
Grundfos Pump Audit Identifies More Than 80 Percent Annual Energy Cost Savings for 14-Story Office Building's Pressure Boosting System

Owners of the Mani Brothers 14-story, 232,476 sq. ft. commercial office building in West Hollywood, CA. was having problems with their potable water booster pumps. A pump audit was performed and the information was used to select the optimum replacement pump system.

The Situation

A local plumbing contractor was tasked with replacing the pumping system that provides potable water to the building. The system was in poor condition and did not provide the desired performance (i.e. inadequate water pressure on the upper floors of the building). The capacity of the system was not known because the nameplates had been removed and the original engineering documents were not available. The triplex system included one 5 hp pump and two 10 hp pumps (25 hp connected). Each pump was equipped with a pressure regulating valve (PRV) and the system controls were very basic and inefficient.

Delta Q of La Habra, CA was contacted for assistance in selecting a replacement system that would meet the needs of the building owners. Delta Q requested a Pump Audit from Grundfos Pumps to obtain a system profile. Grundfos Pumps installed a power meter and strap-on flow meter to log the system's power and flow profile. The equipment was left in place for seven days, then removed from the system and the data analyzed by a Grundfos Pump auditor.

TOPIC:

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LOCATION:

USA

COMPANY:

Mani Brothers

Most pumping systems in commercial buildings are oversized and inefficient because the primary system sizing tool (Hunters Curve/fixture unit count) is an imprecise estimate of maximum flow – it does not address the system performance profile. An audit of the system allows the selection of an optimum pumping system for the job.

The Grundfos Solution

Based on the data found in the audit, an optimized system with the lowest possible life cycle cost was selected and submitted with the complete audit report. The recommended replacement is a 4-pump BoosterpaQ Multi-E CRE 10-4 system (3 hp each pump – 12 hp connected). The BoosterpaQ is equipped with a variable frequency drive (VFD) on each pump. The maximum flow can be handled by three pumps, with the fourth pump serving as an “on-line backup” pump.

The Outcome

The annual cost of energy to operate the old system was \$10,000, with an additional \$2,000 in annual maintenance and repair. The annual cost of energy to operate the replacement system is approximately \$1,800, a savings of an estimated \$8,200. Savings of an estimated annual \$2,000 in maintenance costs due to no PRVs and no seal replacements will be realized as well. Additionally, the retrofit offers eligibility for a \$5,400 rebate from Southern California Edison.

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