

# SCHOOLS

Brooks School  
North Andover, MA



Brooks School replaced an inefficient boiler and tank system with three cascaded Navien NPE-240 water heaters.



Bob Avila of Avila Plumbing installed the system. He says "Maintenance is next to nil."



Navien provides school a lesson in economics

Prestigious Independent School League member saves \$20,000 a year in gas, water and electricity costs by switching to a Navien NPE-240 system

## Situation

The dining hall at Brooks School, a co-educational college preparatory boarding and day school, in North Andover, Massachusetts, used two inefficient 400,000 BTU boilers to heat a 300-gallon storage tank. With a \$1.2 million dollar annual utility bill, the school was looking to reduce the cost of gas, water and electricity by 5 to 10% per year. The old system cost about \$2,000 a year for maintenance and repairs — not only for the boilers and the tank — but all also for the corroding metal venting. Due to corrosive water, they had to replace water tanks far too often.

## Solution

Brian Palm, Director of Sustainability and a teacher of environmental science, investigated replacement options for the school. Bob Avila of Avila Plumbing and Heating, suggested using three Navien NPE-240's to address the issues of operating efficiency, durability and maintenance. The new system was installed over the 2012 winter break.

## Benefits

**Significant energy cost reduction:** After a thorough cost/benefit analysis, Brian stated, "Conservatively, we expect to save about \$20,000 in water, natural gas and electricity."

**Operating efficiency:** Since demand varies greatly depending on the school calendar, Brian appreciates the efficiency of an on-demand system. "We had been heating a couple hundred gallons of hot water at 140 degrees when the school was quiet for three to four weeks," he explained.

**Reliability:** To assure a reliable supply of hot water, the school wanted redundancy without a prohibitive cost. Bob said, "One unit is basically handling the hot water right now and they are step fired. They give each other redundancy for maximum load."

**Lower maintenance costs:** The Navien system uses a Comfort-Flow system with a buffer tank and self-contained pump. Bob said, "Now we don't need as many pumps circulating water. The maintenance is next to nil."

**Durability:** Bob liked the stainless steel heat exchanger. "It doesn't corrode like other units so it will last a lot longer." With the new Navien system, there are no water tanks to replace every few years. In addition, the PVC venting not only costs less, it's easier to install and unlike the metal venting, will not corrode.

In addition to the featured college preparatory school case study to the left, Navien products are efficiently saving energy and supplying endless hot water to many other educational facilities. A selected group, currently profiting from Navien's technology, is listed below:

