



Radiant for the Common Man

Alaska is a thriving market for smart radiant hydronics *By John Vastyan*

There are a lot of folks in Alaska who can thank Kurt Wilken for the warmth and comfort they enjoy each winter. Life gets tough in the Anchorage area when temperatures drop way below zero for weeks at a time and it seems that even the sun is too cold to rise.

But Wilken, who owns Statewide Mechanical LLC, has been on a mission since 2000 and it's the deep freeze that drives his unique brand of radiant evangelism. "I grew tired of hearing about radiant heat as the exclusive source of cold weather comfort for the 'rich n' famous,'" he said. "Sure, wealthy people have the ability to fund elaborate, multi-zone radiant heat systems in second and third homes the size of a Wal-Mart store. You know, our roads aren't teeming with Maseratis and Lamborghinis. We see a lot of Fords, Hondas and Chevys around here, and they seem to get the job done pretty well, so why shouldn't there be an equivalent in the radiant world?"

Even though few could argue against the natural beauty of the state, enterprising business pros like Kurt Wilken have one key disadvantage in working their trade—they've got about nine months to do what most contractors can stretch out over 12. Time is of the essence because,

when winter arrives, it slows things to a crawl. Alaska winters begin in September and roll along well into April, leaving four months to *git 'er done* when it's warm enough outside to do the exterior work. "We've hit ice underground while trenching in May and June," he added.

When the weather cooperates, Wilken routinely works between 60 and 70 hours a week (on a *normal* week). And if he's not working, he's driving to the job site—his 4½ year-old pickup truck has 224,000 miles on the clock. Statewide's territory covers about 20,000 square miles.

Statewide Mechanical currently employs 12 hydronic and radiant heat specialists and maintains seven trucks. The company's focus is new construction installations, typically ranging between 1,500 and 3,000 square feet; duplexes; multiplexes; apartment buildings; condos and hotels.

Just two years ago, Wilkins said, the new construction market in Anchorage was robust. Today, the home market has deflated by around 30 percent. An interesting twist, however, is that more builders have moved to hydronic heat (radiant heat, baseboard and hydro-air) as a means of enticing buyers, appealing to their desire for higher energy efficiency, system reliability and comfort.

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Late last summer, Wilken and one of his crews tackled installations at a 1,447 square-foot ranch style home in the Anchorage suburb of Wasilla. The installation is the essence of what helps to differentiate Statewide's offering among his 25 home builder customers: availing a plumbing/domestic water and radiant heat package that's relatively simple, reliable and affordable.

"But there's no compromise on efficiency, comfort or durability," Wilken said. "We use only the best and most reliable products on the market; our 'recipe', if you will."

That recipe includes miles of potable water PEX, radiant heat tubing and manifolds. Also in the mix are 72-gallon, 76,000 BTU gas-fired power vent Bradford White Combi water heaters to meet domestic water and space heat needs simultaneously. "The new design with its large steel heat exchanger is just what we need," Wilken said, adding he has high marks for Grundfos pumps: "We buy 3-speed UPS 15-58 circulators by the pallet." Most systems are topped off with Watts feed-water components, backflow devices and relief valves.

"It's like building a machine that works, over and over again," Wilken said. "We know exactly how best to build the system, and how it will perform. We have a stable list of system components, and how each piece goes

in, everything about its operation, and how it interacts with all the other pieces."

This helps Statewide enhance its offering to prospective homeowners. Statewide's mechanical package looks simpler when compared to more elaborate and expensive hydronic systems. But the "package" does this in spades: it avails radiant heat and plentiful domestic water heating to many first-time home buyers who would otherwise miss out on the comfort and reliability that wealthier folks have come to take for granted.

The Wasilla home is tucked into the Center Point development, built by Horizons, LLC, based in Eagle River. Horizons is a moderately sized builder for the region, with a strong emphasis on comfort and quality.

"We wouldn't recommend installing anything other than radiant heat in one of our homes. It's our standard; not the upgrade," said Horizons co-owner Linda Frank. "The heating quality, and comfort far exceed any other heating design we've experienced. Statewide Mechanical installs many of these systems in single family, duplex and multiplex applications with great success."

The home at Center Point achieved a 5-Star Energy Rating—this is an Alaska Housing rating which meets the criteria for Federal tax credits (especially important for the builder). It has two radiant zones: one for the master



Kurt Wilkin of Statewide Mechanical, LLC, said his radiant hydronic business has seen rapid growth as local home-builders use it to entice buyers.

bedroom and guest bedroom, and one for the main common areas. There are also two high-heat zones; one for the garage heater by Beacon Morris, and the other for the power-vent Bradford White "Combi."

The system's first priority is the domestic water heating. When that need is met, it's got plenty in reserve for space heating, whether it's used for radiant or hydro-air. Wilken said the water heater's, double-wall, glass-coated steel coil ensures separation of the potable water and heating fluid: "The biggest plus is the efficiency of its domestic water recovery," he said. "With the much larger internal coil, head loss is reduced significantly. So now there's no need for concern when we need to pump out enough heat to satisfy 40 BTU per square foot. If we need it, it's there."

