References

Putnam County Home



Uponor involvement

Project highlights

- 5,800-square-foot residence
- Energy Star® Version 2.0 Home Energy Rating System (HERS) Index 47
- Certified as an EPA Indoor AirPLUS residence
- Pending LEED® for Homes Silver status

Products used

- Uponor Radiant Heating and Cooling System
- Wirsbo hePEX™ Tubing piping

Optimum energy efficiency

Learn how ENERGY STAR® recognition in energy efficiency was achieved by installing an Uponor radiant heating and...
The private residence of Malcolm Rowe in Putnam County boasts an immaculate energy envelope and has gained recognition as an Energy Star® Version 2.0, Home Energy Rating System (HERS) Index 47 labelled home. It is certified as a U.S. Environmental Protection Agency (EPA) Indoor AirPLUS labelled residence and is set to achieve received LEED® for Homes Silver certification.

Rowe's construction objective was to achieve ultimate thermal comfort and superior air quality. To achieve reach this goal, he hired Walden, N.Y.-based Aaron Ourada with Radiant Technology LLC. Ourada prioritized comfort at the top, followed closely by sustainability and energy efficiency. He achieved these goals by installing Uponor radiant heating and cooling systems, filtered whole-house ventilation and automated humidity controls.

Project Facts:

Location	Completion
Putnam County, New York, USA	2012

Building Type

Single homes

Project Type

New building

Achieving ENERGY STAR® recognition at home

Integral to sustainable design, the home's efficient thermal envelope includes R26 insulated concrete forms (ICFs) below grade on an R10 slab. R26 ICFs continue above grade to the framed R54 roof sprayed with three inches of closed-cell and six inches of open-cell insulation. The home's efficiency is furthered through a water-to-water ground source heat pump (GSHP) for an Uponor radiant floor heating and cooling system. The heat pumps are fitted with a heater which reclaims energy for domestic hot water storage and dehumidification reheat.

The home's in-floor radiant heating and cooling is embedded in concrete for each floor; the basement is slab on grade, and the second and third floors are poured concrete over ICF decking. The concrete thermal mass construction acts as a thermal energy flywheel to offset overnight peak loads so the mass stores energy and regulates temperate fluctuations.

For radiant cooling, the GSHP system reverses from heating mode to cooling, charging the buffer tank with chilled water instead of hot water. A variable-speed mixing pump controls the water temperature from the buffer tank to the radiant floor cooling system.

To say the homeowner is pleased is an understatement. "The builder guided me through our joint vision for a highly energy-efficient house comprising a geothermal energy source, radiant heating and cooling, insulating spray foam and web-enabled monitoring and control systems," he says. "All the planning paid off."

Putman County Home





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