

Renovation Renews Retirement Home for Pennsylvania Family

Home remodeling project revolved around mechanical systems

The old raised ranch home that Seth Thomas and his wife, Sabrina, bought in the spring of 2014 looked like it needed lots of work. And, while they thought they were ready to complete the necessary repairs, they weren't ready for the sticker shock that accompanied the remodeler's final estimate.

Kevin Hess, president of Lititz, Pennsylvania-based Elm Ridge Construction Inc., who had made several visits to the Thomas' new place in Mount Joy, Pennsylv-

due to unexpected challenges. During that time, Seth and Sabrina, their two kids, and their pack of dogs continued to call the house a home. That was until the impending winter brought a blizzard to Pennsylvania, which caused the Thomas family to relocate to a trailer on the property.

EVERYTHING HAD TO GO

As Elm Ridge crews dismembered the inner parts and pieces of the 1,800-square-foot home,

simple, sensible technology with a few high-tech bells and whistles. Before the first crowbar was swung, Seth Thomas learned about Runtal hydronic radiant wall panels. The pair soon specified them for the project.

Sabrina Thomas had always wanted a wood-fired cooking stove in the kitchen. It got its first workout last winter, producing fresh bread from local wheat that they ground to giant cauldrons of stew.

"It also has the advantage of providing loads of heat in the

kitchen, which is perfect for cold winter days and nights," said Sabrina Thomas. That's good because they found out — late in the remodel — that it was going to be nearly impossible to heat the kitchen as they'd planned. Ultimately, they opted to use Watts' Radiant HeatWeave electric radiant heat mats to warm the kitchen's tile floor.

ANTHONY 'HERO' REIKOW

Anthony Reikow, a trainer with the manufacturer's rep firm B.J. Terroni Co. Inc., knew several people involved with the job, so he offered to design the hydronic system.

A few weeks after completing the mechanical plan, knowing the mechanical installers would soon turn his two-dimensional drawings into 3-D reality, he stopped in to answer questions and introduce the chosen mechanical contractor's installers to some new technology.

"Being at the job with several of the installers was a great opportunity," said Reikow. "Typically, at a training site, I try to challenge installers with theoretical questions. But, at this job site, we could tie our conversa-

tions to the challenge at hand. The installers had great questions for me."

The day Reikow arrived at the Thomas' home, several techs with Manheim, Pennsylvania-based Haldeman Mechanical Inc. were busy moving 5/8-inch Watts Radiant Pex-Al tubing from the mechanical area to locations where the Runtal wall panels would be installed.

They took an extended lunch break to participate in Reikow's impromptu training session. "We learned a lot," said Ken Leed, senior tech, Haldeman Mechanical. "We do a pretty good job staying up to date with the latest technology, but Reikow threw a few surprises at us that day."

In the home's mechanical space downstairs, Haldeman installer Dan Williams was hanging a 75-MBtuh Laars Mascot modulating condensing boiler, which served a seven-zone hydronic system with an 80-gallon Bradford White indirect set as the priority zone to meet the family's domestic hot water needs.

"We chose the Laars and Bradford White appliances because of our experience with them," said Williams. "The Bradford White



EXTREME MAKEOVER: During the remodel, most of the home's roof and all of its windows, doors, and electrical and mechanical systems had to go.

nia, immediately recognized their shocked expression.

"We could simply scrap the place — forget all the demolition and repairs — and build a new home on the property," said Hess, which fell flat with the Thomas', who opted to stick with their remodeling project.

"We were ready for one last, great adventure," said Seth Thomas. "Well, we thought we were."

"What we didn't anticipate was just how great that adventure would be," said Sabrina Thomas, without missing a beat.

What was initially thought to be a six-month renovation stretched into nine months

they discovered that just about everything, including the electrical service, most interior walls, flooring, insulation, old chimneys, plumbing, the original furnace with its a/c coil on top, and even the septic lines in and out, had to go.

"By the time we began the remodel, the house was gutted. Most of the roof, sheeting, and siding were gone," explained Hess.

"We were nomadic for the last couple of months of the project," said Sabrina Thomas, with a laugh. "We were dog-tired when the work was done — and so were the dogs."

When planning the remodel, the Thomas' chose a blend of



ON-THE-JOB TRAINING: Anthony Reikow (right), trainer, B.J. Terroni Co. Inc., provides a quick update on the latest in zone control and circulation technologies and strategies while the team at Manheim, Pennsylvania-based Haldeman Mechanical takes mental notes.

indirect features an extremely low pressure drop and an excellent recovery rate. The 95 percent efficient Laars boiler was designed for tight space installs, like this one, and offered us up to 100 feet of standard PVC [polyvinyl chloride] or CPVC [chlorinated polyvinyl chloride] venting piping, and we needed most of it.

“I’d never installed a system quite like this one before, so it was helpful that Reikow spent some time with us,” added Williams. “One of the first things he and I spoke about was my preference for Taco Comfort Solutions’ circs and other components. Anthony agreed, but he knew more about their newest ECM [electronically commutated motor] circs than I did.

