



**aquatherm**

Provide lasting pipe performance

PROJECT INFORMATION

# FOLLOWING THE GREEN GAME PLAN

PROJECT	PRODUCTS USED	LOCATION / DATE
Doleac Residence, HVAC and Potable Water Installation	Climatherm®	Park City, UT Mid-summer 2010

## AQUATHERM ADVANTAGES

- The natural R-value helps to reduce ambient temperatures in the mechanical room
- Provided a 15-20% cost savings on the radiant heating installation
- A 10-year warranty



## THE CHALLENGE

The homeowner sought to have an environmentally friendly home despite its size

## THE SOLUTION

Aquatherm's pressure piping was part of a system designed to deliver annual estimated energy savings of roughly \$2,500

*Setting out to build an environmentally friendly home, former NBA player Mike Doleac learned plenty throughout the process and benefited from having a well-rounded team. He and his family ended up with an energy efficient home that features relatively new-to-North America technologies.*

When you've played at the highest levels of a sport and been coached by someone as hard-nosed as college basketball coach Rick Majerus, it's easy to recognize the value in hiring an uncompromising general contractor to build your home. Thus, when Mike Doleac was starting the process of building a new 6,500-square-foot home in Park City, Utah, he liked the fact that his builder, Scott Ellerbeck of Ellerbeck Construction Inc. in Draper, Utah, was, shall we say, a bit aggressive in his expectations of his subcontractors and the construction process.

Doleac played a key role on Majerus' University of Utah basketball team that reached the 1998 NCAA basketball Final Four, and went on to play 10 years in the NBA for six teams, and he is one who prefers having a detailed game plan. "I like to have a thought process, and I believe that even if the thoughts are incorrect, it's so important to have a process that's based on a rationale," he said. "I don't like it when people just move forward without thought."

"My wife and I wanted the house to be an eco-friendly



This 6,500-square-foot barn style house was built with solar heat and the owner, a former NBA player, wanted it to be as environmentally friendly as possible.

home despite its size and we spent a lot of time doing all the legwork to get the right team members in place," Doleac said. In addition to Ellerbeck as GC, they ended up selecting: The Highland Group as architect; Carl Pond Plumbing & Heating Inc. for the thermal/solar aspects of the project; Gardner Engineering Alternative Energy Services, for the photovoltaic system; and Narco Plumbing and Heating for the radiant floor tubing installation.



## IN-GAME ADJUSTMENTS

One thing Doleac realized fairly early in the process is that while the game plan for an eco-friendly home can be drawn up perfectly on the chalkboard, once the process begins, the plans tend to shift. "When you start out everyone says, 'Yeah, let's make it as environmentally friendly as possible,' but then as the architects and all the other players get involved, things begin to change," he recalled.

In his case, one of the first changes was that the architects wanted to maximize his home's scenic views of surrounding mountains, which would have positioned the front of the house (the arrays) to the southwest as opposed to the south, which would have maximized passive solar gain in the winter. After much discussion they positioned the home so it faces south for maximum passive solar gain in the winter.

According to Carl Pond, president of Carl Pond Plumbing & Heating Inc., one of the most unique aspects of the home's solar system is that it's a solar-heated system as opposed to a solar-assisted system. "Unlike most jobs where it's a just a solar assist, this home uses solar as the primary heating source." This arrangement has been used extensively in Europe, but is relatively new to North America.

The Austrian-made ÖkoTech solar collectors provide 48% of the heating needs via an in-floor radiant heating system, and 98% of all domestic hot water needs. Pond explained that the CO<sub>2</sub> emissions output for this house was reduced by 58-79%



versus a traditional house. The home uses a Laars NeoTherm 285 direct-vent, sealed combustion, condensing boiler with 90% plus AFUE that modulates with a 5-to-1 turn down for the backup heating and domestic hot water on sun-less days.

## ANOTHER VALUABLE EUROPEAN PLAYER

The entire system is tied together with another innovative European concept/product, the Aquatherm polypropylene-random (PP-R) piping system, which is manufactured in Germany. When Pond was brought onto the job, he introduced the team to Aquatherm. Ellerbeck, who brought Pond onto the job, said everyone was on board with Aquatherm pretty quickly.

