Contractor's Sidebar

Dave Yates, President York, PA-based F. W. Behler, Inc.

EFFICIENCY - BSA policy dictates that we use the earth's resources responsibly. At 99% efficiency, the water heater we chose as the heart of this system does just that. As a BSA member & leader, the "leave no trace" admonition for outdoor activities and camping fits, too. Combustion is ultra-clean, and because it's a sealed combustion water heater, there's virtually no stand-by heat loss.

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 Tuckahoe 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. Hundreds of bathers would rely on us to deliver hot water.

LONG-TERM RELIABILITY 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. And in the winter, heating needs. This would be handled with a flat-plate HX (the bather load is sharply reduced in winter months, so the extra capacity was available for some hydronics).

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 Btu's. That also gave us the opportunity to get fresh air for combustion on the prevailing up-wind side of the roof - away from any stray pool chemical fumes.

Ranked "Highest in Subcontractor Satisfaction among Water Heater/Boiler Manufacturers" by J.D. Power and Associates.

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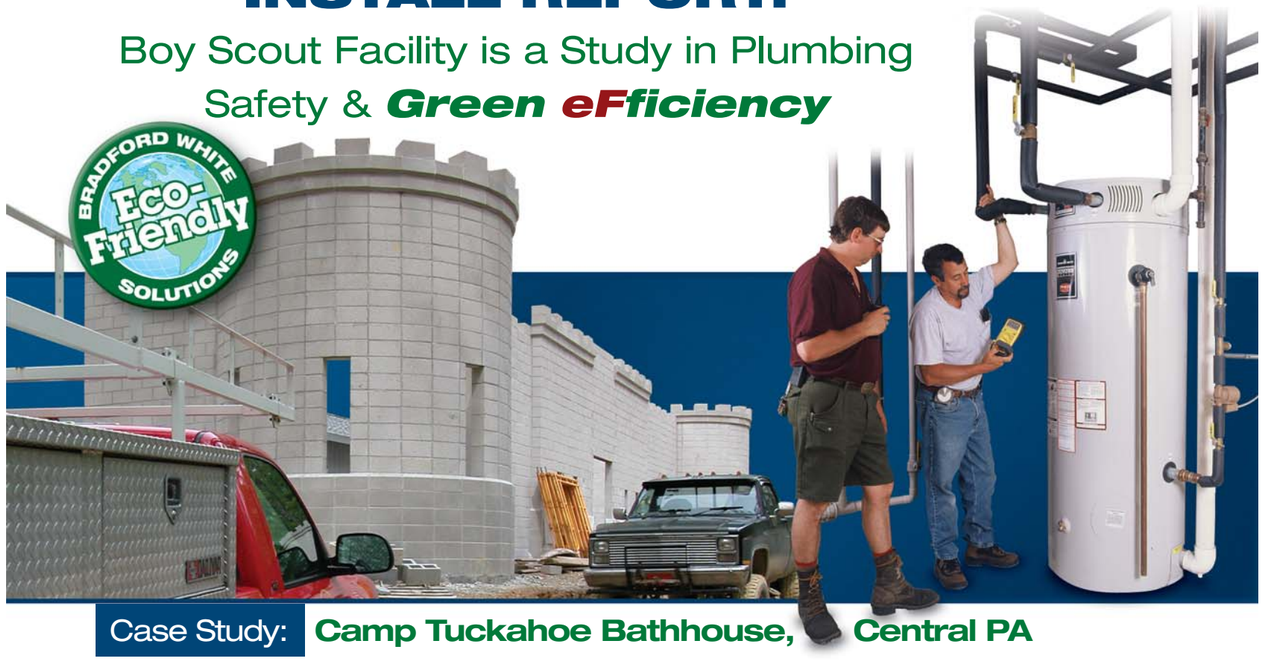
Built to Be The Best

Bradford White received the highest numerical score among water heater/boiler manufacturers in the proprietary J.D. Power and Associates/ McGraw-Hill Construction 2006 HVAC and Water Heater/Boiler Subcontractor Satisfaction Study℠. Study based on 882 responses measuring 3 water heater/boiler manufacturers and measures opinions of subcontractors. Proprietary study results are based on experiences and perceptions of subcontractors surveyed in May through July 2006. Your experiences may vary. Visit jdpower.com

INSTALL REPORT:

Boy Scout Facility is a Study in Plumbing Safety & *Green eFficiency*



Case Study: **Camp Tuckahoe Bathhouse, Central PA**

INSTALLER:
Dave Yates, President
F.W. Behler, Inc., York, PA

There's a new bath house in Central Pennsylvania that serves as a model of energy efficiency and environmental consciousness for Boy Scouts of America bath and shower facilities nationwide. The plumbing and mechanical contractor – a tried n' true Scout himself – wanted nothing less than the best for this facility.

"Before the job began, we planned our attack carefully," said Dave Yates, president York, PA-based F. W. Behler, Inc, and plumbing columnist for Contractor magazine. According to Yates – a master plumber and scoutmaster – in addition to showering facilities at the BSA's Camp Tuckahoe, ADA- compliant bathing areas would be needed and there were numerous sinks to plumb. A number of challenges arose: provisions for scald protection for diverse age groups with varying physical abilities; prevention of bacterial growth within the potable hot water system; energy conservation; and the need for hot water, reliably, and plenty of it, whenever the need arose.

