HYDROMX
Energy Saving Solution

CASE STUDY

HAMWORTHY

PROJECT NAME: Hamworthy

LOCATION: United Kingdom

TYPE: Commercial Office

Hamworthy installed Hydromx at their headquarters in Poole, England.

BACKGROUND

Hamworthy Heating celebrated its 100th anniversary in June 2014. Over the last century, they have consistently innovated the UK commercial boiler market and look to continue that trend.

Hamworthy is now part of Groupe Atlantic, a large European HVAC manufacturer. Its mission is "to transform prevailing energies into lasting well-being by creating thermal comfort solutions that are ecologically efficient, accessible to all and suited to individual needs."

Hamworthy recently studied how it can improve the energy efficiency of commercial office boilers by installing Hydromx© at its offices in Poole, England.

CHALLENGE

The building and core of the heating system date to the 1960s and contain metals commonly found in heating systems, including steel, brass, copper and aluminum.

The Energy Saving Trust reports that "corrosion deposits in an older central heating system can cause a substantial reduction in the effectiveness of the radiators, and the system as a whole — up to a 15% reduction." And that "using an effective chemical inhibitor can decrease the corrosion rate and prevent the build-up of sludge and scale — preventing system deterioration and helping to maintain efficiency. Typically, it can increase boiler efficiency by around 3%."

The building has many radiators around the perimeter of each of the three floors, and temperature control is limited to one thermostat on the third floor and thermostatic radiator valves (TRVs) on the first floor. There are no TRVs on the second or third floors.

SOLUTION

The heating system was drained and flushed, then refilled with fresh water and corrosion inhibitors before the trial; this ensured an accurate baseline reading to make a fair comparison to a "clean" system. Then 900 liters of water were replaced with a Hydromx solution, and the radiators were bled within a day. There were no other changes to the building's heating system.

Hamworthy's study recorded gas consumption for two space heating boilers, one with a steel heat exchanger and the other aluminum, with a total capacity of 95 kW. A gas meter monitored each of the two boilers. Additional temperature data loggers ensured that internal space temperatures were consistent and comparable across the three-floor office space.

Hamworthy Technical staff independently monitored and logged gas consumption and internal and external temperatures to carefully compare the performance of Hydromx to a baseline of water with corrosion inhibitors. Staff utilization of the office was consistent throughout, and internal temperatures between the baseline and test periods had an average of 0.5°C difference.

RESULTS

The outside ambient temperature data used in a Heating Degree Days (HDD) analysis came from a local public weather station situated one mile away. HDD measures how far the ambient outdoor temperature is below the temperature for indoor thermal comfort (1 HDD is equal to the outdoor temperature being one degree below thermal comfort for one day.)

Hamworthy measured the boilers' energy consumption (kWh) for each degree of outside ambient temperature, expressed as kWh/HDD. In this study, **Hamworthy's weather-adjusted consumption was 66.94 kWh/HDD with water as their system fluid and only 46.29 kWh/HDD with Hydromx — a savings of 30.9%**, well above the 3% offered by chemical inhibitors alone.

"We were skeptical of the performance claims made by Hydromx, but results at our offices have proven them to be true," says Hamworthy technical director Bob Walsh. "A 30 percent saving in energy consumption is a major benefit to commercial customers, and of course will make a very significant impact towards achieving carbon reduction targets as well as cutting costs directly off the bottom line."

ABOUT HYDROMX®

Hydromx® is a nanotechnology heat transfer fluid that saves a significant amount of energy. Hydromx ethylene-based or propylene-based fluid outperforms not only other glycols, but also outperforms water. Hydromx has been proven in multiple installations to save 20–35% energy in heating and cooling systems around the world.

FOR MORE INFORMATION, VISIT **HYDROMX.COM**.

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