"I FELT ALL RIGHT USING IT SINCE IT WAS A WELDED JOINT. I'VE HAD A LOT OF PROBLEMS WITH MECHANICAL JOINTS OVER THE YEARS AND I COULD SEE THAT THE HEAT FUSION WAS GOING TO BE SOLID."

-SCOTT ELLERBECK, ELLERBECK CONSTRUCTION INC.

"I felt all right using it since it was a welded joint. I've had a lot of problems with mechanical joints over the years and I could see that the heat fusion was going to be solid," Ellerbeck added. For his part, Doleac was also open to Aquatherm: "Carl explained why Aquatherm would be a good fit for the home and how it works, and it seemed like a good product."

Aquatherm's PP-R piping, which has been one of the world's greenest piping systems for nearly 40 years and proven successful in 70-plus countries, was a natural fit for the project, according to Pond. The pipe's natural insulation value (it has an inherent R-value of 1) was important in the home's mechanical

“WITH AQUATHERM CLIMATHERM YOU CAN OFFER THE CUSTOMER A TEN-YEAR WARRANTY AND I CAN’T GIVE THEM THAT WITH ANY OTHER PRODUCT. THEY’RE GETTING A CORROSION-FREE, RUST-FREE, DETERIORATION-FREE INSTALLATION AND THEY WON’T HAVE TO WORRY ABOUT THEIR PIPE LEAKING...”

-CARL POND, CEO EEC AQUATHERM

room; if it had been piped in copper, the heat from the piping would have made the room unbearably hot at times, he added.

Aquatherm Climatherm, which is designed specifically for HVAC applications and can withstand constant temperatures up to 180°F, was used throughout the system and manifold, integrating the solar heat exchanger and all the piping in the mechanical room, storage tanks, and boiler. Aquatherm’s Greenpipe was also used for the potable water system. While Aquatherm is available from ½-inch to 12-inch, the pipe sizes on this job ranged from 1½-inch to ¾-inch. Pond estimated that using Aquatherm instead of copper provided a 15-20% cost savings on the radiant heating installation. Corrugated ¾-inch stainless pre-insulated pipe with a control wire was used to run from the solar collector to the heat exchanger to handle the 280° temperatures.

Pond, who is also CEO of EEC Aquatherm (the Aquatherm manufacturer’s representative in Utah and Nevada and the western states distributor), explained that he no longer installs copper on jobs where he can use Aquatherm. “With

Aquatherm Climatherm you can offer the customer a 10-year warranty and I can’t give them that with any other product.


“They’re getting a corrosion-free, rust-free, deterioration-free installation that comes with a 10-year warranty and they won’t have to worry about their pipe leaking, so those factors are gigantic when specifying a pipe in terms of performance,” Pond said.

Additionally, since the material used in Aquatherm requires less energy for initial production than other piping materials and doesn’t involve the environmental impacts associated with mining operations, the Doleacs were getting the most environmentally friendly piping option on the market.

## KEEPING THE FOCUS

“We really focused our eco-friendly initiatives on energy generation, but we did try to make the home earth friendly in other ways,” said Doleac. While they installed an air conditioning unit on the top floor, they are hoping to not use it very often.

Additionally, the Doleacs used environmentally friendly paint and other low- or no-VOC products and worked with a local arborist to plant native trees and shrubbery that will use minimal water. In the end, they built a fairly green home (despite its size).

Since the home is custom built and features some unique technologies, it’s difficult to compare its energy efficiency to a standard home, but Pond estimates that compared to a traditional home; the Doleacs will save roughly \$2,585 per year in energy costs. Additionally, they have the satisfaction of knowing they’re emitting fewer greenhouse gases, which was part of the game plan as they’d initially drawn it up. 

*A version of this article appeared in Contractor magazine. To view the article, visit <http://contractormag.com/news/green-game-plan-2345/>.*

The German-manufactured pipe has been one of the world’s most durable and greenest piping systems for nearly four decades and proven successful in 70-plus countries. Aquatherm piping systems offer many performance and environmental benefits, such as:

- Eliminating toxic materials, glues and resins, and open flames from the piping installation equation
- An R-value of 1 or greater depending on pipe size and SDR
- The fusion welding process, which creates seamless connections that last a lifetime without leaking or failing
- An optional faser-composite layer in the pipe reduces linear expansion of the pipe by up to 75% compared to plastic piping

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