



# Hydronic

## Under 3,000 sq. ft. Residential

Advanced Radiant Design Inc. • Stone Ridge, N.Y. •  
Ohayo Mountain Project



### Warm Every Mountain

Last year's winner of two System Showcase Awards is back. In only its second year submitting projects to the RPA contest, Advanced Radiant Design Inc. takes home this year's prize for Residential Under 3,000 sq. ft.

The winning home sits perched on a mountain-side overlooking the Catskill Mountains of New York State, and was built in the Woodstock handmade house tradition using hand-hewn logs throughout the structure.

***A company's close attention to detail helps owners "feel the warmth."***

The heat distribution system for this 2,800-sq. ft. residence consists of three radiant-heated zones on the first floor and two zones of high temperature heat on the second floor. It's laid in a thin slab over a suspended wood floor with soapstone as a finished floor.

Due to the large glass area, the radiant tubing was laid out in parallel serpentine loops to supply the glass areas with 6-inch spacing and working back into the rooms with 12-inch spacing. This delivered a higher proportion of heat at the glass walls in order to increase the mean radiant temperature and provide greater comfort.





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There's tubing in the steps from the foyer to the living area, consisting of 1/2-inch Wirsbo He-PEX Plus tubing. Although all the tube lengths are within 5 percent of each other, Wirsbo brass manifolds were installed with integral balance valves for later fine-tuning, if necessary.

"The house plans were not drawn electronically," says Advanced Radiant contractor John Abularrage, "so we scanned the hand drawn plans into our computer to draw the tubing layout using our CAD system."

The company first superimposed the 6-by-6 wire mesh onto the floor plan. Then they completely drew out the tubing layout to scale. This enabled them to work out all the tubing lengths before beginning the installation and avoid "tubing" themselves into a corner.

The control panel was prefabricated in Advanced Radiant's shop to pip-

ing and wiring schematics produced on their CAD system. As with all of the company's projects, the control panel was prepiped, prewired and pressure tested. This gives Advanced Radiant control over quality.

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A tekmar 371house control was used to fully integrate control of the boiler, domestic hot water, zoning and variable speed injection mixing for the radiant heat distribution. The control is weather responsive and uses indoor temperature feedback.

The boiler system consists of a Buderus G124X32 LP gas fired boiler mounted on top of an L-160 domestic hot water storage heater.

The second floor zones were divided between rooms that had southern exposure and those that did not. Runtal panel radiators were used extensively throughout. These were fed from the primary circuit of the control panel.

The master bedroom had a fireplace for ambiance as well as heat. A thermostatic radiator valve was installed to limit the heat output of the panel radiators during use of the fireplace without affecting other rooms on this zone. Radiant floor warming was also used in the master bathroom. Supplemental heat was provided by fintube in a custom wood enclosure with a thermostatic radiator valve for control.

At the end of the day, Advanced Radiant radiantly heated 1,400 sq.ft. of the home. "We provided the owners with a complete and comprehensive user manual for the project, including piping, wiring, 'home run' routing and tubing layout schematics, as well as digital photos of all the critical areas," Abularrage says. "The manual also included a description of the system sequence of operation, purging procedures, system settings, as well as all manufacturer documentation."

Leaving no stone floor unturned, the company made sure the clients were happy. "We walked the owners through the system operation so that they understood what they could expect and how we could custom balance the system to maximize their comfort," Abularrage says. "After they had a chance to live in their new home and 'feel the heat,' we returned and balanced the system based on their feedback."



### **Award Winning Specialists Radiant Heating Systems Design and Installation**

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