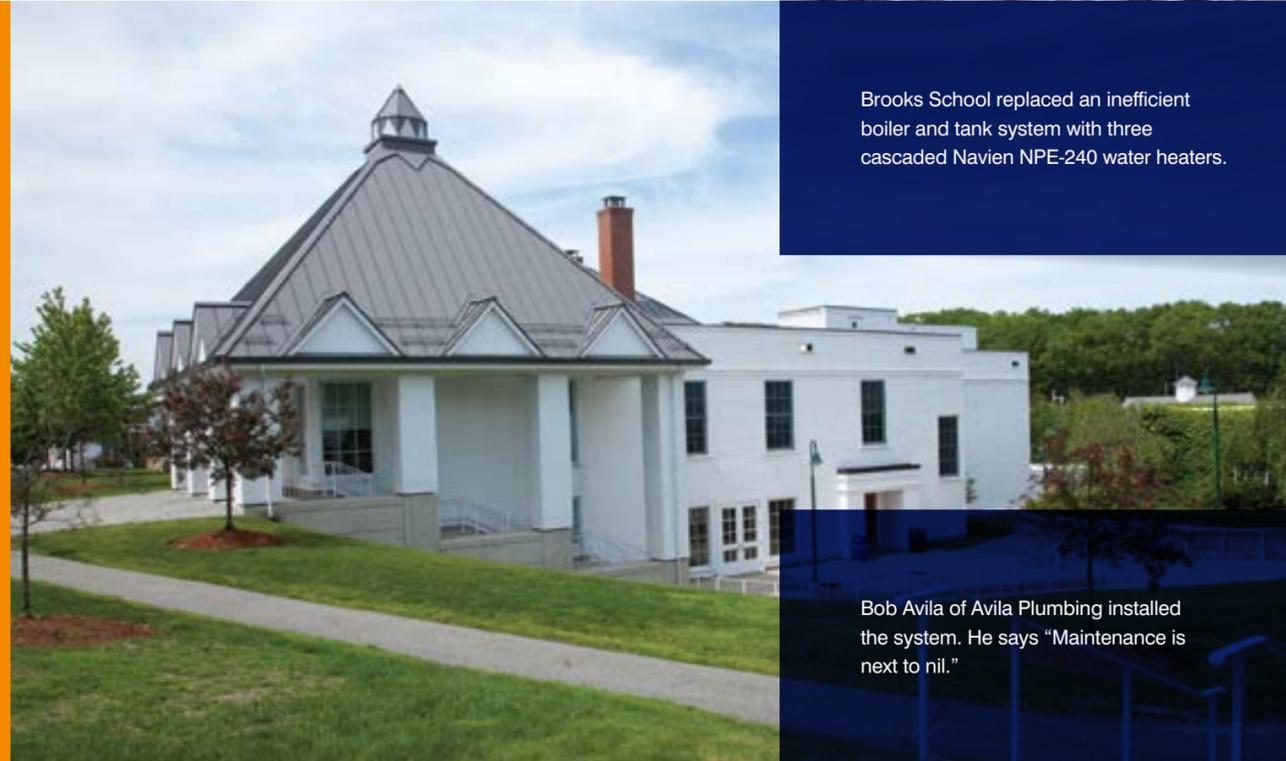


- Abbottsford Elementary School, Abbottsford, BC
- Berry College, Rome, GA
- Brenau University, Gainesville, GA
- British Columbia Institute of Technology, Vancouver, BC
- Brooks School, North Andover, MA
- Burnaby North Secondary School, Burnaby, BC
- Cape Fear Academy, Wilmington, NC
- Central Michigan University, Mount Pleasant, MI
- Clovis Unified School District, Clovis, CA
- Dodge City Community College, Dodge City, KS
- Dominican University, River Forest, IL
- Forest Park High School, Ferdinand, IN
- Fresno Unified School District, Fresno, CA
- Hazel Park Schools, Hazel Park, MI
- Langley High School, Langley, BC
- Long Island University, Brookville, NY
- Millsaps College, Jackson, MS
- Northern Alberta Institute of Technology, Edmonton, AB
- Oakland University, Rochester, MI
- Park Hill High School, Kansas City, MO
- Petal High School, Petal, MS
- Phillips Academy Andover, Andover, MA
- Prairie High School, Cedar Rapids, IA
- Prairie PK-12, New Raymer, CO
- Princeton University - Medical Arts Pavillion, Plainsboro, NJ
- R.D. Wilson Elementary, Waymart, PA
- Resurrection Christian School, Loveland, CO
- Seneca College, King City, ON
- Sheridan College, Etobicoke, ON
- Simon Fraser Elementary, Vancouver, BC
- Smithville ISD, Smithville, TX
- Stanford-Staff Housing, Stanford, CA
- UNC Wilmington, Wilmington, NC
- University of Oregon-Chi Omega Sorority House, Eugene, OR
- Vine Middle School, Knoxville, TN
- Wastenaw Community College, Ann Arbor, MI
- Williams College, Williamstown, MA

To learn and see more, visit  
[www.Navien.com/Commercial](http://www.Navien.com/Commercial)

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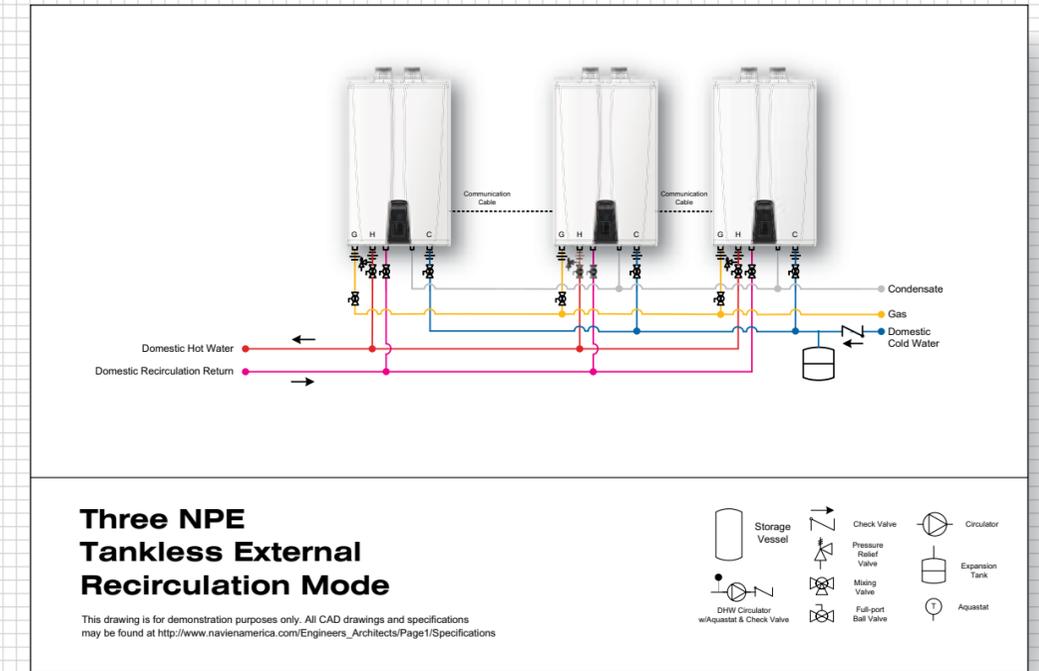
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The dining hall at Brooks School has high demand for hot water during the school term but is unused for weeks at a time. The Navien on-demand tankless system was the cost effective solution.



Brian Palm, Director of Sustainability and an environmental science teacher said, "Our tank system was more than 10 years old and from an efficiency perspective, we had some potential for savings." He calculates the new Navien system will save the school \$20,000 a year.



PVC venting on the Navien system is easier to install and won't corrode like metal venting.