

NURSING HOME UPGRADES TO TANKLESS WATER HEATERS

Eleven 199,900 Btu/h
water heaters help
meet the facility's high
demand for hot water.



Golden Living is a health care facility that needed a new hot water system in early 2016.

There are as many successful business models in the HVAC and plumbing trades as there are contractors worth their salt. Some owners prefer to dominate their niche and no more, staying small to maintain an elite level of service in one small area. For others, it's growth above all else, opening branch after branch to offer as much service to the as many customers as possible.

The various and sundry components of a business plan — reinvestment into the firm, how to recruit, employee benefits offered, and marketing approach — can vary wildly to the point that it would almost seem as if none of these have any effect on a company's level of success. Maybe what drives success



KMB Plumbing & Electrical installed 11 Navien NPE-240A units at Golden Living, a health care facility in East Stroudsburg, Penn.

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Service Technicians Henry Nyanti, background, and Dan Petruzzi, foreground, double check all units after installation.

we were certain of only two things: We didn't want a storage-type system, and we needed great redundancy."

Berry began calling manufacturers of both gas-fired volume water heaters and smaller tankless units. After learning that the existing water heater would need to remain in service until the new system was operational, the search narrowed to wall-hung condensing models due to the space constraints.

After speaking with several manufacturers as well as local wholesaler APR Supply about the project, Berry decided to design the new system around the stainless steel Navien NPE-240A water heater. APR's **Cory Drozal** was a valuable resource both during design and installation.

"There was so little access to an exterior wall for venting that we couldn't have accomplished this without the ability to common-vent at least six units," says Berry. "We've common-vented Navien units with success in the past, just not this many."

is something less tangible — something harder to enumerate.

For **Kevin Berry**, owner of KMB Plumbing and Electrical, that elusive element is the ongoing effort to provide the best quality and highest level of expertise available in the Pocono Mountains of northeastern Pennsylvania. But the KMB business model has a unique twist. Whenever possible, Berry hires military or law enforcement veterans.

"My work in the plumbing trade began 30 years ago," says Berry. "In that time I've had overwhelmingly positive experiences when hiring veterans. They're already regimented, and they learn well."

At the beginning of 2017, the eight-man company had just handily finished their biggest domestic hot water project to date.

HIGH DEMAND

Early in 2016, one of KMB's commercial customers referred them to Golden Living, a health care facility in East Stroudsburg, Penn. The building's existing storage-type electric water heating system had begun to fail. Temperature fluctuation was a problem, as was its inability to meet peak demand.

"The old tank was a build-on-site system from the 1970s," says Berry. "It's a won-

der it worked at all. Its only saving grace was its several-thousand-gallon capacity."

After speaking with **Mike Hetzel**, who at the time was executive director at Golden Living, Berry learned quickly why the domestic hot water system was so big. The 137-bed facility, complete with commercial kitchen and laundry, requires upwards 45 gpm of hot water.

To make things more complicated, two different supply temperatures were needed. The big tank was maintained at 170° F and mixed down to 112° F with a large tempering valve before entering the building's ¾-inch domestic hot water recirculation line.

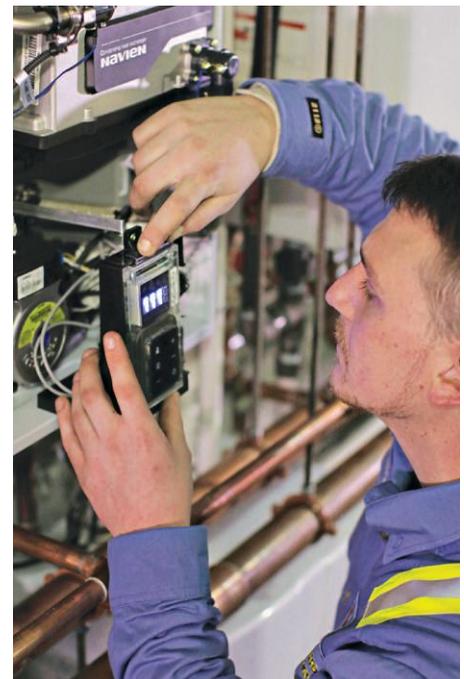
The reason for maintaining a high tank temp was two-fold: The various appliances in the kitchen as well as the laundry call for a temperature of 160° F, and, even more importantly, legionella bacteria can't survive at higher water temperatures. This is critical in an elder care facility where residents are more susceptible to Legionnaires' Disease.

Of the requirements KMB needed to meet, they'd soon learn that the capacity would be the biggest hurdle.

"We've handled plenty of commercial hot water applications in the past, but nothing on this scale," says Berry. "When we first started looking at the options,

TWO SYSTEMS

Over the course of a long week, a four-man KMB crew hung 11 of the 199,900 Btu/h water heaters in the basement mechanical room. The 6-inch PVC venting was installed even before gas lines



Service Technician Dan Petruzzi checks settings on a Navien NPE-240A.

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or copper piping were added. Between a door and the electrical service, there was just enough room on the exterior wall for four penetrations.

Up to eight Navien NPE-240A units can be common-vented, but the need to supply two water temperatures meant separate and

independent water heating systems. Five units serve the kitchen and laundry room at 160° F, and six units provide 111° F water to the resident-care areas.

“The kitchen was one area where the old system came up short,” says **Dan Piccolo**, director of maintenance at Golden Living.

“The washing machines wouldn’t get dishes clean enough on the first pass, so the kitchen staff was excited about the retrofit.”

From venting to piping, the project moved quickly. Included within each NPE-240A cabinet is a domestic hot water circulator, allowing the units to provide DHW recirculation to the facility without any external pumps or controls.

The units feature efficiency levels of up to 97% as well as a 10:1 turndown. This means that, in addition to plenty of redundancy, the multiple-unit approach provides the 55 stages of input for the high-temp loop, and the low-temp loop has 66. The NPE-240A also features ComfortFlow technology, which pairs a 1/3-gallon buffer tank with the internal recirculation pump to provide instantaneous hot water to all fixtures within the building. For projects seeking LEED certification, the NPE-240A provides up to three points.

ONE LATE NIGHT

When the only thing left to do was fire the water heaters, KMB picked a night to transfer the DHW load from the existing unit to the Navien system. At 2:30 a.m., they cut the four main lines and connected them to the shiny new copper. Within an hour, the systems were circulating water at steady temperatures.

“Aside from cramming 100 pounds of potatoes into a 10 pound bag, the project couldn’t have been smoother,” says Berry. “We have 110° F at the furthest fixtures, just as code requires; there’s great redundancy; and their cost to heat water will be much lower now.”

The old water heater still needed to be torched apart and hauled away, but that just gave KMB Plumbing and Electrical an extra day to observe the new system in operation. It also gave them a day to listen to accolades from Golden Living staff members.

“The new system is quite awesome,” Hetzel says. “The water temperature no longer fluctuates, and we haven’t heard a single resident complaint. It’s done everything that Kevin promised, and then some.”

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