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## **AMPLE HOT WATER Not An Issue At This School**

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*The new Eden Hall Elementary School awaits the final touches as it readies for the new schoolyear. Ample hot water will be ensured with the installation of isolated hot water heaters serving specific areas rather than water heater banks in a centralized location.*

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## **Ample Hot Water: Not An Issue At This School**

**W**hen the sleepy, rural North Hills area near Pittsburgh, PA was "discovered" several years ago, the rush for real estate was on. Housing developments grew faster than field grass.

One of the growing pains was the push for modern amenities and infrastructure: fire stations, new water and sewage services, libraries, better roads and a proliferation of intersections with actual traffic lights. And new schools, too, some of them within sight of the austere, one-room schools where grandma and grandpa once learned to read n' write.

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## **PINE RICHLAND SCHOOL CONTINUED FROM PAGE 21**

"My parents recall their early schooling in a classroom that held a bunch of students, grades one to nine, with just one teacher," said a nearby resident. "Heat came from the wood or coal stove. Light from the windows. And plumbing, well that wasn't dreamed of in those days. Heck, thinking of hot water delivery in a one-room schoolhouse back in the days when a single out-house was perched over a hole in the ground - it probably never entered their minds."

As winter descends on the hills north of Pittsburgh, the 1,076 students at Eden Hall Elementary School, one of six schools in the 4,500-student Pine Richland school district, the supply of plentiful hot water in the many bathrooms, food



***Vrabel Plumbing personnel unload high efficiency Bradford White water heaters at the Eden Hall Elementary School.***



***Packing lists and plans are all checked prior to unloading the new water heaters for the school. Careful coordination of the delivery of each of the water heaters ensured a smooth completion of the job.***

service and custodial areas is taken for granted. Today, of course, we consider access to hot water an absolute necessity.

When Gibsonia, PA-based Vrabel Plumbing was chosen to install plumbing and hot water systems at the new, \$32 million, 189,000 s.f. elementary school, constructed with several grade-level-dedicated "wings" or "pods," they settled on a plan to isolate water heaters to serve specific areas of the school rather than tapping hot water from a centralized location with a bank of water heaters.

Vrabel was also quick to turn to Pittsburgh Plumbing, Heating & Industrial Supply, a subsidiary of Famous Enterprises, to serve as a source of expertise on the job and to coordinate delivery of the water heaters and other components.

According to Brian Fulkerson, construction administrator, Eckles Group, an architectural firm based in New Castle, PA, construction of the school began in September '06 and ended in August of 2008. The

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Joe Starr (left) VP with Pittsburgh-based Conroy-Starr & Associates, Inc., manufacturer's rep firm, and Sean Dewey, jobsite foreman, review mechanical plans for the school.

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school has four wings, two of which have a first and second floor that are separated into classroom pods called 'houses.' The building form breaks down the scale of the building, making it more appropriate for elementary students.

Architecturally, the school is an ultra-modern space designed to facilitate learning in every way. Cassandra Renninger, architect, Eckles Group, explained that one of the main concepts of the building is the Earth's biomass - tundra, forest, grassland, ocean and desert. The biomes are represented throughout the building by incorporating colored glass, indoor trees, water fountains, multicolored floor graphics and murals. The biome themes also distinguish the different classroom houses, giving each house a different color and biome identity.

The grassland biome theme also influenced outdoor landscaping. A large butterfly garden will be developed in the

spring within the courtyard behind the library, and a wetland environment will be created at a small storm water retention pond which is part of the site's storm water detention system.

In addition to the 48 classrooms, the facility also contains nursing, administrative and guidance offices, the 4,600 s.f. cafeteria, spacious kitchen and food supply and preparation areas, a state-of-the-art library, gymnasium, music and art rooms, and the school's crown jewel, the 550-seat "Exploratorium," a multi-purpose auditorium complete with retractable seating.

The classroom wings are served

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Individual water heaters for each wing reduces the need for water return lines.

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by four, 60-gallon Bradford White eF water heaters, and the school's central area which contains the facility's food service area, is served by three 100-gallon eF water heaters. The systems were sized and specified by Mike Plummer, plumbing engineer, Pittsburgh, PA-based Tower Engineering Co.

