Julia C. Lathrop Homes Redevelopment,- Chicago

Situation

The first phase of an ambitious redevelopment of the Julia C. Lathrop Homes, a historic Chicago Housing Authority project, required the use of innovative HVAC technology to provide affordable heating and meet green building standards.

Named for social reformer Julia Clifford Lathrop, Lathrop Homes began its existence as once of Chicago's first public housing projects. Built in 1938 by the Public Works Administration in 1938, Lathrop Homes was placed on the National Register of Historic Places in 2012.

The complex served as public housing for decades, but, in recent years, the CHA began planning for its renovation. In 2016, the Chicago Plan Commission approved an ambitious redevelopment plan to create 1,116 units of mixed-income housing. Plans called for the renovation of 19 of the 31 historic buildings in the complex. The redevelopment includes 11 acres of green space.

Implication/Problem

The redevelopment is being headed by Lathrop Community Partners. In addition to the rehabilitation of historic buildings, which are being gutted and are receiving new interiors, the redevelopment includes the construction of two new six-story buildings. Because it was receiving federal grant funds, the project was required to meet green building standards for all construction.

Solution

Amber Mechanical Contractors, Inc., which was awarded the contract to install HVAC technology in renovated buildings, partnered with **Hillco Distributing Company, Inc**., to provide an affordable heating solution compatible with green building standards. They worked with Callahan Mechanical Sales, Inc., to implement their preferred solution — the installation of 60 high-efficiency Modine's **Effinity® PTC** unit heaters during the first phase of the renovation.

The Modine's **Effinity® PTC** unit with **Building Management System** is a gas-fired, condensing unit heater that operates at up to 97 percent efficiency. The units employ proprietary Conservicore Technology to protect the stainless-steel heat exchangers from acidic condensate, reducing corrosion and extending unit life.

Features of the **Effinity® PTC** include:

- Stainless steel primary heat exchanger
- Factory install BMS controls with Energy Saver functionality
- Condensate pump, mounting kit, and a PH neutralizing kit*
- GFCI Surge protection adapter plug for service
- 30-, 60- and 90-degree air deflector hoods*
- Conversion kits for natural gas and propane, including high-altitude kits*

**Denotes optional feature.*

Building Management System features include:

- Communication over BACnet and Modbus protocols, two of the more common BMS communication types.
- Able to run on a traditional thermostat input signal or a return air sensor.
- The board has the capability of controlling three outputs (blower, stage 1 valve, stage 2 valve), and uses temperature at the unit heater to perform energy saver function.
- Signals sent across BMS can report the vitals of the equipment through statuses and alarms wired into the board.

Results

One **Modine Effinity® PTC** unit can save more than $1,000 on energy per year and lower the CO_2 cost output by 1,000 pounds annually compared to other HVAC units. The 60 units installed at the Lathrop project are expected to save $60,000 in yearly utility costs and eliminate the production of more than 60,000 lbs. of CO_2 annually. Each of them is equipped with an energy saver mode that allows the recirculation of heat in the space without using gas. As temperature increases, the unit automatically disables gas usage, using stratified ceiling air to heat the space below. The **Building Management System** allows online monitoring and diagnostics of all the units.