

A holistic efficiency historic renovation initiative brings an historic building into the 21st century, helping a New convent achieve an estimated 60% energy savings.

The Convent of St. Dominic serves as the headquarters of the Dominican Sisters of Blauvelt in Blauvelt, N.Y.

**BY CHURCH DESIGNER STAFF**

Founded in 1838, the Dominican Sisters of Blauvelt, N.Y., a northern suburb of New York City, is one of the oldest religious orders in the country. The more than 150 professors and associate members serve throughout six states and are actively involved in education at all levels.

Their ministries include social service programs for the developmentally disabled, services for children at-risk, care for the homeless, housing for persons with AIDS, programs for the mentally ill and chemically addicted, and health care services for the poor.

To achieve so much, the sisters reportedly need their energy efficiently and effectively. They communicate with the residents’ “cared for, not served.” Conserving resources and applying their efforts and funding where it will serve the Lord.

While the 183-year-old convent is absolutely pivotal to the community’s existence and operations, its energy consumption had reportedly been a concern for a number of years. The convent knew that maintaining and fueling the existing heating and cooling systems were drawing from funds that could and should be applied elsewhere.

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—SISTER CATHERINE HOWARD, Convent of St. Dominic, Blauvelt, NY

Conserving to better serve

The Convent of St. Dominic is the headquarters for the sisters’ housing administrative offices, a convention wing, and a large chapel in Blauvelt. The 188,000-square-foot, five-story building was being heated with an archaic system. In addition to operating expensive, the lack of heating system control was a problem — especially in the boiler and living quarters. Only after of the facility was air conditioned, provided by window units.

“We needed to make a change,” says Sister Catherine Howard. “There was a lot of potential to better serve the community, increase comfort, and become better stewards of the planet.”

Howard explains, “The project not only allows us to better serve our sisters, but also increase our sustainability. By bringing cost-effective and conservation-minded equipment to our building, we’re keeping with Pope Francis’ call to care for the Earth and care for all that has been given to us.”

Seeking improvement

In early 2012, with a charge to make major building improvements, the convent’s director of property management, David Bowers, approached Susan Winter Associates Inc. (SWA). The building performance consultants have offices in New York City, Norwalk, Conn., and Washington, D.C.

Michael Flaherty, senior associate and director of commercial projects at SWA, completed the New York State Energy Research and Development Authority (NYSERDA) Variable Technical Assistance Program (Vision2020). Flaherty provides objective, site-specific technical assistance and analysis to fit the implementation of clean energy technologies. He helped determine what kind of energy conservation measures could be taken to reduce energy bills and minimize the carbon footprint of the convent.
Finley also referred Green Star Energy Solutions LLC to complete the building improvements and HVAC retrofit at the church. Green Star is a leading performance contractor based in Boston, Mass. The company’s work, which is in other NYC, is advancing building “healthy, efficiency.”

“We combined Fisher Scientific Arrive, VRVT, advanced ventilation from building with cutting-edge technology with indoor building envelope improvements,” said Joe Novella, Green Star’s founder. “Biometrics, filters, ventilation and insulation are designed for a group of the building’s various systems. This allows us to increase building performance, comfort and longevity while also lowering the operating costs of the new HVAC system.”

“Fisher Scientific for 15,000-foor energy savings,” says Tom Capano, director of business development at Green Star. “We strive to make it work, and recently achieved it in a matter of months.”

After lengthy discussions with Revered and the “Stake Leadership Team, the project was broken into three phases: insulation, engineering and programming, and installation.

Shell improvements

Audit from the obvious shortfall of an old town system and a regular windows AC units, Green Star’s assessment of the building made the need for envelope improvements painfully clear. Other than small amounts of Things that got covered up under several layers, the entire building was retrofitted.

During the summer of 2015, Green Star thoroughly inspected the building. Nearly 1,700 bags of Conforming Lumen 17 window insulation was blown into attic spaces and exterior wall cavities, and doors painted in other areas. Insulation boards were installed wherever possible, windows and skylights were replaced, and water and mineral wool was used to fill gaps of various areas.

“Exterior walls were brought up to R-30, and the attic is now R-45,” says Explains. “Now the air conditioning can start cycling, instead of turning non-stop wall day. It’s a simple and easy difference, especially in the 90+ square feet.”

When insulation work was running complete, Green Star entered the engineering and programming phases. Novello and Explains were busy determining how to avoid or mitigate the challenges that would most come to the installation of air-source air-to-water HVAC equipment in an occupied historical building.

They learned that the building would require 100 tons of 1,246,000 BTUs of heating and cooling capacity.

“The conventional three and residence areas are already occupied,” says Novella. “The beautiful, second-chapter of use is very slow. To avoid problems in this building’s modest, small building, we try to do about the specific aspects where and how the system’s components would be involved.”

The outside of the necessary first building was no different, the large VRVT condensing units had to be hidden from view.

Before the installation phase began, the Reverend Father of Belarus, N.Y., designed the service upgrade that would provide for the building transition from natural gas-fired boiler output to an electric-driven boiler pump system.

Flexibility and variety

A contract for the installation phase was signed in January of 2015, and work began immediately. Using the elevator, Green Star Energy Solutions LLC, whereas the addition of the building and the chapel.

From left to right: Green Star founder, Joe Novella, Founder, Green Star Energy Solutions LLC, Tom Explains, Director of Business Development, Green Star Energy Solutions LLC, Green Star Insulator.

Because the smell, the moisture in the building itself, between the lower portions of the church, it’s difficult to spot from the ground floor. The exterior service was also simplified because all the indoor units were located in a single, easily accessible area.

The system includes a variety of options: and 10 refrigeration units, which are placed into renovation in various sizes between 1 and 2,000 sq. ft. Under the building, four units, seven square lamps and still.

Through the church, the service points were removed from the roof and dedicated to accommodate the various sizes of the system. The heating system installed separately to accommodate lighting and cooling of the various sizes. Smaller square lamps are installed in bathrooms and hallways.

Conference areas, offices and bathrooms are equipped with a variety of sizes of various sizes. Cooling units are also used in several areas. On the fourth floor - the only area with existing documents - high-end air handlers were used to replace the existing central air handlers.

“Flexibility, ease of installation and cost operation were critical in this project,” says Novella. “In a smaller church, we had the luxury of experience and technical support with our Green Star. It's a win-win situation.”

But installing units in every area of a historic whose interior is classic, wooden, institutional, and religious was easier, and that came down toBoxing the issues of the different aspects throughout the entire project, contract...”
Live, work and worship

"The respect that Green Star had for us is absolutely second to none," says Sister Bridget Mary Troy. "They worked around us at all times, and did nothing to mar this sacred space."

Specifically, Green Star worked around worship services in the chapel. In the residences and convalescent wing, work was isolated to very small areas to allow everyday life to continue as usual. Work areas were kept very small and isolated with ZipWall dust barrier systems. As rooms were completed, units were powered up to provide conditioning immediately.

"One advantage of VRF equipment is the ability to install and commission systems incrementally," explains Novella. "Some of the units on the residential floor were up and running while we were still installing others right down the hall."

The convent presented as many logistical challenges as any retrofit Green Star has completed. But all fell to the wayside because of the understanding and cooperation on the part of the sisters. Green Star estimates that the project will yield 60% savings, while also providing AC to portions of the building that weren’t cooled before.

"This project not only allows us to better serve our ministries, but also increase our sustainability," says Howard. "By bringing cost-effective and conservation-minded equipment to our building, we’re keeping with Pope Francis’ call to care for the Earth and care for all that has been given to us."

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