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Provide lasting pipe performance

FERTILIZER COMPANY SELECTS ECO-FRIENDLY PIPE SOLUTION FOR LEED GOLD HEADQUARTERS

PROJECT INFORMATION

PROJECT	PRODUCTS USED	LOCATION / DATE
Geothermal, Chilled, Condenser Water, Snowmelt	aquatherm blue pipe®	St. John's, MI, Summer 2013-Spring 2014

AQUATHERM ADVANTAGES

- Ownership was drawn to PP-R's lifecycle benefits vs. other pipe systems
- On a fast-track project, Aquatherm provided labor time savings thanks to heat fusion and its lighter weight
- Aquatherm Blue Pipe® was not insulated on several applications, whereas steel would have been
- Ownership embraced the corrosion- and scale-resistance and exceptional flow rates PP-R offers



THE CHALLENGE

Seeking a LEED Gold rating, the design team sought a pipe system that would be eco-friendly, leak-free, and long-lasting, for its geothermal, chilled, condenser water, and snowmelt systems

THE SOLUTION

After careful consideration, Aquatherm was selected to meet those needs, and it also provided labor savings despite this being the first PP-R job for all parties involved

One of the biggest buildings in St. John's, MI is the legacy of a small entrepreneurial company that came to fruition.

The Agro-Culture Liquid Fertilizers story began in 1963 when Douglas Cook had a vision to create a natural fertilizer to improve farmers' crops. Cook started his business with three employees mixing fertilizer in buckets in his garage. Fifty years and 97 additional employees later, the company is now recognized as a pioneer in the industry and continues to expand across the U.S. and in other countries. With distribution and manufacturing centers across the nation and a mission to "prosper the farmer," the new corporate headquarters was built with great concern for the environment and the agriculturalist.

The nearly 60,000-sq-ft headquarters building reflects a modern-yet-rural ethos and achieved LEED Gold status with 60 LEED credits. Agro-Culture Liquid Fertilizers displays its company culture in the very building in which employees work, with natural light, repurposed barn wood, and even upcycled crushed brick from a smokestack at Michigan State University serving as the base for HVAC equipment. Not only is the brick environmentally friendly (contributing to LEED points), but it also commemorates the owner's alma mater.

"LEED certification is important to Agro-Culture Liquid Fertilizers because we care about the sustainability of



our environment. Our focus is on being environmentally responsible with our fertilizer and in everything we do," said Agro's Vice President of Operations and Organizational Development, Nick Bancroft.

An indirect contributor to the Gold status was Aquatherm's polypropylene-random (PP-R) piping system, which is fully recyclable, rust- and corrosion-free and long-lasting. Additionally, the polypropylene material requires less energy for initial production than other piping materials and involves none of the environmental effects associated with mining operations.

Agro selected Wieland-Davco (Lansing, MI), a firm that made Engineering News-Record magazine's 2013 Top 400 Contractors List, as the general contractor for the project. According to Joe Haupt, project manager for Wieland-Davco, the project construction was on a tight schedule. The design process began in January 2012. About 500 people, including 50 subcontractors, were involved in building the two-story, 59,740-sq-ft headquarters. The actual construction process, which began in June 2013, took a little over a year.

"It was a very fast track project," Haupt said. "We had our footings and foundations started before the design of the facility was 100% completed. We knew that the footprint was

locked in. We weren't going to change that but they were still designing while they were inputting the foundations just so we could meet our schedule. So, it was pretty aggressive."

GC AND SUB – BOTH ONBOARD

Aquatherm was introduced to the project in fall 2012. First, Wieland-Davco selected Progressive Heating Cooling & Refrigeration, Inc. (Lowell, MI) as the project's HVAC contractor. The initial plan was to use copper and insulated steel pipes, but Progressive recommended the use of Aquatherm PP-R pipe for chilled and condenser water applications because of its ability to provide labor time savings. An added benefit was the lightweight aspect of Aquatherm pipes, which makes it more manageable and installer-friendly, resulting in reduced labor time.

"...NOW THAT WE HAVE SEEN IT [AQUATHERM] AND KNOW THE BENEFITS OF IT, WE CAN STRONGLY RECOMMEND IT. IT [AQUATHERM] HELPED SIGNIFICANTLY IN OUR LEED POINTS BUT IT WASN'T THE MAIN DECISION-MAKING PROCESS AS TO WHY WE WERE GOING WITH AQUATHERM."

—JOE HAUPT, PROJECT MANAGER,
WIELAND-DAVCO



Progressive had been introduced to Aquatherm by Columbia Pipe & Supply, an independent company that has been around since 1935 providing products, service and solutions for a wide range of industries. Grand Rapids-based Columbia Pipe account manager Peter Holt first approached Progressive with the PP-R pipe system.

"I knew Aquatherm would be a good fit for the Agro project because the owner is interested in new, innovative products," said Pete Flanagan owner of Progressive. "We thought we could achieve some cost savings too because the system didn't have to be insulated. The owner liked the lifecycle benefits the Aquatherm pipe system provides. He also did his own research and liked what he found out."

Buddy Huyler, was the senior project manager and design architect with Hobbs + Black Architects, which won the right to be the project's architectural firm thanks to its winning entry in a design competition. "We approved the use of Aquatherm on the project as the architectural firm. That was based on the ease of installation and constructability of the product, which had been presented to us by Weiland-Davco and Progressive," Huyler explained.

It was the first time Weiland-Davco, Agro, and Progressive had collaborated and everyone was onboard, but it was accepted that there would be some baby steps in integrating all this new technology. "We knew it was going to be something different, and that there was going to be a learning curve at first because you don't know exactly what you are doing," Progressive's field foreman, Jeff Shotko, said of the heat fusion process in particular.

As the project proceeded, Progressive and Aquatherm's

local representative, V.E. Sales provided extensive and ongoing support. V.E. Sales has been serving the industrial, plumbing, irrigation, water works and related industries since 1957. Based in St. Clair Shores, MI, V.E. Sales has a reputation for helping provide the best quality flow control products.

Columbia Pipe conducted Progressive's Aquatherm installer training and offered assistance throughout the installation so that everyone involved with the Aquatherm pipe knew the unique features and proper fusion techniques and tools. This made Agro eligible for the 10-year multimillion dollar warranty offered by Aquatherm.

"The training was pretty easy and we picked it up pretty quickly." said Shotko. "We had eight or nine guys get trained in about three hours."

Of the installation Haupt said, "Once they understood how to work with it and figured out some of the tricks of the trade, then the installation process went a whole lot smoother."

NOT YOUR ORDINARY PIPE, BUT THE HEAT-FUSED, HYDROPHOBIC KIND

Aquatherm produces highly engineered piping systems made of Fusiolen® PP-R, a low-friction, hydrophobic and heat-stabilized material. One of the unique features of Aquatherm pipe is that it is connected via heat fusion. Unlike traditional pipes that require mechanical connections, resins, glues, open-flames, etc. to connect, Aquatherm pipes are connected by heating both the pipe and fitting and fusing them together, which bonds them at the molecular level and turns them into one solid piece of pipe with no leak path.

Most traditional pipes' connections are the weakest part of the pipe, but Aquatherm's connections can last the life of the pipe. Aquatherm, although still relatively new to North America, have been proven worldwide for the last 40 years.

Further, Aquatherm's pipes are non-leaching and fully recyclable. Aquatherm adheres to the strictest production standards for sustainability, using the lowest-impact manufacturing processes available. PP-R piping is relatively clean to make, requiring only two steps of refinement, and is a byproduct of petroleum processing, giving it a much lower impact than the mining and smelting operations used to create metals.

TRUST YIELDS SATISFACTION

This project was Wieland-Davco's and EAM Engineers' first experience with Aquatherm, but EAM, which served as the engineer on the project, concurred with Progressive's recommendation and were satisfied with the results of their due diligence.



"We wanted to make sure they [Progressive] felt comfortable and confident that it [the Aquatherm pipe] would perform long-term for the owner," Haupt said. "They said, 'yea, this is the way of the future. This is what's going to be going in from here on out.' We said, 'okay, we trust you.' And they performed very well."

The owner, Nick Bancroft, was very involved and supportive of integrating Aquatherm pipe on the project from the start. Haupt said, "This owner was very involved in the decision-making process. We notified him and he was on-board."

"The main reason I chose to go with the Aquatherm piping was the long life that I perceive that we will get out of the product and the heating and cooling units," Bancroft said. He added that he expects that Aquatherm's resistance to scaling will result in less wear and tear on the overall system.

Another benefit which pleased Wieland-Davco about Aquatherm pipe was the 10-year multimillion dollar warranty. Additionally, Aquatherm's environmentally friendly features: nontoxic, fully recyclable, etc., indirectly contributed to the LEED points.

The HVAC system is mainly geothermal, with Aquatherm Blue Pipe® used to connect to the wells. The geothermal system was designed and installed by Greensleeves Energy Solutions. They were able to decrease the amount of wells needed by about 60% by drilling deeper and installing a Munters chiller to compensate for fewer wells. This design was predicted by Greensleeves' energy modeling, to be considerably more energy efficient.

The building also features in-floor radiant heat (again using PEX tubing) 10 ft around the perimeter on the first and second floors inside the building. The radiant heating and snow-melt systems help keep the temperature comfortable and the building envelope stable, even with large amounts of glass in the building. These also were contributing factors to the LEED points awarded.

"The owner is a firm believer in in-floor radiant heat and he likes the performance and efficiency of it," Haupt said. A snowmelt system was also integrated using Aquatherm Blue Pipe and PEX radiant tubing running from a Lochinvar 600 MBH boiler

to the front entrance and side loading dock.

According to Gene Simo, Principal and Director of Marketing, EAM Engineers, Inc., "With the snow-melting system at the main building entrance and the energy recovery ventilators for the building ventilation, we were able to utilize the condenser water piping to support all of those heat systems."



Besides office space, the new headquarters features conference rooms, an atrium, a commercial kitchen, and a few hotel suites for guests. The company featured extensive educational elements throughout the building and shares their space with the community for events such as school dances. It all goes back to their desire to have a renewable, green footprint.


HAPPY ENVIRONMENT, HAPPY PEOPLE

After the successful installation, Weiland Davco's Haupt said, "...now that we have seen it [Aquatherm] and know the benefits of it, we can strongly recommend it." "It [Aquatherm] helped significantly in our LEED points but it wasn't the main decision-making process as to why we were going with Aquatherm."

The commissioning engineer, Thomas D. VanDam of TowerPinkster (Grand Rapids, MI), conducted a LEED Energy and Atmosphere Enhanced Commissioning verification tour of the facility and he was also impressed with the end result.

Likewise, Shotko was pleased with the Aquatherm pipe's lightweight quality. "The lighter weight is a benefit, especially with 6 and 8 inch," he said. "I'd definitely use it again." EAM's Simo also plans to use Aquatherm whenever and wherever his firm can.

Huyler was also glad he approved the use PP-R. "We were happy with it and we would absolutely use Aquatherm again. We had great success with it and the guys in the field put it in really quickly with good results. I check in with the owner regularly and it is all performing well, which makes everyone happy."

Now, with the building operational for over a year, Nick Bancroft confirmed Huyler's assertion: "We have had good performance from the connections and valves up to this point." 

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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