter*



**Backflow preventer, in diagram showing placement (above) and in photo: “Every building presents its own set of challenges.”**

PAUL PADDOCK HAS NEVER worked so hard. A former managing agent, the 30-year veteran plumber says: “I have to make myself stop. I am busier than I ever imagined I would be.”

The cause of his excessive workload is a device called a backflow preventer. Indeed: it is the talk of many among the real estate community. “A month or so ago, I asked a plumbing company to come in here and talk to all my account executives about backflow,” reports Harry Smith, vice president at Gumley Haft. “I wanted to educate them.” Adds Don Levy, vice president at Brown Harris Stevens: “The situation is all brand new. It was only a few months ago that this [new concern] started.”

Everybody’s talking about backflow preventers because – after a long period of what has apparently been lax enforcement – the Department of Environmental Protection (DEP) has been cracking down on violators of a 1980 law requiring backflow preventers in most commercial and residential buildings.

“Even though the law has been on the books for years, it was only recently that the letters warning of violations to our buildings came from the DEP,” Levy notes. “We’ve contacted the engineers and architects needed to prepare the necessary specifications.” Adds Smith: “I’m having our plumbing company do a survey so we can preemptively deal with the law, and not have to wait for [violations] to come to us. My goal is to get all my buildings inspected.”

If your manager isn’t taking such steps, you should be concerned – or at least aware enough to ask him what he

is doing about the backflow prevention situation. But, hang on, what, exactly, is backflow and what is the device that prevents it?

## Dirty Work

Usually, water flows from the water supply system into your building. Backflow is the term used to describe when water from your building “flows back” into the public water supply. Backflow is caused by either backpressure or back-siphonage of your plumbing system. If water flowing backwards contains hazardous chemicals or bacteria, it can cause an unhealthy or dangerous situation.

Backflow prevention devices, or backflow preventers, keep the dirty water from entering the city’s water supply. “They are called ‘containment devices,’” explains Robert Bellini, president of Varsity Plumbing. “They contain the water supply within the building. They prevent the water from flowing back into the water system where it can potentially contaminate tens of thousands of people.” Every water line going to your co-op or condo – be it domestic or sprinkler – must have one. Usually, a section of the pipe is cut out and replaced with the device.

To determine whether your co-op or condo requires a backflow prevention device, you need to retain a professional engineer, registered architect, or licensed master plumber, or request a property inspection from the DEP. If it turns out that your property does need one, installation will require the services of an engineer/architect, who must prepare two

sets of backflow prevention plans. These should be submitted with two application forms to the DEP's Cross Connection Control Unit for approval. If accepted, the DEP will notify you by mail and return a copy of the plans to your engineer or architect.

"Every building presents its own set of challenges – that's why you need the architect or engineer to prepare plans," explains Richard Silver, president of American Pipe and Tank Lining. "There are variables and you must take each situation on a case-by-case basis. You can't just call a plumber and say, 'I need a backflow preventer' and have him install it. One size doesn't fit all."

Indeed, when talking backflow preventers, there are two types of devices. There is the simpler Double Check Valve (DCV) system, which is used in buildings that do not pose hazard threats. As their name indicates, the DCV system has two valves that act as stopgaps for errant water: it goes in but it doesn't go out. The second and, unfortunately for most buildings, more expensive type of preventer is the Reduced Pressure Zone (RPZ) device, which also consists of a pair of check-valve assemblies but almost always must have an emergency relief discharge valve. If the two check valves fail, that third valve comes into play as an emergency fail-safe measure. It prevents contaminated water from entering the water supply.

Most buildings, says Bellini, are required to have an RPZ device, which is usually costlier because the relief valve needs a containment tank surrounding it with enough room to house eight hours of backflowing water without submerging the relief valve itself (it is an open valve and water could get into the drinking supply if the valve were submerged). Depending on the size of the building and the diameter of the pipes, the device (which can get as heavy as 700 to 800 pounds) and its containment room can get quite large.

There are further complications, Bellini notes, concerning whether the containment room should be put above grade or below grade. If you have a basement, you can put it below grade. If you are above the "gravity sewer" – the pull of gravity – there is also less expense because you don't have to take extra steps to combat that.

If you have no basement – and many Queens and Brooklyn buildings don't, says Bellini – you must place it above grade, and since lobby and common space is precious, that will probably mean housing the RPZ device outside the property in a "hot box" – a building that is electrically heated to keep the pipes from freezing. That means more piping and wiring will be needed to extend the RPZ pipes to the building and the electrical heat to the hot box.

The device must be installed according to the plans prepared by a professional and all Department of Buildings regulations and requirements. A New York State Certified Backflow Prevention Device Tester must test the device. You can get a list of these at (800) 458-1158 ext. 27650. Once testing is completed, a test report must be filed with DEP within 30 days of installation. "To be sure the device is working properly, it must be tested and certified annually by a licensed backflow preventer company or individual," says Silver. "A copy of the report must then be submitted to the DEP."

