



**Doug Davis and one of his employees install PEX tubing for a snow-melt system at the Bernstein residence in Montana.**

# Radiant preferred

Contractor uses a systems approach on custom-built 'second' homes.

SPECIAL TO CONTRACTOR

If you're in the home comfort business, look to the Rocky Mountains for the grandest of jobsites, five-star surroundings, plentiful fresh air and weather conditions that are perfectly suited for radiant heat.

In the Flathead Valley near Glacier National Park, one of the Northwest's top vacation and skiing destinations is

the community of Columbia Falls, Mont. It's here that Doug Davis, owner of Davis Plumbing and Heating, has operated a successful plumbing and radiant heat business since 1986.

Davis' firm focuses exclusively on residential and light commercial plumbing and heating, with radiant heat as the only heat source it offers. The firm employs three journeymen plumbers. Typical jobsites are new cus-



**Doug Davis says that he uses PEX tubing in about 10% of his jobs. Montana's extreme temperatures often help determine his choice of materials.**

tom homes in the \$1 million to \$4 million range. Customers — chiefly repeat business with the same high-end builders — call for expertly designed and installed systems.

"The market has grown steadily here, but not to the detriment of the environment," Davis says. "That's something that makes this region of the

world so desirable as a place to live, visit and enjoy.

"We tend to be at the higher end of the scale for our work, so the quality of our craftsmanship, and an ability to meet and exceed expectations, becomes valuable. We build customer relationships that span many years. The builders we work for appreciate the quality we offer and our dedication to service, quality and intellect."

Davis' builder customers include Casey Malmquist of Malmquist Construction. Malmquist's custom-home projects are typically 6,500-sq.-ft. to 7,500-sq.-ft. "second" homes. One steadily consistent characteristic is the installation of radiant heat. Malmquist champions the technology among all prospective customers. His record, thus far: only two homes in 14 years have seen the installation of forced-air heat.

"I've had radiant heat in my own home for many years," Malmquist says. "In this area, it's become the technology of choice, especially here where the heating days far outnumber the cooling days. Sure, it requires some up-front explanations — such as radiant vs. convection, the disadvantages of circulating dehydrated air and heat stratification, as well as radiant's efficiency and comfort benefits — but when I'm done with that part of my presentation, the customer usually agrees.

"The most frequent feedback we get from customers is how glad they are we educated them about radiant heat. Not that they liked a home's many aesthetic features or its design. Radiant heat — 'Glad we did it.' That's the most consistent compliment we receive."

## 'Preferred Sub'

That Davis Plumbing & Heating is now the builder's only heating subcontractor is a testament to Davis' commitment to quality workmanship.

"At my company, we developed a system we refer to as 'Preferred Subs,'" Malmquist explains. "A couple times a year, my crews and I rank all of our subcontractors by criteria that include quality, invoicing, timeliness, cleanliness and attitude. Doug Davis and his crews are consistently at the top, and so we form a relationship based on mutual benefit all the way around. For their dedication to craft, we pay them quickly and help them on the jobsite and with scheduling."

For Davis, it's a great position to be in, and it's one that he and his em-

# HYDRONIC RADIANT HEAT



Davis Plumbing and Heating employees install Onix tubing in the interior of the Chambers home. The contractor takes a systems approach and works with the same components on most of its jobs.



Doug Davis finds time in his busy work schedule to enjoy his surroundings.

employees work hard to maintain.

"I've also come to appreciate that in the radiant heat business, especially at the higher end, not all tradesmen can do the work properly," Davis says. "Many of the more complex radiant heat systems require the work of experienced professionals, and those who stay abreast of the changes in technology and its use."

One element of Davis' success is that his installers compete with one another to do the best job possible. It's an approach that keeps people sharp and thinking about ways to improve installations all the time. Another part of Davis' recipe for success includes an approach to radiant installations that's replicated for each job.

'In the radiant heat business, especially at the higher end, not all tradesmen can do the work properly.'

"We make modifications as each job calls for it, and as new technology enters in," he says, "but at the start, we have a systems approach that is core to our product offering."

