



## CASE STUDY

### INDUSTRY: EDUCATION



**CUSTOMER:** Western Michigan University

**LOCATION:** Kalamazoo, Michigan, USA

**BACKGROUND:** Western Michigan University's athletic facilities, Waldo Stadium and Bill Brown Alumni Football Center, host thousands of fans and athletes year after year. WMU's premier stadium has a capacity of more than 30,000 while the Bill Brown Alumni Football Center spans 75,000 square feet across four floors. The facility serves all athletes including opposing teams during football season. WMU's hot water system that serves their athletic facilities is expected to perform flawlessly especially on game weekends when the system is pushed to the max.

**SCOPE OF WORK:** Armstrong International supplied a Digital-Flo® Instantaneous Steam Water Heater with The Brain® for digital water temperature control to provide safe and comfortable hot water for Waldo Stadium and Bill Brown Alumni Football Center. The Brain® controls water temperature within +/-2°F to prevent accidental scalding.

To reduce potential incubation points for water-borne bacteria such as Legionella, Armstrong also recommended that WMU replace their hot water storage tanks across campus with steam instantaneous water heaters to save space and energy.

Within the center, the Digital-Flo® raises the water in a shell and tube heat exchanger to temperatures that are well above the recommended bacteria kill thresholds. The Brain® safely and accurately blends the hot water with incoming cold water to ensure a safe and accurate recirculation and point of use draw off temperature.

The Brain® and Digital-Flo® also have integral connectivity features that enable them to connect directly to a building or utility management system, or can be web-enabled so data can be served up by a proprietary software system such as Armstrong SAGE. SAGE is a fully integrated smart hot water system monitoring and reporting software tool. Working seamlessly with The Brain®, it analyzes data to track behavior and performance to ensure compliance with ASHRAE and World Health Organization hot water system safety guidelines.

**BENEFITS:** Armstrong's holistic system solution gives WMU confidence and peace of mind. The new hot water system meets safety guidelines and standards set by the Center for Disease Control, the Occupational Safety and Health Administration, and most recently, Standard 188 from the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

WMU is responsible for monitoring and maintaining systems that support more than 25,000 students and faculty across 150 buildings and more than 9 million square feet of space. Smart technology solutions enables them to continuously monitor systems and proactively address issues with remote monitoring. WMU also reduced physical onsite inspections.



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