

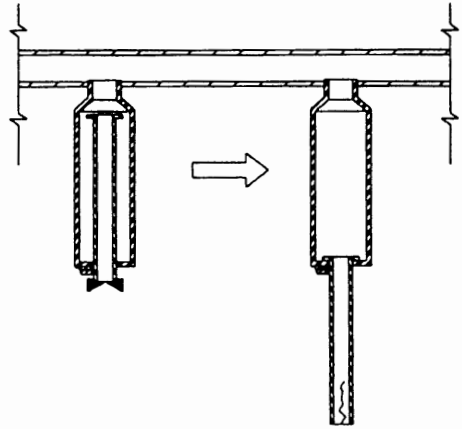
Surge Suppressors Protect Telescopic Sprinkler Systems

By Winston B. Young, P.E.

The design advantages of Telescopic Sprinkler Systems are numerous, offering superior fire protection coverage. One application of telescopic sprinkler system is in Anechoic Chambers which are primarily used to test radar and other radio frequency emitting equipment. The walls within anechoic chambers are designed to absorb the energy generated from combustion. With fire being such a high risk factor, fire sprinkler

contractors often specify telescopic sprinkler systems in their fire protection design recommendations.

Periodic testing of any sprinkler system is understandably important and necessary. However, testing the telescopic sprinkler system can inadvertently cause catastrophic water damage to the very equipment that it's been installed to protect.



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When dry testing the system, the valves are kept shut to prevent water from releasing, but the telescoping mechanisms are dropped to their predetermined height. During the test, the water within the piping system creates water surges, sometimes destructive enough to rupture the telescopic tubing, causing the sprinkler heads to pop off and flood the equipment. The obvious result is costly water damage. Fortunately water surges are entirely preventable.

Water surges or "water hammer" occur when the dynamic force of the water being discharged from the pump collides with the static water in the lines. A similar situation occurs when the pumps are shut down. As the discharge from the pump stops, the water in the pipe continues to flow away from the pump under its own momentum until it runs out of energy.

These violent and potentially destructive forces increase the water pressure and damage the piping system. They can rupture piping and damage joints and components, jeopardizing the water main system. Surge suppressors can absorb these pressure surges and protect the system. A hydraulic Surge Suppressor consists of a carbon steel pressure vessel containing a rubber bladder which separates the gas precharge in the bladder from the system fluid. They are normally placed as close as possible to the source of the water flow changes, usually close to the sprinkler head. Young Engineering, a leading manufacturer of surge and pulsation control products, offers surge

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To get a brochure and engineering manual on the system, contact Philip O. Morton, Vice President/Marketing, Gaylord Industries, Inc., P.O. Box 1149, Tualatin, OR 97062-1149, telephone (503) 691-2010, fax 503-692-6048.



Shown here: a typical hood with the Gaylord Quencher™ Water Spray Fire Protection System. Pre-engineered for commercial kitchen cooking appliances and exhaust systems. For use in buildings with a sprinkler system, it is installed by the fire sprinkler contractor. System utilizes Grinnell's Model EA-1 nozzles.

suppressors that are designed and constructed in accordance with ASME Section VIII Pressure Vessel Code and are UL and Factory Mutual approved. Maintenance is required, consisting of checking the precharge pressure annually. A pressure gauge fitted to the top of the vessel makes this an easy task.

A Southern California aerospace company who tests equipment in anechoic chambers were not willing to risk the damage that water surges can inflict. They presented Young Engineering of Monrovia, California, a schematic of their piping system and were advised of the size and location where surge suppressors would be effective in their system. In this case, Surge Suppressors were positioned on feed lines serving as many as five sprinkler heads. The result was a cost effective, low maintenance solution that provided a safe and highly reliable operating system.

Many fire protection contractors overlook the Surge factor in the initial stages of a project, an oversight that can result in additional costs and complica-

tions once the system is operating. In many systems, there is not even a contingency plan for surges when testing the equipment. The installation of a bladder-type surge suppressor can mitigate the problems associated with this hydraulic phenomenon.

For more information on Surge Suppressors, contact Young Engineering at (818) 359-6262 or by fax 818-303-6156.

About the Author:

Winston B. Young, P.E. is the founder and president of Young Engineering Manufacturing Inc., Monrovia, California, which designs and manufactures energy control products. He and the staff of engineers have over 40 years of experience in the field of hydraulic and mechanical design. A member of ASME and a Registered Professional Engineer in California, Young holds B.S. and M.S. degrees in Mechanical Engineering from California State University, Los Angeles.

Who Said This?

"Perhaps you, too, can be enlisted in the army of advocates for residential fire safety. Perhaps you, too, by reading past and present events will be stimulated to make your contribution to advance this state-of-the-art in life safety."

— Ron Coleman, (current California State Fire Marshal) in his book "Alpha to Omega — The Evolution in Residential Fire Protection." Coleman dedicated this book, published in 1985, "A book for Bill," to highlight Bill Meyer's involvement in the development of residential fire sprinklers. Bill Meyer was honored in FPC/July 1986. Ron Coleman was honored in FPC/August 1988.