



case study

products

CITY MULTI

market

Private Residence

location

Brooklyn, N.Y.



A New Million Dollar HVAC System

Project Name:

Brooklyn Mill Basin Residence

Location:

Brooklyn, N.Y.

Completion Date:

March 2006

The Team

Owner

Brooklyn, N.Y.

HVAC Contractor

**Arista Air Conditioning,
Corp., Long Island City, N.Y.**

HVAC Distributor

**Luce, Schwab & Kase
Cherry Hill, N.J.**

In summer 2004, Mitsubishi Electric HVAC Eastern Regional Sales Manager, Bob Skorupsky received a call from Stanley Berger, president, Arista Air Conditioning Corp., Long Island City, N.Y. Berger wanted Skorupsky to review the \$1 million HVAC plans and blueprints of a 15,000-square-foot private residence overlooking Jamaica Bay, Long Island.

Because of the grand ocean views, architects for this luxury home had designed generous amounts of glass and skylights, a complete radiant floor heating system, a radiant snowmelt system for the 4,000-square-foot driveway, and 11 split systems for cooling and heating zones. Arista had been hired to install the mechanical equipment.

Not Aware of Latest Developments in HVAC Technology

Skorupsky confirmed what Berger had already determined: that the design engineers were unaware of the latest developments in HVAC technology. The HVAC engineering plan calling for 11 split systems would be costly and physically wouldn't work. The steel beam structure made it nearly impossible for ductwork installation; there was not sufficient space for the 11 outdoor units; and the ceiling height available was insufficient for the indoor air handlers.

With engineering guidance from Skorupsky, Berger recommended significant changes to his clients based on

his knowledge of the CITY MULTI® R2-Series, a multi-split Variable Refrigerant Flow Zoning (VRFZ) system from Mitsubishi Electric HVAC, which offers simultaneous cooling and heating. The original zone layout was revised to 27 zones, which are zoned by unit and not by the usual damper arrangement.

VRFZ System Provides for Shifting Cooling/Heating Loads

With this CITY MULTI system, the cooling and heating requirements for the 4-story residence needed only five outdoor units instead of the 11 originally specified. Berger explained that the CITY MULTI R2-Series was an intelligent, technically advanced system with superior motors, sophisticated controls, INVERTER-driven compressors, linear electronic expansion valves and microprocessors. To the homeowners this meant that because of the smart INVERTER technology, controls would automatically and efficiently adjust for a zone requiring five tons of cooling in the morning and only two tons in the evening.

Berger said that the presence of glass surrounding the building posed some serious design challenges. "We were faced with shifting heat loads because of the many skylights and glass walls. In the summer, there is a 15-ton heat load during the day and a 3-ton heat load at night. The CITY MULTI VRFZ system is ideal for this installation because it is capable of handling each of these varying loads."

Berger also wanted the R2-Series for this private residence because it was easy to install, required less ductwork and was able to simultaneously cool and heat specific zones. He likes CITY MULTI's individualized climate control and dehumidifier capabilities, its efficiency and quietness of operation, and the special seacoast protection for outdoor units offered for saltwater, corrosive environments.

Because of the CITY MULTI technology, Berger's proposal came in \$100,000 under the original design. Arista designed, sold and installed five PURY-100TMU-A-BS R2-Series outdoor units—each delivering 95,500 Btu/h of total cooling and 107,500 Btu/h of total heating—driving 27 indoor air-handling units. These included 20 PDFY ceiling-concealed ductless units (from PDFY-16NMU-A to PDFY-48NMU-A models), two PKFY-20NFMU-A wall-mounted units, two PMFY-08NBMU-A and two PMFY-10NBMU-A ceiling-recessed 1-way airflow units and one PFFY-12NEMU-A concealed floor-standing unit. "With the R2-Series, we can actually connect up to 15 air handlers to one outdoor condensing unit," Berger said. "In this installation, however we have an average ratio of five to one."

Chosen for the function of the room in

which they were installed, the PDFY ceiling-concealed units were installed in the hallway, office, dining room, family room, kitchen, meditation room, dining room, elevator, master bath and four bedrooms. The two PKFY wall-mounted units were hung in the garage. The four PMFY ceiling-recessed units were installed in the cellar kitchen, laundry room and A/V closet. The single PFFY concealed floor-standing unit was designated for the housekeeper's apartment. The piping and electrical work was all concealed in the walls and ceilings.

The five BC Controller units and the G-50A centralized controller were installed in the basement to allow for easy access and service. The five PURY outdoor units were installed out of sight on a concrete pad located on the ocean side of the house.

Berger said the system is now

operational, is "working great," and will be ready for the owners' scheduled April move-in date. "They are going to love the fact that each zone can be individually controlled for utmost efficiency and temperature control. This will keep heating costs down in the winter and cooling costs down in the summer. That's why I believe that this CITY MULTI system is ideal for high-end residential applications."

Berger said he drew on his experience from a recent Greenwich Village design-build project which included seven CITY MULTI PURY outdoor units. "We are doing more and more high-end residential systems in New York City now, and we are very conscious of our customers' demands. They want it quiet, they want it cool, they want it heated, they don't want to see any equipment and they want to be able to control it from their laptops from any where in the world. Twenty to 25 percent of our market is now in this new residential arena."

CITY MULTI Equipment Installed:

- (5) PURY R2-Series Outdoor Units
- (20) PDFY Ceiling-concealed Air Handlers
- (2) PKFY Wall-mounted Air Handlers
- (4) PMFY Ceiling-recessed Air Handlers
- (1) PFFY Concealed Floor-standing Air Handler
- (5) Branch Circuit (BC) Controllers
- (1) G-50A Central Controller