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GreenSource

Case Study:

The Helena

New York City

A Westside Story

By Joann Gonchar, AIA

They might be considered urban pioneers, but the approximately 1,400 tenants of the “Helena,” one of New York City’s first green high-rise residential buildings, are hardly roughing it. The 38-story, 580-unit building, on the western edge of Midtown, is not just basic shelter. Its features—Hudson River views, blonde wood kitchen cabinets, and an on-site health club—are the stuff of real-estate obsessed Manhattanites’ dreams.

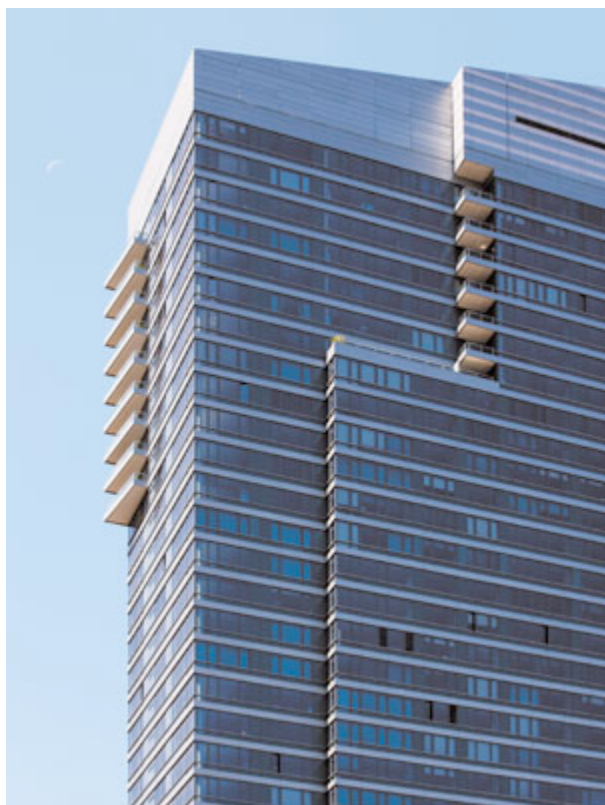


Photo © Timothy hursley

 Slide show

KEY PARAMETERS

New York, New York (Manhattan Island, Hudson River watershed)

GROSS SQUARE FOOTAGE: 600,000 ft² (55,700 m²)

COST: \$100 million

COMPLETED: 2005

ANNUAL PURCHASED ENERGY USE (BASED ON SIMULATION): 55 kBtu/ft² (622 MJ/m²)ANNUAL CARBON FOOTPRINT: (PREDICTED): 15 lbs. CO₂/ft² (74 kg CO₂/m²)

PROGRAM: 580 studio, one- and two-bedroom apartments

The Helena, which opened in late 2005, offers more than amenities, views, and nice finishes. Behind the \$100 million tower’s gleaming glass and metal skin is a serious high-performance building. Its owner and designers say the Helena will annually use 65 percent of the energy and one-third of the potable water of comparable properties.

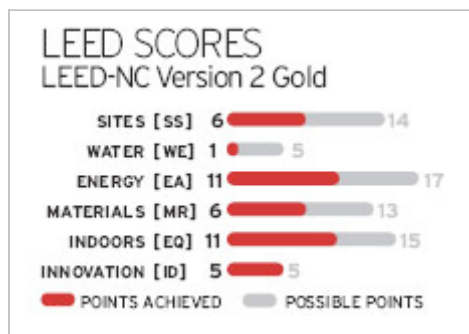
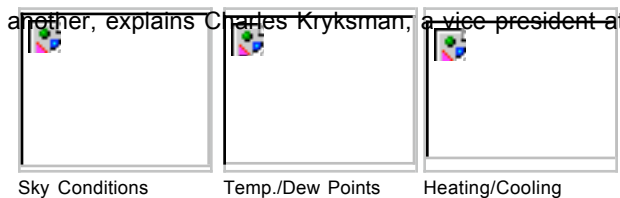
These strategies help satisfy a growing demand in New York City’s real estate market, according to the Helena’s owner. “We used to believe that green features helped a building lease up faster,” says developer Jonathan Durst, co-president of the Durst Organization. “But, now we find that people are willing to pay a premium [for sustainability].”

Durst is hesitant to say exactly how much more the tenants in the Helena’s 497 market-rate units pay for their innovative environments. (In exchange for reserving 20 percent of the units for low-income tenants, the developer received tax-exempt financing.) Despite this reticence, Durst is well acquainted with trends in sustainable real estate. His firm was one of the early adopters of large-scale green development. With the Helena’s architect, Fox & Fowle, (now known as FXFOWLE), the Durst Organization designed and built Four Times Square, completed in New York City in 1999 and widely regarded as the country’s first high-performance office tower.

