

# KN Series Boilers In A Class of Their Own at Hunter Elementary School

**HydroTherm®**



*KN-10 condensing boilers were ideal for the low temperature hydronic system at Hunter Elementary School*

The School District of Meridian, Idaho, serves over 30,000 students, and is the largest and fastest growing school district in the state. The district's newest school, Hunter Elementary, opened in the fall of 2005. Hunter Elementary is home to nearly 800 students.

When it came to the school's boiler needs, the school district required a high efficiency system that is also easy to maintain. The school's new HVAC system was designed by Charles Paulin (PE), of Musgrove Engineering PA of Boise. The low-temperature hydronic system design would be ideal for condensing boilers. Condensing boilers eliminate the need for low water temperature protection inherent with non-condensing boilers, and offer higher operating efficiencies. This is a deviation from the standard boiler system design used throughout the School District where two boilers were enabled/disabled (on-off fired) by a building automation system rather than using a modulating system. Buss Mechanical Services, also of Boise, was awarded the mechanical work for the project and owner Lenny Buss selected two HydroTherm KN-10 boilers for the job. The KN-10 from HydroTherm is a commercial gas-fired cast iron condensing boiler featuring unique "Tru Flow" technology to control the fuel-air mixture at all firing rates

and venting conditions. The combustion air is constantly measured to fine-tune the fuel gas flow for maximum efficiency. In addition, the boiler takes full advantage of the condensing feature by allowing it to operate at system return water temperatures of less than 128° F with no return water temperature limitation. These boilers are capable of maintaining temperature differentials of up to 100° F, and offer one of the best warranties in the market.

"The KN-10 was the natural choice for this project," said Trevor Thompson of Columbia Hydronics Company, a manufacturer's representative firm with offices in Boise and throughout the West. "The KN-10 offers many unique features that go above and beyond the project requirements that will benefit the School District for years to come."

For Hunter Elementary School, one of the key elements of the KN-10 is that the boiler comes standard with full modulation, resulting in reduced utility expenses for the life of the boiler. Although the KN-10 can be fired on-off, full modulation offers the opportunity for the boiler to operate at higher efficiencies. As an example, the KN-10's efficiency is approximately 88% at high-fire, with return water temperatures near 60° F as they will be in the heat pump loop.

With the same water temperature, but with the boiler at 1/3 input, the operating efficiency jumps to nearly 98%!

"Modulation is now an integral part of the system," said Thompson of Columbia Hydronics "and using the KN-10 boilers did not require any changes to the original system design by Musgrove Engineering."

"The BAS is still only enabling/disabling each boiler as required by the building's heat pump loop temperature. However, each KN-10 boiler includes an independent, factory-wired boiler controller that smoothly modulates the boiler via a PID algorithm."

*The KN-10 offers many unique features that go above and beyond the project requirements that will benefit the school for many years to come."*

*Trevor Thompson, Columbia Hydronics Co.*



*Hunter Elementary, Meridian, Idaho*

The KN Series, with models from 600 up to 2000 MBH ratings, offer 5:1 capacity modulation, low CO and NOx emissions of less than 20 ppm to meet SCAQMD and whisper-quiet operation – in a compact footprint of less than 29-inches wide.

School officials are completely satisfied with the new KN-10 boilers and their performance, earning the KN-10 and everyone involved with this project an A+. The expectation of course, is to see honors-level grades for years to come.

For more information about HydroTherm KN Series Boilers call **413-564-5515**, in Canada **905-672-2991** or visit **[www.hydrothermkn.com](http://www.hydrothermkn.com)**.