That capability plays well with another of the water heater's strengths: the challenge of heating domestic water in Alaska. Groundwater temperatures are typically around 38 degrees Fahrenheit, requiring a lot more BTUs to heat the incoming supply. Wilken's water heater of choice can handle this nicely when he sets the aquastat to its highest temperature setting of 180 F.

"With the Grundfos pump set on high speed, we usually see a 150-degree outgoing temperature and a return temperature of 130



Components from Bradford White, Watts and Grundfos are part of radiant hydronic heating systems, Statewide style.

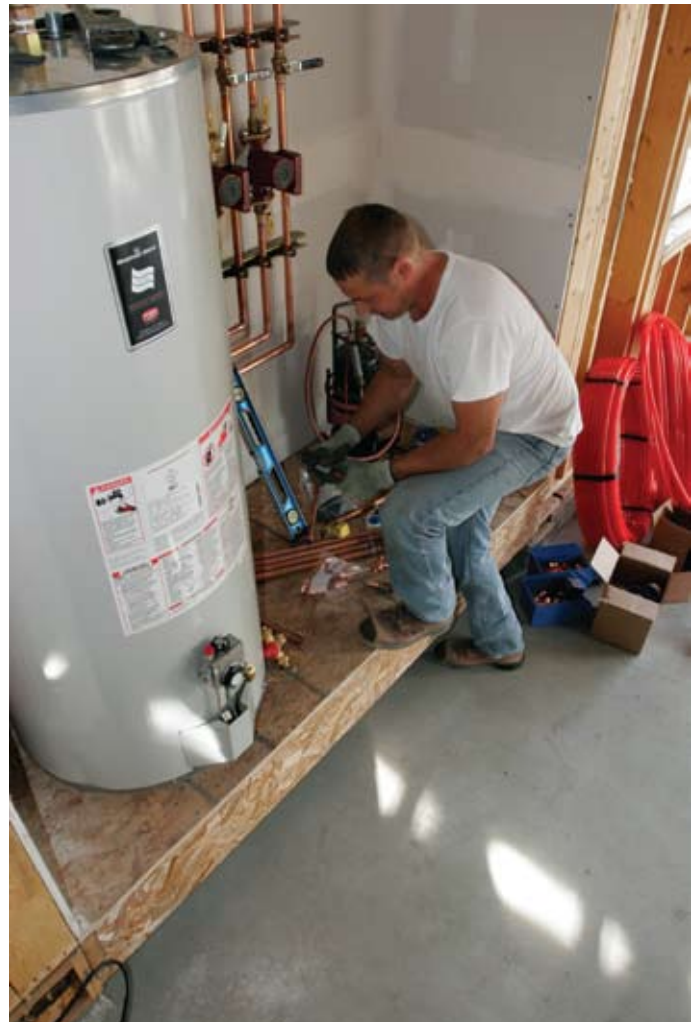
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degrees,” added Wilken. “And because the Combi’s are preheated to 180 degrees and the packaged tempering valve is being used, you essentially have 130 gallons of water preheated, and ready for domestic use, with a 38 degree incoming temperature.”

Wilken revealed another part of the recipe when he mentioned that they use 110 line voltage t-stats to simplify control wiring. “Each t-stat controls one of two Grundfos wet rotor circulators,” he said. “The flow check in each pump helps to eliminate natural convection. We also use a spring check valve on the return side of the Combi’s heat exchanger to completely eliminate the tendency for thermal migration. The circulator’s three-speed capability is also important. We have the flexibility of using any of the settings, and we’ve learned that later changes to the system can usually be met with the simple flick of a switch.”

Transporting the heat at the house is 2,400 linear feet of ½-inch PEX tubing. Another 1,200 feet of PEX was installed to meet all domestic water needs. And because of the system design temperature—30 degrees below zero—Wilken typically uses 150 F delivery temperatures for the staple-up radiant. “We use ‘full curl talons’ rather than staples for the under-subfloor, suspended tubing application to eliminate the risk of noisy expansion,” he said.

Wilken added they can meet space heating needs within multiplexes with shared common walls with radiant heat outputs of 20 to 25 BTUs



Statewide Mechanical's radiant hydronic installations aim to provide Lamborghini performance for Chevrolet money.

per square foot. And, for the freestanding single-family homes, they occasionally need to go as high as 40 BTUs per square foot.

“Along exterior walls, we routinely go to four-inch centers when attaching radiant loops to the subfloor,” he said. “The way that’s done within a 16-inch joist bay is to pull a complete run through and into the joist bay and then to run another loop within it. The first loop goes to the outer position within the joist bay, and then the second pull goes within that one to get four-inch centers.

For insulation, they usually see R19 in the walls and R42 or R60 in ceilings. Below their staple-up work, R13 with a 2- or 3-inch air gap just under the subfloor is most common.

Another interesting piece of this mechanical puzzle is one that pertains to any system installed in Alaska. Few people realize that Alaska is one of the most seismically active regions in the world. As a precaution, the state has mandated seismic strapping for all water heaters.

Statewide will do between 200 and 250 systems within the next 10 months. By next July, Wilkins said he anticipates taking on several new subdivisions and multiplexes, all in the early planning stages now. Though the construction boom may be down in Anchorage, this firm’s found a recipe for success. ■

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