

BY LISA MURTON BEETS

# DREAM BIG

## How Advanced Radiant Design turned one homeowner's vision into an award-winning reality.

When Ira Conklin set out to build his family's dream home, he knew what he wanted—and that included a radiant heating system. With a mechanical and technical background, he was familiar with the technology and well aware of the excellent comfort and energy efficiency it provides.

"The Conklin family was referred to us by a mechanical contractor we have worked with installing commercial radiant heating," says John Abularrage, president of Advanced Radiant Design Inc. in Stone Ridge, N.Y. Good thing, because the job turned out so well that not only is the Conklin family enjoying the system immensely, but it also received the Radiant Panel Association's 2002 System Showcase award for the best hydronic residential application of more than 3,000 square feet.

The Conklin home is expansive, consisting of 8,500 square feet with 10 heating zones. Ira Conklin served as general contractor for the project.

"We educate all of our clients about the options available with radiant, but Mr. Conklin was already educated. Our job then, became to take his vision and turn it into a reality," Abularrage says. "Working with his thoughts and ideas, our design began to take shape. We presented some options that refined and enhanced the system such as towel warmers and dual boilers to heat the home and the outdoor pool, and to add greater efficiency to the system. Mr. Conklin wanted the full package. That excited us. It's always satisfying to design and install a beautiful job that functions very well, and with this project, we were really able to unleash our creativity."

### Features in place

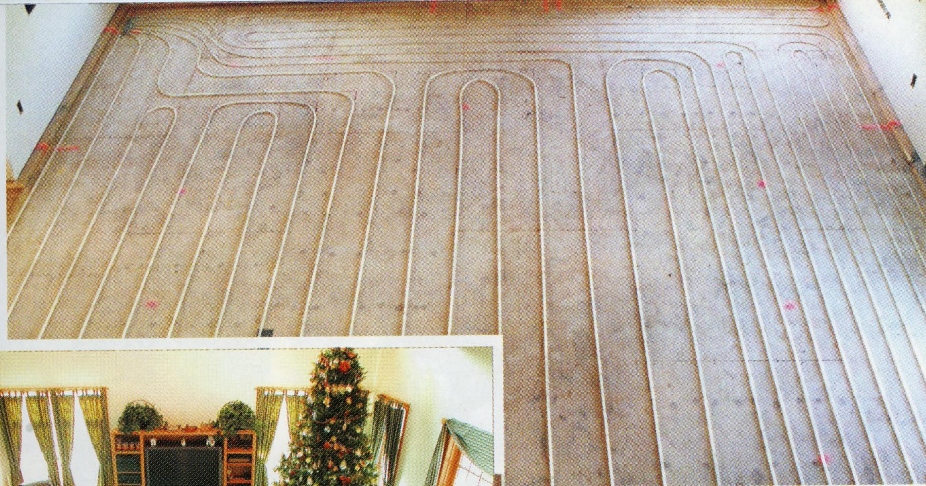
The Conklin home features radiant floor heating, domestic hot water heating, Runtal towel warmers in the master bath, swimming pool heat, and a provision for the hot tub, which will be added in the future. Advanced Radiant used  $\frac{3}{8}$ -,  $\frac{3}{4}$ - and 1-inch Wirsbo HePex Plus tubing, embedded in the basement slabs for supply and return lines to each of the 10 zones.

Supply and return piping was routed back to the wall where the control panel would be mounted, allowing for direct connection to the control panel without any further piping offsets.

"All of the supply and return mains to manifolds were run in-slab, and the only copper piping used for the distribution system runs vertically from the basement

**The 8,500-square-foot home has 10 heating zones.**





**The family room during construction (top), and after (left).**

of the system within each zone and room.

“The architect’s electronic floor plans were imported into our CAD system. This enabled us to lay out the tubing electronically to scale, optimizing the layout for comfort. This also ensured that the installation would be accurately executed as designed, and provides accurate documentation of the installed tubing.”

Abullarrage explains other aspects of the design as follows:

*The boiler system consists of two*

straight up to the second floor zone manifolds,” Abullarrage notes. “All circuits were separated by room and interior/exterior loops within each room, and connected to Wirsbo brass manifolds with integral balance valves. This allowed for fine-tuning

Weil McLain oil-fired boilers that use outside air for combustion and are controlled with a tekmar 262 boiler control, which stages, rotates and resets the boiler water temperature. The 262 controller also integrates domestic hot water into the system.

*Radiant distribution temperature control* is provided by a tekmar 362 injection mixing control utilizing an outdoor reset strategy. The radiant zones are controlled by two tekmar 369 zone controls providing indoor temperature feedback to the 362 controller.

*The towel warmers*, which provide supplemental heat for the master bathroom, are controlled with a Danfoss thermostatic radiator valve and remote dial actuator. A manual switch was provided so the homeowners can activate the towel warmers year-round, not only during the heating season.

