

## AQUATHERM BLUE PIPE PLAYS A KEY ROLE IN INNOVATIVE REVERSE RETURN HEADER SYSTEM



### PROJECT:

Ivan Armstrong Trucking,  
Hydronic Heated Floor System  
& In-Slab

### LOCATION/DATE:

Arthur, ON, Canada  
October 2013 - February 2014

### AQUATHERM ADVANTAGES:

- Rust-proof Blue Pipe offers longevity and ongoing performance
- Aquatherm can be buried safely in soil, sand, asphalt or concrete
- Aquatherm withstands 180° F water at 100 psi

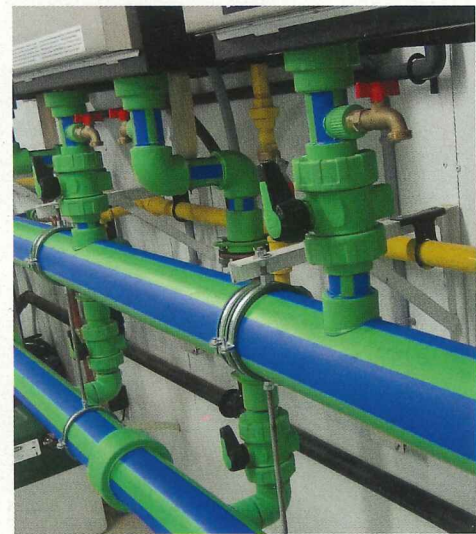
Ivan Armstrong Trucking® in Arthur, ON, Canada, serves the transportation and storage needs of high-profile customers like Honda Engineering North America and auto-parts manufacturer Dana Canada Corporation. When the company recently negotiated 40,000-sq-ft of new warehouse space in exchange for a five-year lease with an automotive-parts company, climate control was important.

Owner John Raftis requested an efficient, single-zone, heated floor design from his mechanical team which included Coffey Plumbing in Arthur and Hydronic Solutions Inc. in Waterloo. Coffey Plumbing owner Len Coffey and Hydronic Solutions owner James Kuepfer and technical sales and hydronic designer Brendon Yadu devised some innovative designs.

In the end, the design team specced a very effective reverse return header system using Aquatherm Polypropylene-Random (PP-R) Pipe. The 265-ft supply and 535-ft return lines are embedded in the concrete, running water from the boiler room to the floor heating circuits. "The design I was proposing brought simplicity and cost savings to the owner," Yadu noted.

### PIPE THAT DIGS A CONCRETE BURIAL

Coffey liked that Aquatherm Blue Pipe® is ideal for use in a concrete slab-on-grade installation. Another benefit was that the reverse return header system eliminated the need for a multiple



manifold set up along the length of the outer wall as well as subsequent piping to each manifold.

Coffey used 4-in. Aquatherm Blue Pipe coming off the boiler, dropping to 3- and 2-in. pipe as the necessary supply flow reduced to each loop. Aquatherm fittings and accessories included Aquatherm 90° and 45° elbows, couplings, fusion outlets, ball valves, flanges, tees, and NPT adapters.

"Our goal is to design energy-efficient hydronic systems and offer full support behind them," Yadu said. "After reviewing Aquatherm webinars and brochures on turf conditioning in particular, we knew this was the right piping method for this project."

Aquatherm Blue Pipe is engineered to be a superior alternative to steel, copper, and other plastics. Proven for 40 years, Aquatherm systems are safe for use in applications ranging

from -5°F to 180°F (based on pressure rating). Perfect for heating and cooling, nonpotable, and industrial applications, Blue Pipe offers an R-value of 1 or more, longevity, and ongoing performance, without weakening over time.

### HEAT-FUSED AND LIGHTWEIGHT PIPE

One jobsite challenge was heat-fusing the pipe in winter temperatures. To keep the welding irons hot during the fusion process, Coffey's crew prefabricated and fused the pipe inside an adjacent trailer and a heated mechanical room.

The pipe's relative light weight compared with metal – only roughly 2.8 lbs/ft for the 4-in. pipe – made it easy for the crew to pull out the 4-in. Blue Pipe headers as they were fabbed. Metal headers of this size and length would have required mechanical assistance and added cost.

Aquatherm fusion outlets were used to connect the PEX tubing circuits to the manifold. The fusion outlets allow branch lines to be installed when the pipe is already in place and can help save time and materials.

The building was divided into three areas to reduce material costs and eliminate the larger pipe runs that would have been needed to supply the required flow rates to the circuits at the end of the building. The three sizes of Blue Pipe also meant the installation didn't require several different sizes of fusion outlet heads.

### SEASONED PLUMBER EMBRACES PP-R

While Coffey had never used Aquatherm before, he was assured by the full support of Hydronic Solutions and

Don Weitzel, in particular. **A Hydronic Solutions expert in pump installations and licensed plumber, Weitzel has 40 years of experience in commercial and agricultural plumbing.**

Having Weitzel onsite from start to finish gave Coffey and his installers confidence. "Hydronic Solutions offered to help with the install and start up. I could not, and would not, have chosen this method if it wasn't for their help," Coffey said.

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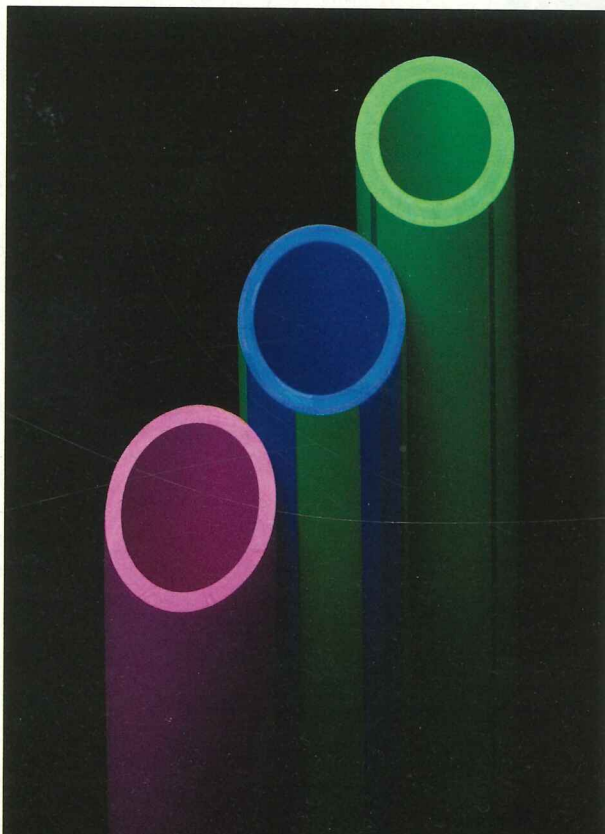
**— Brendon Yadu, Hydronic Solutions, Waterloo, ON**

With Weitzel's assistance, the four-day set up/installation with Aquatherm Blue Pipe went seamlessly. Coffey Plumbing installers learned quickly and found polypropylene easy to work with. "I would definitely use this product again," Coffey said. "In fact, I have some ideas for use in upcoming projects."

The initial start-up and flushing of the system went smoothly, and the system has performed flawlessly. **"I have never filled a heating system that went so easy," Weitzel said. "Tradespeople who use it day in and day out just love the Aquatherm product." @**



*Armstrong Trucking is looking at adding another 25,000 sq ft of warehouse space this spring. This same system surely will be repeated thanks to its success.*



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