



By Marc Korody

Scale Reduction Savings

The Greenfield Village mixed-use community, located at the southern end of the Salinas Valley in Greenfield, Calif., experienced significant problems caused by limescale buildup inside its 128 apartments' water heaters and recirculation pumps. In the four years since the apartment complex was built, limescale buildup was so aggressive that many of the water heaters and recirculation pumps failed. The complex's owners faced a minimum cost of \$600,000 to replace the equipment.

Searching for a Solution

Greenfield Village was acquired four years after it was constructed. During due diligence inspections, it was discovered that water inlets and recirculation pumps were heavily obstructed by limescale buildup, and water heaters had so much calcium that even when turned up to 100%, they could not adequately heat water. Additional limescale problems were found in the fan coil heaters in the ceilings of individual apartment units, which caused major concern because they are extremely difficult and expensive to replace.

Greenfield Village LLC's management sought the services of H2O Solutions USA LLC, the California distributor of HydroFlow USA, to help implement a solution to the limescale problem. Analyses performed by the company revealed that the water in Greenfield Village

comes from a volcanic underground source and is quite hard, at approximately 18 grains per gal (308 ppm). The water is mineral rich and good for agricultural purposes, but poses a significant threat to exposed equipment and pipe because of its tendency to leave behind limescale deposits.

Implementing Technology

After further research, the community's executives decided to install HydroFlow water conditioners, which use patented Hydropath technology.

The technology works by inducing an alternating current decaying sine wave into water. This current causes the positive and negative mineral ions in water to move rapidly, allowing them to attract and combine to form clusters. When super-saturation occurs under conditions such as a temperature increase or change in pressure, these clusters precipitate out of solution and form stable crystals that remain in suspension rather than adhering to equipment and pipe surfaces.

In addition to preventing limescale accumulation, the technology gradually removes existing limescale deposits, inhibits corrosion, stops pinhole leaks and kills 99.9% of bacteria and algae that pass through the system. These attributes help extend the life and efficiency of equipment and pipes.

Kevin Bennett of H2O Solutions USA engineered the solution and installed HydroFlow S38 water

conditioners on the cold water lines feeding the hot water tanks in each unit in the community. The devices were simple to install, which limited disruption and inconvenience to the tenants.

The implementation of the new water conditioners saved hundreds of thousands of dollars in equipment repairs and replacements, while also providing a "green" solution.

Positive Results

Six months after installation, random inspections found the water heaters, recirculation pumps, tanks, pipes and all related equipment were free of limescale buildup. This has allowed Greenfield Village to reduce its replacement reserves and operating budget significantly, as it avoided the enormous replacement and maintenance costs it was facing.

An additional benefit was that the community was able to pass along savings to its tenants as a result of the improved operating efficiency of each apartment's water heater. Reducing limescale accumulation by ¼ in. typically results in a gain of up to 35% heating efficiency. As the new water conditioners began to dissolve existing limescale deposits from the water heaters' heating elements, increased heat-transfer efficiency was achieved. This increased efficiency has reduced the amount of energy consumed, resulting in lower energy bills for the tenants.

In addition to the cost savings, the water conditioners allow Greenfield Village to remain environmentally friendly by avoiding the need to use descaling chemicals or salt to keep the hot water equipment limescale free. *wqp*

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The apartment complex avoided costly heating equipment replacements by installing water conditioning devices.

Conditioning system
helps apartment
complex increase
energy efficiency