

Quiet down!

How to deal with noisy piping systems in high-rise buildings

One of the tallest buildings in the Los Angeles skyline had everything a tenant could dream of - - stunning views, lush interiors and a fantastic location in one of the most exciting cities in the US. It also had a noise problem emanating from its domestic water piping system and building inhabitants were not happy about it.

A challenge from the start

The noise originated in the pressure reducing valves (PRVs) in the building's water system and the fact that the original piping design included just one subterranean pump station to serve the entire building. While having one primary pump station is fairly common for high-rise structures, in order for the building's water system to effectively serve the upper floors, city supply pressure needed to be increased to 400 psi. This was done through a series of valve stations, each equipped with a set of two control valves. Because of high flow and pressure drop that occurred during pressure boosting, valve after valve was being "eaten up by cavitation", creating significant noise in the process. Over the course of several years, the building's PRVs had to be replaced multiple times due to the damaging effects of the cavitation. Unfortunately, replacing the valves did nothing to resolve the noise problem.



The search was on for a solution

Finally, after years of cavitation and noise issues, costly equipment replacement and growing tenant complaints, the building engineer turned to Cla-Val for help in resolving their problem. Short of completely redesigning the system to include a secondary pumping station (which would have been a logistical and financial nightmare), the Cla-Val District Sales Manager recommended that new stainless steel pressure reducing valves equipped with KO anti-cavitation trim be installed to address the issues they were facing.

Problem solved - finally!

Within a month, the plumbing contractor installed a set of two stainless steel 90 series pressure reducing valves equipped with KO Anti-Cavitation trim in each of the high-rise building's lower five valve stations. The existing pressure reducing valves at each station remained in the system to act as emergency bypass valves. Installation of Cla-Val KO anti-cavitation valves was a tightly orchestrated process that involved shutting the entire building down on a Friday night, isolating the water column, installing the valves and restarting the system before building tenants returned the following Monday. This quick installation process minimized impact to the building's business operations.

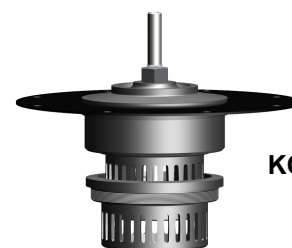
Initial results showed that the Cla-Val pressure reducing valves equipped with KO anti-cavitation not only operated accurately and efficiently, but also significantly reduced noise levels throughout the system.

After achieving several months of dependable (and quiet!) service with the new PRV's, the building engineer began replacing the remaining valves throughout the building with Cla-Val pressure reducing valves, equipped with KO trim.

To learn more about minimizing cavitation, visit <http://www.cla-val.com/01ko-anti-cavitation-pressure-reducing-valve-p-18-l-en.html>. Watch an animation showing how cavitation occurs and how it can be significantly reduced to prolong the life of valves, limiting noise and cavitation issues. www.cla-val.com • 800.942.6326

What is cavitation?

Cavitation is a phenomenon that occurs when the velocity of the fluid at the valve seating area becomes excessive, creating a sudden severe reduction in pressure that transforms the fluid into a vapor state, resulting in the formation of literally thousands of minute bubbles. The subsequent decrease in velocity and pressure rise that occurs after the valve seating area, when the pressurized condition resumes, causes these vapor bubbles to collapse at the rate of many times per second. Should this occur in close proximity to any metal surface, damage can take place.



KO Trim