## Systems approach

Davis' systems approach has a number of critical components. These include:

**Injection pumping.** A few years ago, Davis looked at a leading supplier's recommendation for laying out high-temp and low-temp loops, location of injector pumps and zone pumps — and he changed the recipe. By altering the arrangement of the high-temp loop, the low-temp loop, pumps and controls, he improved the system substantially.

"The arrangement that we use may take up a bit more space in the mechanical room, but that's never bothered my clients," he says.

**Microprocessor controls.** Davis installs many control systems that require connection to home automation equipment.

"The control units we use permit homeowners to connect to their

home's comfort system remotely," Davis says. "They can monitor and change settings within the home from any location worldwide. It's amazing to me how popular this approach has become."

**Preferred suppliers.** Davis tends to use the same suppliers for major components of his systems as well as the same local wholesaler. These companies include Watts Radiant, Lochinvar boilers and MDM Supply in Kalispell, Mont.

Davis says that he uses Watts' products because of the supplier's quality and dependability of product, breadth of line and product support. Ease of installing Onix EPDM rubber tubing is another consideration — especially in cold weather.

"We've installed radiant heat and snow-melt systems at temperatures where working with PEX would be an impossibility," he says, adding that he uses PEX on perhaps 10% of his jobs.

Reliability is an important factor in Davis' choice of Lochinvar boilers.

"Risk of thermal shock is eliminated because the

copper tube heat exchangers take system startups in stride," he says. "The low-mass, high-efficiency boilers have given my customers trouble-free operation year after year."

Another ingredient in Davis' success, he says, is his firm's relationship with Dennis Bennett and the staff at MDM Supply, which helps with system design.

"We're delighted with how well it's all come together," Davis says. "We've worked hard, and thought hard, to arrive at the right approach to giving our customers a system that exceeds every expectation."

## The Chambers residence

Typical of Davis' work is the Chambers residence, a 6,500-sq.-ft. wood-frame home with log and stone accents. The two-level house has four bedrooms and five bathrooms, plus a guest suite over the garage that includes a bedroom and bathroom. All the floors use 3/8-in. Watts Radiant Onix tubing, typically on 12-in. centers with some banding on exterior walls and windows. All the tubing is

encased in Gypcrete.

"I've been using the Onix tube for 12 years and never have had a problem," Davis says.

The heating system starts with a standard-vent model Lochinvar boiler. The hot water goes through a primary loop to an injection pumping station.

Although a number of manufacturers are offering a prefabricated injection system in a box, Davis prefers to design and build his own for each job. He says he's received nothing but positive responses from homeowners on all the houses he's done with an injection system.

"It creates such an economical system that it's ridiculous to go any other way," Davis says. "I've gotten feedback from a lot of homeowners, and not only do they love the heat, it's not that expensive to run."

Grundfos UP1542 zone circulators distribute the heat to the seven zones in the Chambers residence. The six space-heating zones are: storage; children's bedrooms, family room, office and laundry; master bedroom/bathroom suite; dining room, kitchen, breakfast nook and mud room; garage; and guest suite. This property does not have a snow-melt zone.

The seventh zone is the 60-gal. Amtrol BoilerMate Premier. The indirect tank recovers 242 gal. per hour on a continuous flow at a 70°F rise.

The system is controlled by a tekmar system with outdoor reset and air sensors in each zone. Davis says he can read return water temperatures on every zone.

For the domestic water plumbing, Davis says he prefers copper, which generally is the choice of his builder and homeowner customers. For the Chambers home, he installed a Unistrut trapeze system to hang the insulated copper pipe in the crawl space. The DWV systems in his projects are mostly PVC, although Davis says he uses cast iron in some areas for noise control.

The rest of the plumbing in the Chambers residence includes Kohler sinks and water closets, a Kallista bathtub, and faucets by Grohe and California Faucets. The kitchen features a Kallista stainless steel sink, Grohe pull-out spout faucet, Franke pot filler and In-Sink-Erator disposer.

Although projects such as the Chambers residence continue to provide Davis Plumbing and Heating with a steady stream of work, Doug Davis is able to take time to enjoy his surroundings with his wife and two teen-aged daughters.

"We're passionate about our work," he says, "but we're just as eager to enjoy life in one of the most amazing places on earth. It's a good ride."