dehumidification

N.Y. Energy Incentives Fuel TAG Mechanical

The swiming pool structure at Cazenovia College is now dehumidified thanks to a state energy program

Cazenovia, N.Y. – When an energy incentive program recently helped win a design/build contract, TAG Mechanical realized it might have stumbled onto a profitable niche it could market aggressively.

The Syracuse, N.Y.-based TAG's first energy incentive exposure came from the New York State Energy Research & Development Authority (NYSERDA), Albany, N.Y., a public benefit program created in 1975 by the state legislature. The $41,000 from NYSERDA's "Custom Incentive Performance Program" helped TAG Mechanical win a bid to retrofit the HVAC system of the 43-year-old indoor swimming pool of Cazenovia College, Cazenovia, N.Y.

The College's initial plan was to dehumidify the 6,900-square-foot space with a bare-bones variable volume outdoor air/heat exchangers system that fit the athletic building's strapped remodeling budget. With the incentive Money, however, Cazenovia qualified for a heat recovery dehumidifier by Dectron Internationale, Roswell, Ga. The Dry-O-Tron model RS-100 not only maintains a 50-percent relative humidity, but also heats the pool waters to 82 degrees Fahrenheit and heats or cools the space to a design temperature of 84 degrees Fahrenheit.

"The college probably would have had a fairly satisfactory dehumidification system with the ventilators", said Hugh Henderson, principal, CDH Energy Consultants, Cazenovia, "However, now they've made a huge difference in the indoor air quality during the summer months because the energy incentive allowed them to cost-effectively upgrade to air conditioning that's part of the packaged dehumidifier's benefits."

A dehumidification unit on the outside preserves the indoor environment

The retrofit began several years earlier with a $12,000 energy study of the facility conducted by Henderson through NYSERDA's "FlexTech" Program. Henderson's audit recommended a new ventilator/heat exchanger system with sensible heat recovery for the natatorium, which was previously heated by 14 outdoor air unit ventilators and dehumidified by exhausting. The recommended system was similar to the space's original ventilators, which had systematically quit working and eventually caused inadequate winter heating.

"We were willing to sacrifice the comfort of air conditioning for the sake of staying within the budget with a similar system that had worked fine before it outlived its useful life," added David Ammann, director of facilities, Cazenovia College.

The budgetary-minded choice of a variable outdoor air ventilation system would have provided adequate dehumidification except when outdoor temperatures rose above 73 degrees Fahrenheit, according to Leonard Borland, a design/build engineer at TAG Mechanical.

"They would have had decent dehumidification about 90 percent of the year when outdoor air is dry, but if outdoor temperatures rose above 73 degrees Fahrenheit, they wouldn't have been able to control indoor space temperatures or relative humidity," said Borland. "Bringing in humid outdoor air in summer, which is necessary for the ventilator operation, would worsen indoor comfort levels."

With the help of manufacturer's representative Steven Brandt, DF Brandt, Syracuse, N.Y., TAG became listed as a NYSERDA ESCO (energy service company). In addition to Henderson's budgetary specification, TAG also offered the alternative of a deluxe design/build HVAC system anchored by the packaged dehumidifier, which added benefits such as heat recovery and space cooling that the budget wouldn't normally have accommodated without the energy incentive.

Henderson also specified fabric duct that brought lightweight, lover material costs, as well as durability to the air flow system that must operation in a corrosive environment that requires industrial coatings and insulation with metal ductwork.

With the packaged dehumidifier afforded through the incentive program, TAG Mechanical was able to specify mechanical innovations allowed by Dectron Internationale's custom manufacturing capabilities. For example, lack of exterior ground area adjacent to the natatorium necessitated a packaged dehumidifier custom manufactured with a space-saving on-board condenser. The building's barrel-shaped roof and limited interior mechanical space made exterior equipment location necessary.

With the experience of Cazenovia's pool, TAG Mechanical has already bid two more commercial indoor pools with a NYSERDA energy incentive. "Because the energy incentive gives money back to the pool owners, we have a competitive edge on these contracts," Borland said. "We hope to develop energy incentive work into a future niche."

To market the niche, TAG is now seeking additional opportunities up and above swimming pools to return money to end-users by specifying energy recovery equipment that qualified under NYSERDA guidelines.

"Hypothetically, a design/build contractor could use Dectron's custom manufacturing capabilities to recover heat from the make-up air dehumidification process then use it to reduce cooling loads for conventional building air conditioning systems in offices, hospitals, or other large buildings," explained Brandt.

"That recovered heat could be used to heat domestic hot water, which would quality under NYSERDA regulations and return not only up-front equipment costs through incentives, but produce a long-term building operational savings for the customer. The end-user isn't going to reject many bids from a mechanical contractor that saves them that kind of money."

"It's a win-win situation," Borland added. "The mechanical contractor wins a contract and the building owner saves money all while saving energy." HN