CASE STUDY





WATER QUALITY UPDATE PROTECTS SCHOOL MECHANICAL SYSTEM PROJECT AT-A-GLANCE

Location:	High School, Kansas
Engineers:	Latimer Sommers & Associates
Lead:	William Bassette, P.E., LEED AP, and vice president
Product Focus:	SEP4™ 4-in-1 hydraulic, air, dirt and magnetic separator
Challenge:	Water hardness and quality

Sometimes, things don't go as planned. Sometimes, you discover that a new heat exchanger is leaking on a commercial boiler after it had already been replaced once before, within the last three years. William Bassette, P.E., LEED AP, and vice president of Latimer Sommers & Associates, was asked to provide design support to a high school in Kansas that was tired of bad news.

Working with the school maintenance team, he helped find the root cause of their equipment failures and provide a comprehensive, long-term solution.

Bassette started by taking a hard look at the water quality in the existing system; specifically, the total dissolved solids of the site water. As part of his project research, Bassette viewed archived Coffee with Caleffi webinars on the topic of water quality. In the end, he and the maintenance team determined that a main problem was excessive water hardness. A plan was quickly put into place. First, the system was drained and recharged with new system fluid. A Caleffi HYDROFILL[™] cart was



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used to conveniently refill the system and reduce the hardness of the new water.

Next, the system was repiped to add a Caleffi SEP4[™]. This 4-in-1 hydraulic, air, dirt and magnetic separator was selected to continuously catch both ferrous and non-ferrous debris left in the system. Equipped with a rare-earth magnet, the SEP4 attracts ferrous impurities with 2-1/2 times the removal performance of a standard dirt separator.

While the work was being done, Bassette noticed



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that the existing expansion tank had recently been replaced. The existing piping had a circulator pumping into an expansion tank, causing a problem with the system pressure. To fix this, they increased the pressure and matched the set pressure of the new expansion tank.

Additionally, the SEP4 helps scrub the microbubbles out of the system effectively. Since the system had a VFD driven system pump, the SEP4 also ensured proper primary/secondary piping for the new boiler.

The contractor hired for the repipe has worked extensively with a distillery in the area. Since they wanted to cover all bases with the repipe, stainless steel was suggested for the near boiler piping. They connected the boiler to the Caleffi SEP4 with expertly welded stainless.

From 2016 to 2018, the boiler room of this high school was the source of much bad news. Inconsistent boiler performance and equipment swaps were frustrating the students and teachers.

With the combined team of engineers, installing contractors, school maintenance staff, and David Kaibel of Comfort Sales Agency, they were able to deliver a long-term solution. The boiler room is again the quiet part of this high school.

We are committed to your success and are here to help. Check out our website **CALEFFI.US** to explore an expansive collection of product information, training webinars, BIM objects, and our expansive library of educational idronics[™] journals.

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