If you've received a DEP order to install a backflow preventer, and the period they have given you to do it in is fast

approaching, you can still avoid a violation if your architect, engineer, or plumber has certified to the department that the device is in the process of being installed. Once he sends in the notice that "stops the clock" while your professional prepares the backflow preventer, says Paul Paddock, owner of Backflow Prevention of New York. (If, for some reason, the DEP doesn't have any record of its installation, you just need to have your engineer or architect send a recorded drawing of the device along with an initial test report to the DEP for review.)

Exemptions are available. They have to be filed by your professional in a typed letter to the DEP on your professional's letterhead, stating that all necessary exemption conditions have been met. You can also have your property inspected for exemption approval by calling the DEP at (718) 595-5437.

### Cost Factors

The costs vary, depending on building size. Failure to comply can lead to a flat fine of \$750; a hearing by the Environmental Control Board follows that. If the owner does not appear, there is an additional fine of \$1,000. If that still doesn't get your attention and the city thinks your building is a hazard to the public, then the DEP will send you a warning, and can then shut off your water.

Installation costs, according to the city's website ([http://www.nyc.gov/html/dep/html/forms\\_and\\_permits/backflow\\_faq.shtml#a8](http://www.nyc.gov/html/dep/html/forms_and_permits/backflow_faq.shtml#a8)) range between \$3,000 and \$5,000 for one-story properties, \$3,750 and \$5,500 for two-story properties, and \$14,000 and \$34,000 for high-rises.

Bellini says these numbers are accurate but misleading. "Those figures are for the installation of one device," he notes. "But remember: you have to put a device at every point the water comes through."

He offers the example of two 20-story buildings standing side by side, apparently the same. But outside of height, they are vastly different: one has a basement with a water meter room that is above the gravity sewer. "That's a relatively easy installation," he notes. The other building has no basement and must build a hot box and house the RPZ device outside, with all the concurrent expenses that entails. In addition, the second building has sprinklers and each sprinkler pipe gets its own backflow preventer. "So, you may be talking about three devices instead of one and that gets costly. One scenario may cost you \$34,000 and the other may be \$200,000."

### Why Now?

Installations aside, many are asking why the rush to backflow preventers now, some 31 years after the law was passed? No one has a definitive answer – or is speaking for the record. The DEP, through spokeswoman Mercedes Padilla, says: "The DEP never stopped enforcing the law. We have been enforcing it all along; it is part of our duty to protect the water supply." The government has stepped up the pace of enforcement, she admits, as part of the "Backflow Prevention Enforcement Initiative," announced by the DEP in January 2010. As part of that push, the DEP signed a \$595,000 one-year contract with AG Consulting Engineers, which will augment the DEP's in-house resources and perform inspections to eliminate a backlog of roughly 10,000 properties.

The DEP put together a commission in the late 1990s to investigate the backflow question. According to Stewart O'Brien, executive director of the Plumbing Foundation, a trade group, that report came about because DEP Commissioner Joel A. Miele "realized that the DEP wasn't doing a real good job in enforcing this [law]. If you go anywhere outside the city of New York, these devices had been installed many years ago. But not in New York City."

Time went by, and the DEP, say the plumbers, reportedly moved slowly, possibly because of a manpower shortage, as the DEP claims, or possibly because of pressure from the real estate industry to go slow on enforcement because of costs to owners (the DEP denies this, and no one else would comment on it for the record).

The DEP researched the issue further, and a report was released in May 2000, tallying up how many buildings needed the devices. "They prioritized by breaking them down into hazardous and non-hazardous categories," recalls O'Brien, "and then they projected a five-year time table to try to get the hazardous buildings in compliance." O'Brien says there were roughly 21,000 potentially hazardous properties and 100,000 non-hazardous ones.

According to Backflow Prevention's Paddock, things started changing when an incident occurred on May 11, 2007, involving car wash wastewater (containing the chemical tetrachloroethylene) backflowed into a Queens neighborhood's drinking water. A critical *New York Times* article followed that on May 19, 2007, pointing out that as many as 85,000 properties did not have the required backflow device.

Paddock saw the writing on the wall and left management to found Backflow Prevention. Within two years, the City Council had turned up the heat on the DEP to increase its enforcement. Varsity's Bellini believes that there was a growing fear that terrorists might use backflow to contaminate drinking water. "The terrorism threat is real," says Bellini, "and it's elevated. It doesn't take much for someone to create a back pressure condition and try to get poisons or chemicals into the public water supply via something as simple as a faucet in their apartment." (The DEP denies that terrorism was a factor.) The upshot was a bill passed by the City Council and signed into law by Mayor Michael Bloomberg in December 2009. It required the DEP to present reports to the council every six months on the progress being made installing backflow preventers.

The situation should be of concern to everyone, not just plumbers who now have more work than they can handle. "Backflow happens every day," observes Bellini. "People can't understand why they suddenly feel ill. It's not something they ate, so they write it off to a stomach virus. But a lot of times that 'bug' is attributable to the drinking water. The problem is that backflow happens all the time. You have to deal with it." ■