“With his help, I switched from my earlier preference for a

pump in its class,” said Reikow. “The delta T control will help the Mascot boiler reach condense mode and work at its peak efficiency all season long.

“The VT2218 comes with two temperature sensors to provide delta-T readings to the pump’s control, which is programmed

in three different modes, the infinitely variable fixed speed; constant-pressure, self-adjusting, variable speed; and proportional-pressure, self-adjusting, variable speed.

For this application, the team chose the infinite-adjustable speed setting. “The indirect

return line and a Taco SmartPlus hot water recirculation system.

Yet another challenge for the Thomas’ was the property’s limited water supply and water quality. The home’s existing well offered only ½ gallon per minute (gpm) of water from a 200-foot borehole. Another shallow-drop

dimming function that reduces the unit’s energy consumption [during standby, no-flow periods] by almost 50 percent,” said Seth Thomas. “And, because I monitor and maintain the systems, I like the touchscreen diagnostics that quickly provide information, such as remaining lamp life.”



SIMPLE AND EASY: One of Taco’s Zone Sentry valve actuators’ many benefits are that they easily snap into position.



INSTALLATION COMPLETE: Dan Williams, installer, Haldeman Mechanical, completes the installation of a Watts expansion tank.

VR1816 as the main system circulator to a higher performance VT2218 to provide flow for several Zone Sentry zone valves,” continued Williams.

Each of the Zone Sentrys governs flow to and from the six heat zones, with warmth served-up through the tubular wall panels.

CIRCULATION STRATEGY

“The new 00e VT2218 circulator was the optimal choice as the main system circulator and is the only temperature-sensing

to save hundreds of dollars in fuel costs right out of the box,” added Reikow.

Typical uses of the VT2218 include hydronic systems zoned with zone valves — just as this system was installed — serving radiant panels or in-floor loops, injection pumping, snowmelt, or hydro-air fan coils.

They chose the smaller ECM wet rotor 00e VR1816 circulator to provide flow from the boiler into the Bradford White indirect.

With the turn of a dial, the VR1816 provides simple, self-sensing variable-speed operation

needs a lot of flow to meet the domestic water demand, so we can adjust the flow based on the actual need for the domestic loop,” said Reikow.

CHALLENGES SOLVED

The downstairs bathroom also provided numerous comfort challenges. To avoid the time and expense of finding out how the Haldeman pros could get hydronic heat into that space, the Thomas’ chose another small Watts Radiant HeatWeave mat for installation under the tile floor.

Sabrina Thomas thought that getting heat into the home’s two-bay garage would be a challenge, too, though the installation of an LP-fired, 30,000-Btu HotDawg from Modine Mfg. Co. solved the problem in a jiffy.

“There were plenty of these surprises along the way,” said Sabrina Thomas. “But there were creative solutions to choose from at each turn.”

“Another problem to solve was the need for fast domestic hot water to fixtures and appliances far from the mechanical room,” said Matt Woodcraft, owner of Life Flow Plumbing in Lititz, Pennsylvania.

So, Woodcraft and Logan Weaver, apprentice plumber, installed a dedicated Watts PEX

well that was connected to the house struggled to supply a three-week recovery rate.

WATER SOLUTIONS

Four days after moving in — long before the remodel — the Thomas’ ran out of water.

A new, 585-foot-deep well was drilled, though the water was laden with hydrogen sulfide, high nitrate levels, and plentiful coliform bacteria, which is all too common in farming areas.

Experts led the Thomas’ to solutions consisting of a Stenner chlorine dosing system, a Watts OneFlow physical water treatment (PWT) system, SmartStream UV, final Watts charcoal filtration, and a point-of-use reverse osmosis system in the kitchen.

Perhaps the most important facet of the antimicrobial water treatment system is the Watts SmartStream ultraviolet (UV) technology.

UV systems help eradicate water-borne chlorine-resistant protozoa like Giardia and Cryptosporidium and bacteria like coliform, E. Coli, and Salmonella as well as several viruses and parasites. They require no back-washing, no chemicals, and minimal maintenance.

“I especially appreciate the [SmartStream’s] auto-lamp-

McCarthy and Snyder also offered some advice about the installation of the Field Controls LLC heat recovery ventilation (HRV) system with fresh-air dampers triggered by fan use or switches.

“We learned about the importance of bringing fresh air into the Thomas’ home because it was so well sealed,” said Williams.

“Guilty as charged,” said Seth Thomas, who admitted that in addition to ordering R36 for the walls and R50 insulation for the ceilings, he also secretly released 50 cans of expanding foam in every nook and cranny he could find.

“Inside, conditions are more comfortable than we’d imagined all winter long, and summers, thanks to the heat pump, are cool and dry,” concluded Sabrina Thomas. “The dogs are glad it’s all over. And, that’s it — no more adventures.”

Information courtesy of John Vastyan, owner of Common Ground, a trade communications firm based in Manheim, Pennsylvania. He can be reached at 717-664-0535 or cground@ptd.net.