



aquatherm

Provide lasting pipe performance

TRUCKING COMPANY EXPANSION GOES 'BLUE' WITH INNOVATIVE REVERSE RETURN HEADER SYSTEM

PROJECT INFORMATION

PROJECT	PRODUCTS USED	LOCATION / DATE
Ivan Armstrong Trucking, Hydronic Heated Floor System and In-slab	aquatherm blue pipe®	Arthur, ON, Canada, October 2013 to February 2014

AQUATHERM ADVANTAGES

- Without corroding or weakening over time, Aquatherm Blue Pipe offers longevity and ongoing performance
- Aquatherm Pipe can be safely buried in soil, sand, asphalt or even concrete; Aquatherm Blue Pipe is especially ideal because it has heat stabilization
- Aquatherm Blue Pipe, made of polypropylene-random, is durable and extremely resistant to impact and seismic stresses



THE CHALLENGE

With a new warehouse expansion coming up, Ivan Armstrong Trucking was looking for an efficient hydronic heated floor system

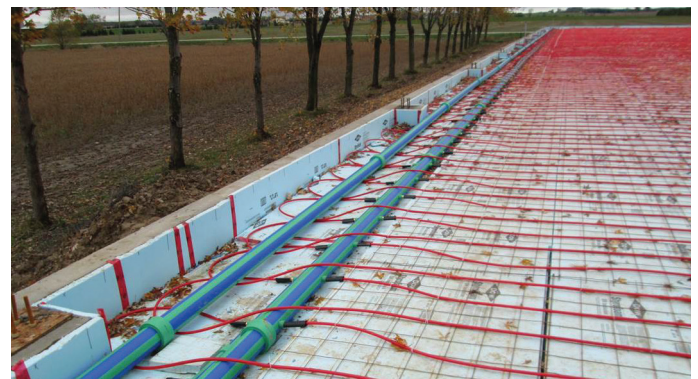
THE SOLUTION

Ivan Armstrong selected Aquatherm Blue Pipe for a concrete slab-on-grade installation that proceeded smoothly and produced great results

Ivan Armstrong Trucking®, Arthur, ON, Canada, is equipped to meet its customers' current transportation and storage needs, while providing safe, efficient and reliable transportation services. As demonstrated year after year, future growth is inevitable, this certainly is the case with its new 40,000-sq-ft warehouse expansion.

The company recently negotiated 40,000-sq-ft of new warehouse space in exchange for a five-year lease with an automotive parts company. All previously existing warehouse space is climate controlled to ensure the integrity of all products in long-term or transit storage, and this expansion is no different. When deciding to expand its warehouse space, John Raftis, owner, Ivan Armstrong Trucking, was particular in his search for a hydronic heated floor system.

Contractor Len Coffey, owner, Coffey Plumbing, Arthur, ON, met with James Kuepfer, owner, Hydronic Solutions Inc., Waterloo, ON, a leading supplier of products and information to the hydronic heating and water systems industry, to discuss piping options for the in-floor heating system. Kuepfer, along with Brendon Yadu, technical sales and hydronic designer, Hydronic Solutions Inc., presented Coffey with piping designs ideal for the breadth of project.



Since — at the request of Raftis — the hydronic installation needed to be installed on one heating zone, the design team specified a very efficient Aquatherm Pipe reverse return header system — whereby supply and return lines are embedded in the concrete and run from the boiler room to supply water to the floor heating circuits.

Due to the fact the owner only wanted one zone, Coffey realized there would not be any manifolds taking up space down the length of the building. "Everyone wanted a simple system, and the design I was proposing brought simplicity and cost savings to the owner," said Yadu.

After consulting with the Hydronic Solutions team on the preferred piping method, Coffey ultimately selected Aquatherm Blue Pipe®, primarily due to Hydronic Solutions’s reputation for onsite support, and because the piping can be set in a concrete slab-on-grade installation. The reverse return header system eliminated the need for a multiple manifold set up along the length of the outer wall, and subsequent piping to each manifold. The piping installation at the boiler used 4-in. Aquatherm Blue Pipe and decreased in diameter to 3-in. and 2-in. as the necessary supply flow reduced to each loop. Other Aquatherm fittings and accessories included Aquatherm 90- and 45-degree 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,” said Yadu. “After reviewing Aquatherm webinars and brochures on turf conditioning in particular, we knew this was the right piping method for this project.”