Sean Dewey, journeyman plumber with Vrabel Plumbing, was the job-site supervisor on the school installations. "On and off over a period of about 18 months, I led a group of three plumbers while doing the school installations, from rough-ins to completion," he said.

"The biggest factors that sold the school on the use of these water heaters was a combination of three key factors," said Joe Starr, principal, Conroy-Starr Associates, the Pittsburgh, PA-based manufacturers representatives brought in to help specify plumbing products and technology. "Extreme energy efficiency, competitive pricing, and ultra-quiet operation were at the

top of the list, and fingers pointed to the eF's in every instance. Several of the heaters were installed in closets next to classrooms and it was stipulated that

the units could not be heard, at all, by students and teachers in class."

Rene Rhoades, a sales rep with Pittsburgh Plumbing, Heating & Industrial Supply, made several trips to the school with Vrabel professionals to help plan the best approach for system installations.

Starr, Charlie Vrabel, president of Vrabel Plumbing and Rhoades knew that the eFs were right for the job. It was clear that the water heaters were just what the school needed. The broad line of water heaters was developed in response to market demand for ultra-high efficiency operation and installation flexibility.

The three-pass flue system, low NOx emitting eF water heater offers thermal efficiency up to 99.1%, a 60-gallon tank capacity with 125, 150 and 199 MBH inputs, and 100-gallon tank sizes with 150, 199, 250, 300 and 399 MBH inputs. The system also provides venting flex -

### The Contractor's design/water heater check list:

**Efficiency** - The Pine-Richland School District has a stated purpose of using the earth's resources responsibly. At 99% efficiency, the water heaters we chose for this commercial domestic water system offers that. Combustion is ultra-clean.

**Reliability** - As a long-time user of Bradford White products, I had a high level of confidence that this water heater would easily stand the test of time. While the Eden Hall Upper Elementary School isn't on the other side of the earth, it's not exactly next door either. So a product installed there must be reliable and perform as expected. Over the years, thousands of students, teachers and visitors would rely on us to deliver hot water.

**Long-term performance and safe operation** - We needed consistent temperature storage and delivery over a wide range of use and demands. There would be single users, or hundreds of users in a relatively short time span.

**Sealed combustion** - Having the combustion air and exhaust gases hard-piped to the outdoors with their terminations at the same level reduces stand-by losses by eliminating any natural draft that would strip away BTUs. That's smart use of technology.



Vrabel plumber Mike Boden sweats a cold water feed line for one of the Bradford White eF water heaters.

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Sean Dewey, jobsite foreman, checks gas pressure feed to the water heaters.



Vrabel plumbers Mike Boden (left) and Mike Gerst tighten nipples for the hot water outlets.

## PINE RICHLAND SCHOOL CONTINUED FROM PAGE 24

ibility, with power vent (through-the-wall) or power-direct-venting options for horizontal, vertical, unbalanced venting with two-pipe or coaxial vent terminations.

"We accomplished everything the school needed and saved them money in the process," said Vrabel. "Our ability to provide ample domestic hot water with just the right number of water heaters, and with venting options that offered exactly the flexibility sought by the construction managers played key roles in solving the school's domestic water needs.

Tower Engineering specified seven eF water heaters for the job: four 60-gallon systems and three 100-gallon units to serve as the domestic system's point of source. Vrabel confidently set the tanks' storage temperature at an uncommonly high set point - 160°F - a sure bacteria cooker. Point-of-use safety valves insure that water is tempered down to just the right warmth at all faucets, yet keeping the entire system bacteria-free.

"Another attribute is that there are no stack losses because the eF natural gas water heater is equipped with sealed combustion and uses both PVC exhaust and combustion air lines," added Dewey. "We also liked the fact that it offered several venting options, electronic controls, four protective magnesium anode rods, a sediment reduction system and factory-installed dielectric fittings."

"This is the kind of job we most like doing," added Vrabel. "We've built our business around the ability to do quality commercial work. The systems we installed at this school make such great sense and operate with great efficiency. They're safe for the children and operate with complete reliability for years and years." ■