*The swimming pool* is heated through a flat-plate heat exchanger. The temperature is controlled by a tekmar 150 set point control that initiates the heat demand signal to a tekmar 356 injection mixing control to provide heat to the pool. This arrangement provides accurate pool temperature control while providing boiler protection from cold shock and condensation.

*The control panel* was pre-piped, pressure tested, insulated, wired and programmed in the Advanced Radiant Design shop. Because of the size of the panel, it was fabricated in two sections, one for the primary loop and high-temperature secondary circuits and the other for the secondary radiant zone distribution. All the system controls are fully integrated and utilize sensors to monitor and regulate the production and distribution of heat for greater comfort and optimum system efficiency.

*The project documentation* consists of operational descriptions for each subsystem; system purging procedures; and system electrical, piping and tubing layout schematics, as well as valve charts. All the control piping, valves and wiring were labeled for clarity and cross-referenced with the system documentation.

[some like it hot]

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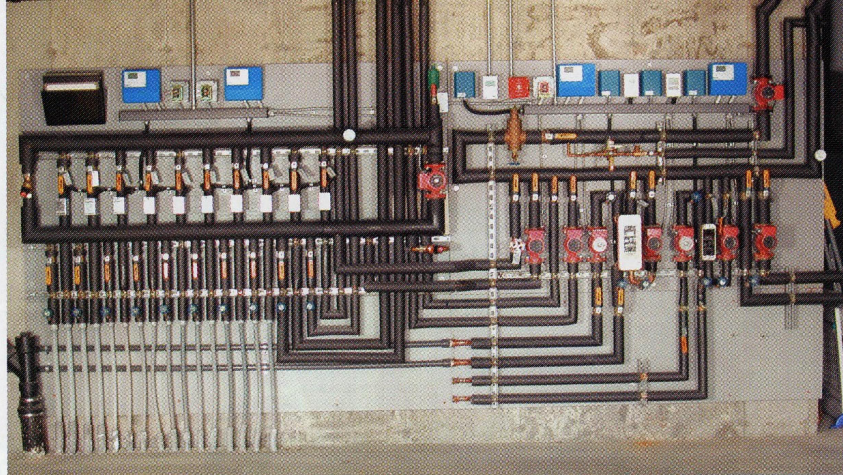
As with all its jobs, Advanced Radiant Design provides a thorough walk-through at project completion to ensure the homeowners completely understand their system.

### From the homeowner

Overall, Abularrage notes, the project went very smoothly. One surprising concern involved the size of the control panel.

“We were given a nice, large mechanical room with 15 feet of wall space for the control panel,” he explains. “How often do contractors get that kind of luxury? However, as we began to design and lay out the panel, we realized we really had to watch our sizing very carefully because of the many zones involved. With careful planning, we made it fit perfectly—without an inch to spare.

“Mr. Conklin told us that the mechanical room is one of the most ad-



The meticulously designed control panel doesn't have an inch to spare.

mired rooms in the whole house, which makes us very proud. It's really gratifying when a customer truly appreciates your work.”

Ira Conklin adds that he would highly recommend radiant heating for any size house.

“The heating in our house is completely even—there are no cold spots,” Conklin says. “I can't tell you how much we're enjoying the warm floors throughout ... in the kitchen, the bathroom, everywhere.”

Conklin emphasizes that it's important for a potential radiant system buyer

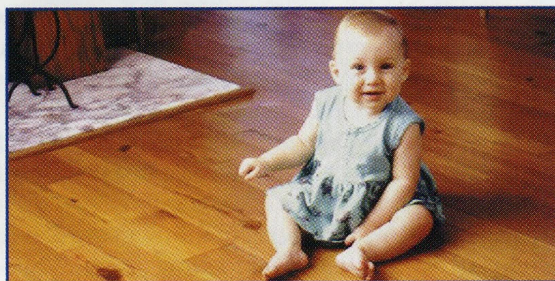
to get educated about the options.

“I had studied the technology before I even approached Advanced Radiant Design, yet John was extremely helpful in further defining the options,” he says. “His work is beyond excellent. He always does what he says he'll do and follows up. Simply put, he does perfect work—and that's the kind of contractor anyone would want on their team.”

*Lisa Murton Beets is a Cleveland-based free-lance writer and frequent contributor to Radiant Living.*



## Hydronic Radiant Heating



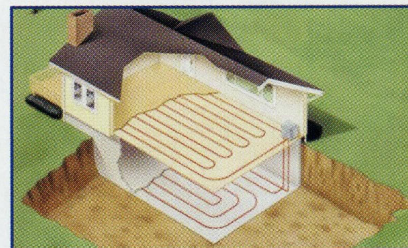
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