

Note: This is an altered article based on a similar project with a past client. The original project is under an NDA agreement. The subject matter is the same, but the specific product/branding has been removed. As a result, the article is more general.

Pressure Safety Valves: Prevent Pressure Spikes in High Rise Drinking Water Systems

Experienced engineers know how difficult it can be to create a quality drinking water system in high rise buildings. One way to ensure safe levels and please users is to install level controls, but controlling pressure is critical to a successful system. The ever-fluctuating demands for water can alter or damage your system. We know the cost and effort that goes into installing and maintaining drinking water systems in high rises, and the problems pressure spikes can cause. To safeguard your drinking water system, we suggest using pressure safety valves.

What pressure spikes can do to your system

Rapid changing of water pressure is the main challenge when designing a pipe system for drinking water in high rises. As demand for water in the building increases, so does the flow rate. As you can expect, when less people are using water, the flow rate decreases. But that's not the only issue.

As the water descends from the top of the building to the middle points, the water pressure increases automatically. The water pressure may reach or surpass the maximum pressure if not regulated.

This dramatic change in water flow pressure results in leaks, bursts, and pipe damage.

The erratic adjustment in water flow isn't the only problem that can occur in drinking water systems. Obstructions and particles can block or corrode the pipelines, causing leaks and bursts. Poor pressure safety valves may not have [full redundancy](#). In other words, the users might not get water.

When this happens, the users become frustrated, and money has to be spent to fix the problem. When we have leaks or blocked pipes due to pressure spikes and no full redundancy, the users must sacrifice comfort to failed infrastructure.

But there's an easy solution.

Our Solution: Pressure Safety Valves

The key to a cost-effective drinking water system in high rises is a set of pressure safety valves used with a pressure reducing system. These systems are fairly straightforward: when there is a sudden rise or drop in pressure increase above the threshold, an emergency safety valve kicks in to regulate the pressure.

Let's start with the pressure reduction valve.

A pressure reduction valves (PRV) are used to get rid of excess pressure, making the system less prone to leaks. PRVs are normally made of metal such as brass or cast iron. Look for models made with a raised seat of stainless steel, as this form will be [cavitation](#) resistant. Most valves can also withstand high temperatures, and they are available in various sizes. There's really no excuse for not including PVRs in your drinking water system.

Some can even be used in conjunction with quick pressure relief valves. These valves remove excessive pressure when it rises above a certain value. This system is able to open fully and tightly close the drip. But it is the pressure safety valve that really makes a difference. The safety valve will eliminate pressure peaks, protect your system from bursts, and allow for thermal expansion over-pressure relief.

Using the PRV and PSV setup provides:

- Flow and leakage reduction
- Cavitation protection
- Burst protection
- Reduced blockage

Pressure safety valve systems are typically easy to install and maintain and are designed for system maintenance savings. If you feel that your building is too complex or requires a specific kind of valve, no worries. There are a variety of brands, and some are happy to fulfill a custom order. Many valves use of full redundancy help to ensure that the not only do the pipes work efficiently, but the users still get their water in the event of a burst or block.

Interested in optimizing your water system with cost-effective pressure safety valves? Here are some suggestions: