



# Green operations

*Town of Riverview opts for biomass-fuelled operations centre*

*By Andrew Snook*

In 2013, the Town of Riverview, a suburb of Moncton, N.B., had a workspace problem. The town's public works garage needed to be replaced with a larger, more functional workspace for the town's Department of Engineering and Department of Public Works and Parks.

The town identified the need for the new facility in its 2013 Strategic Planning process and was able to approve the \$16.6 million needed for the construction of the new facility in its budget in 2015.

In August 2015, the town broke ground on the construction of the new 57,535-sq.-ft. facility. In the fall of 2016, construction on the new Riverview Operations Centre was complete, which

included administration space for municipal staff – which can be upwards of 62 people, depending on the time of year – and storage for the Parks and Facilities' vehicle and equipment fleet. In addition to the main building, the project included the construction of an 11,744-sq.-ft. salt and sand shed, and an 8,159-sq.-ft. cold storage building for construction materials. Foulem Construction was awarded the contract to build the facility.

## **GREEN HEATING**

The town had a variety of energy options but was interested in green energy solutions. During the design phase with Exp Engineering, the prime building consultant, a lease-to-own

energy arrangement was determined to offer the best overall solution. The town was able to exclude the boiler system from their cost, forgo the operation, maintenance and long term liability of the heating plant, and pay metered energy price more than competitive to other fuel sources. The lease to own arrangement provided a wide range of flexible alternatives for the future.

The energy lease tender encouraged local interest, from mechanical contractors, energy suppliers, and engineering organizations. Design Built Mechanical of Charlo, N.B. submitted the winning tender, together with their engineering partner, MCW.

The design included a biomass-fuelled system with a Viessmann Pyrot

The biomass system was completed with a 40-ton wood chip storage building, offering weeks of peak load operation in the winter.

300 wood-fired boiler (300kW) to heat the facilities. The Pyrot 300 produces a maximum water temperature of 250F, a maximum water pressure of 30 psig, and is fuelled by locally-sourced wood chips that are supplied by ACFOR, a local forest restoration and energy company based in Cocagne, N.B. ACFOR provided locally sourced fuel as part of their forest management agreement with local partners.

Design Built Mechanical provided a self-contained mechanical plant including the boiler, fuel storage, buffer tank, heat exchangers, pumps and other ancillary equipment for a complete heating system just outside of the main operations centre. An integrated control panel monitors and controls the heating plant and measures/calculates the monthly energy consumption.

“Everything was manufactured at their site then connected on site,” explains Daron Thomas, president of Thomas Industrial Sales. “They laid it all out in 3D AutoCAD. The building was built around the system, delivered to sight, and connected to the mechanical services in the operations building. Underground insulated PEX pipe delivers hot water to the mechanical system.”

The biomass system was completed with a 40-ton wood chip storage building, offering weeks of peak load operation in the winter. The delivered wood chips, with moisture content below 15 per cent, provide the Town of Riverview with renewable energy. Much of the fuel is sourced locally from an area surrounding the town’s water supply.

An electric boiler and small holding tank provide back up energy for the building. The boiler plant is matched to the main building and, besides the stainless steel chimney, looks like a storage building

“The fuel provider has several similar operating systems in P.E.I., and brought a lot of knowledge to the table,” Thomas says. “ACFOR is a forward-thinking partner, who we hope to engage in the future on similar projects.”

To optimize the boiler’s efficiency, Thomas Industrial Sales also installed a 6,000-litre buffer tank to allow for extended run times. The hot water from



The hot water from the buffer tank is pumped via two Armstrong variable speed pumps at a flow rate up to 120 USgpm into the distribution system in the building’s mechanical system.

the buffer tank is then pumped via two Armstrong variable speed pumps at a flow rate up to 120 USgpm into the distribution system in the building’s mechanical system. The heating system includes fan style heaters, radiation floor heating, and conventional hot water heaters. Control of the system, not just the boiler, is paramount.

Cameras have also been installed in several areas inside the boiler room to help Design Build keep a close eye on the system to ensure it’s operating efficiently. The owner pays for heat they purchase only, so smooth operation

and reliability are key.

The biomass system is owned by Design-Built Mechanical with an extended contract in place to supply energy to the Riverview Operations Centre, allowing the town to reduce its expenses related to the construction of the operations centre, while ensuring a long-term, low-cost energy supply and supporting local businesses.

“They’re turning waste into low energy fuel,” Thomas says.

“It makes perfect sense for everyone. The municipality wins, the industry wins, and the environment wins.” •




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