"The most important of these were reliability and system efficiency," added Yates. He found his answer in the eF Series® water heater by Bradford White. Yates chose a 100-gallon, 199,000 BTU Bradford White eF Series® 99% efficiency water heater to serve as the domestic system's point of source. Yates confidently set the tank's storage temperature at an uncommonly high set point – 160°F – a sure bacteria cooker.

BRADFORD WHITE CORPORATION

But before Yates set the water heater's operating temperature, he verified that, in fact, the higher set point does not result in a significant increase in energy. The result is a very slight increase in stand-by jacket heat loss. And he points out that the higher storage temperature also increased system capacity due to a lesser proportion of hot water being needed for mixing with the cold water.

"Another attribute is that there are no stack losses because the eF Series® LP gas water heater is equipped with sealed combustion and uses both PVC exhaust and combustion air lines," continued Yates. "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."

"For this facility, I wanted nothing less than the best, and delivering it didn't break the bank, either."

But, clearly, the 160°F set point was way too hot for distribution outward to points of use. So a suitable means had to be included for managing the second stage of the potable hot water system battle plan. An ASSE certified 1017 thermostatic mixing valve was added to the potable distribution piping and set to maintain a minimum of 133°F. A bronze circulator was incorporated to keep the distribution system constantly on the move while maintaining that 133°F throughout its course, which prevents stagnation. Legionella bacteria don't stand a chance at these continuously operating temperatures.

Yates also installed a double-check backflow preventer on the building's cold water supply, which is delivered from a gravity-fed well water storage tank with a atmospheric vent. "Once potable water enters the bath house, it can only leave by way of a faucet being opened," added Yates. "This prevents any possibility of a sudden negative pressure if a main breaks or lower-elevation drainage point is opened while the system is down. Storage tanks are designed to withstand high pressures, but can be quickly damaged if a vacuum builds."

Another consideration was that "Our age group of bathers would range from five to ninety," said Yates. "The potential for scalding is high in a facility seeing such a diversity of hot water users. So we chose some heavy-duty scald-guard devices for all shower heads and sinks.

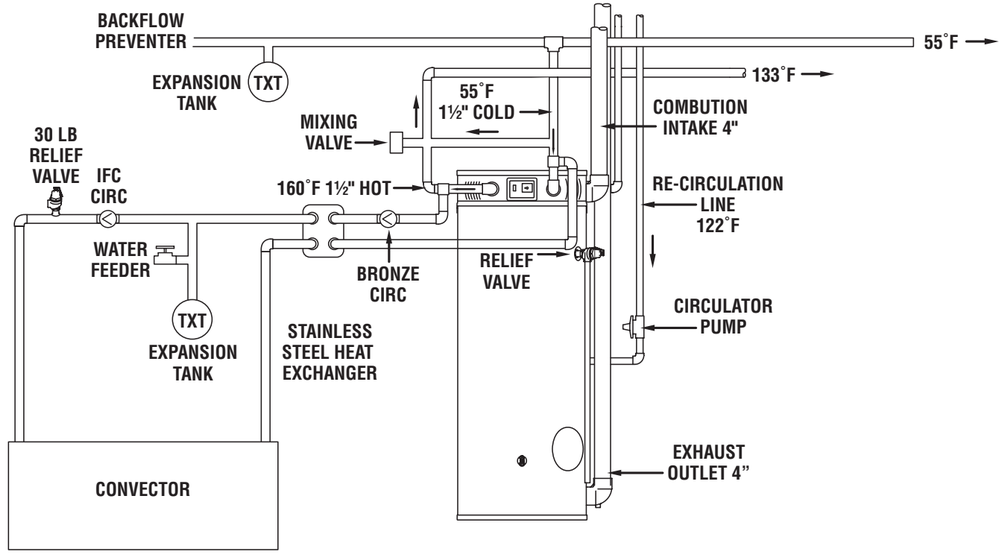
All that remained was the heating issue. With more than half of the bathhouse being winterized annually, the Bradford White water heater would have more than enough excess capacity to power-up some hydronic units.

The solution for maintaining the domestic system's integrity? Simple. A stainless steel heat exchanger was installed to isolate the potable and hydronic fluids. The potable side includes a bronze circulator that operates whenever there's a call for hea-ting and without a check valve – gravity circulation takes over during idle times.

"The hydronic side is treated like any other heating system with a 30-pound relief valve, water feeder and expansion tank," assured Yates. "Given that this is the lower of the two pressure zones, any leaks that might develop within the heat exchanger will result in the hydronic side's relief valve leaking, alerting maintenance to the problem."

The wall-mounted hydronic convectors each have their own thermostat, which allows for pumped zoning. No matter how frequently the doors are opened during wintry weather, each zone has the ability to maintain the desired indoor climate thermostat setting.

The anti-scalding and germ-free warfare battle plan was 100% effective. Common sense plumbing with safeguards for protection against scalding has worked flawlessly. For this facility, I wanted nothing less than the best, and delivering it didn't break the bank, either."



DESCRIPTION OF INSTALLATION:

A 100-gallon, 199,000 BTU Bradford White eF Series® water heater with 99% efficiency was installed to serve as the domestic system's point of source.

PERFORMANCE:

The system installed at Camp Tuckahoe, PA has the ability to deliver 1,110 GPH at a 100F rise. The EF-100T-199 models used in the installation are rated at 99% efficiency. When compared to a conventional commercial model (80% efficiency), one eF model will run 1.31 hours less a day and save $899.57 yearly in energy costs.