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'Radiant Ready' Home Gets The Makeover It's Been Waiting For

The plan from the start for this four bedroom Wisconsin home was to rough-in the radiant heating system for future use. Before the basement slab was laid, and while walls and ceilings were open, it was important to get the tubing in.

"The 'radiant ready' concept makes great sense," said Dan Schlicher of DS Design Consultants in Watertown, Wis. Schlicher helped design and install the system. "The homeowners called back a few years later ready to complete the system, and with the tubing in place, everything was ready to go."

A furnace, which served as the primary heat source, would now become supplemental. The home's nine radiant ready zones included the basement slab, ceiling joist bays and an indirect-fired water heater. Clearly, a hydronic system capable of distributing both high and low temperature mixes was needed. Caleffi's HydroLink low-loss header, thermostatic mixing valves and radiant manifolds were selected.

HydroLink, a preassembled primary/secondary piping system neatly packaged into one compact unit, was used to distribute the different water temperatures required by the various zones. The HydroLink has two important features:

First, it hydraulically separates the boiler's (primary) circuit from the load (secondary) circuits. This prevents flashing from occurring within the low-mass condensing boiler due to excessive pressure drop at the boiler return.

Second, the secondary circuits are cleverly adjoined to the primary loop,



eliminating any tendency for a circulator to affect flow within another circuit. So, as pumps cycle on and off, they don't change the heat distribution characteristics within any of the other zones.

Three of the four HydroLink's secondary circuits were used to feed high temperature water to the indirect hot water heater and to two Caleffi radiant distribution manifolds for ceiling joist bay heating. "These state-of-the-art manifolds are the best we've found," said Schlicher. The micrometric balancing valves provide precise (+/- 5 percent) control of fluid with hand-turned convenience. The manual shut-off valves can be fitted with thermo-electric actuators, which, when used with ambient t-stats, maintain temperatures when thermal loads vary.

The fourth HydroLink secondary circuit was used to feed the basement slab. A Caleffi three-way thermostatic mixing valve controlled the water at the reduced temperatures required. "What I value most about Caleffi's mixing valves is their reliability. They have superb anti-scale properties. Whether I use them in a closed radiant system or on a domestic hot water system with less than perfect water conditioning, I don't get call backs. They last."

"Our home has never been so comfortable," said the homeowners. "Having radiant heat in the floors provides comfort with no compromise."

"This job would have been more costly if not for the Caleffi equipment," added Schlicher. "The HydroLink saved us at least 10 hours of labor had we fabricated a primary/secondary system ourselves. And the sometimes-tricky task of balancing different loop lengths was performed in a matter of minutes. The entire Caleffi product line is very innovative."

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