INSIDE BLUE

Why Aquatherm Blue Pipe? It has several key advantages for systems such as this. Aquatherm Blue Pipe is engineered to be a superior alternative to steel, copper, CPVC, and even stainless steel. From heating and cooling to industrial applications, Aquatherm Blue Pipe offers longevity and ongoing performance, without corroding or weakening over time. Aquatherm’s PP-R material is naturally insulative and corrosion-free, making it an ideal alternative to metal systems. The pipe also comes with a number of upgrades that let it outperform other plastics such as the fiber-composite technology — which reduces linear expansion and contraction and improves impact resistance — and heat stabilization. Aquatherm pipes are safe to use in applications from -5°F to 200°F, based on pressure rating.

JOBSITE CHALLENGES

Due to the length and size of the pipe, one of the challenges onsite was coupling the 4-in. Aquatherm piping and then positioning it for installation. The 4-in. Aquatherm Blue Pipe weighs only 2.8 lbs/ft, so the work crew could easily pull out the headers as they were being built. This would have been much more difficult and time-consuming if the manifold piping were steel or copper.



The building is 265 ft x 150 ft; therefore, the header was divided into three sizes 1) to reduce material costs and 2) because larger pipe diameters would not be needed to supply the flow rates required to the circuits at the end of the building. The three sizes of Blue Pipe also meant the installation did not necessitate many different sizes of fusion heads.

Another challenge to the installation was dealing with cold Canadian outdoor temperatures. Since all the Aquatherm Blue Pipe connections were performed onsite during colder conditions, in order to keep the fusion welding tool’s irons hot during the fusion process, Coffey’s crew pre-fabbed and fused the pipe inside an adjacent trailer and a propane-heated boiler mechanical room.

“OUR GOAL IS TO DESIGN ENERGY EFFICIENT HYDRONIC SYSTEMS AND OFFER FULL SUPPORT BEHIND THEM. AFTER REVIEWING AQUATHERM WEBINARS AND BROCHURES ON TURF CONDITIONING IN PARTICULAR, WE KNEW THIS WAS THE RIGHT PIPING METHOD FOR THIS PROJECT.”

—BRENDON YADU, TECHNICAL SALES AND HYDRONIC DESIGNER, HYDRONIC SOLUTIONS INC., WATERLOO, ON




CONTRACTOR APPEASEMENT

Initially, Coffey did have some reservations with the Blue Pipe because he had never used Aquatherm in the past. However, Coffey was assured he would have the full support of Hydronic Solutions if he decided to install Aquatherm piping. "The proposal was I would be onsite to oversee all piping operations to ensure everything ran smoothly," said Don Weitzel, sales, Hydronic Solutions. Weitzel, who is a licensed plumber and pump installer, brings more than 40 years of practical experience in commercial and agricultural plumbing, water treatment and hydronic heating to his customers. The success of an install of this magnitude is complemented by his experience.

Having Weitzel on the jobsite from start to finish brought confidence to both Coffey and his installers. "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," said Coffey.

With the assistance of Weitzel during a four-day, on-site set up and installation, the transition to Aquatherm Blue Pipe was seamless. Coffey Plumbing installers were quick to learn and, in the end, found it very easy to work with. "I would definitely use this product again," said Coffey. "In fact, I have some ideas for use in upcoming projects."

In the end, the professionally designed piping system worked flawlessly. The initial start up and flushing of the system worked smoothly. "I have never filled a heating system that went so easy," said Weitzel. "Trades people who use it day in and day out just love the Aquatherm product." 



The German-manufactured pipe has been one of the world's most durable and greenest piping systems for 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 1.4 per inch 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 fiber-composite layer in the pipe reduces linear expansion of the pipe by up to 75% compared to plastic piping

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