Like the earlier Durst project, the only exterior signs of the aggressive environmental attributes are the building’s photovoltaic (PV) panels. Along with an array that covers the southern and western faces of the penthouse mechanical enclosure, PVs integrated into the entrance canopy visible to passersby provide a modest 13.1 kilowatts (kW) of electricity, or 4 percent of the Helena’s power requirements. The building’s remaining electricity needs are met with utility-supplied electricity, but half of that is offset with a wind power purchase agreement.

The Helena’s blackwater recycling system reclaims about 43,000 gallons of wastewater each day.

The building relies on a combination of other technologies to achieve its energy savings such as individual water- source heat pumps in each apartment. One advantage of this system is that heat rejected from one apartment can be used to warm



TEAM

OWNER: The Durst Organization
ARCHITECT: FXFOWLE Architects with Harman Jablin Architects (residences) and B Five Studio (lobby)
ENGINEERS: Flack + Kurtz (mechanical electrical plumbing); Severud Associates (structural)
OWNERS REPRESENTATIVE: Rose Associates
ARCHITECTURAL CONSULTANT: Robert Fox, AIA
ACOUSTICAL: JRH Acoustical Consulting
ENVIRONMENTAL CONSULTANT: Allee King Rosen & Fleming
GREEN BUILDING CONSULTANT: e4 inc.
GENERAL CONTRACTOR/CONSTRUCTION MANAGER: Kreisler Borg Floman

SOURCES

BLAST-FURNACE SLAG IN CONCRETE MIX: Gran-Cem Cement
METAL AND GLASS WINDOW WALL: EFCO Corporation Model 890-I with AFGD Glass
GREEN ROOF: American Hydrotech 6125-FR and 6125-EV
PAINTS: Benjamin Moore Pristine Eco Spec and Moorecraft Super Spec
CARPET: Bentley Prince Street ELEVATORS: Fujitec
MICROTURBINES: Ingersoll Rand
PHOTOVOLTAIC PANELS: altPower/GE Energy

cleaning methods employed throughout the building's common areas and a supply of the same environmentally benign products used by the staff. It also contains instructions for operation of the appliances, information about the setback switch, and the schedule of the compressed natural gas fueled shuttle that runs between the Helena and a major subway stop a half-mile away.

A LEED prerequisite regarding tobacco smoke nearly derailed the project's certification.

Despite these measures, compliance with a Leadership in Energy and Environmental Design (LEED) indoor environmental quality prerequisite regarding tobacco smoke nearly derailed the project's certification by the U.S. Green Building Council (USGBC). The rating system requires that certified buildings be smoke free or that smoking rooms be negatively pressurized when compared with surrounding areas. Buildings that permit smoking must also comply with a testing standard created specifically for laboratories—a high bar for a residential building. "A lone smoking room in an office is easy to arrange," says Pamela Lippe, president of e4, the project's green building consultant. "But in a residential building, you can't tell people not to smoke, and it is [impossible] to make every apartment negatively pressurized relative to the adjacent one," she says.

Lippe recommended an alternative compliance path that included "supersealing" apartments with extra taping and spackling, and gasketing and staggering outlets in walls between apartments. A blower door test is also required to demonstrate minimum air leakage from apartments. "This is just good construction but it rarely happens in practice," Lippe says.

Flack + Kurtz, the project's mechanical, electrical, and plumbing engineers.

Water-source heat pumps are uncommon in New York City residential buildings where individual packaged terminal air conditioners, called PTAC units, are typically used. Although much less efficient than the Helena's water-cooled system, the through-wall PTACs are popular with landlords because of their low first cost and the ease of transferring the expense of their operation directly to tenants, says Kryksman.

Among the other energy efficiency strategies are occupancy sensors that control lighting in corridors and stairwells. In each apartment a setback switch at the entrance allows residents to shut off all appliances plugged into the bottom receptacle of every outlet and all hard-wired lighting. Activating the switch also sets the apartment thermostat to 60 degrees in the winter and 85 degrees in the summer.

The Helena's most space-intensive green feature is the blackwater recycling system, which reclaims about 43,000 gallons of wastewater each day. The processed blackwater, along with storm water, is used in the cooling tower, for flushing toilets, and for irrigation of the 12,000 square feet of green roofs. The system occupies about 5,000 square feet on the north side of the second and third floors, an area not suitable for apartments because of the proximity of an existing structure. Although the equipment added about 1.5 percent to the construction cost of the building, the square footage did not count against the tower's allowable floor area ratio and made perfect use of space that would not generate revenue, points out Bruce Fowle, FAIA, FXFOWLE senior principal. The system is sized to also handle the blackwater load of the Rose, an apartment building the developer plans for the site just to the west of the Helena.

Urea formaldehyde-free wheat-board millwork, and paints, carpeting, and other finishes with no or low levels of volatile organic compounds, contribute to excellent air quality. Trickle vents, approximately six-inch-long operable slots in the aluminum frames of the high-performance window walls, give residents the option of letting a controlled amount of outside air into their apartments without opening windows—a good ventilation option especially in cold weather.

To help residents maintain the air quality inside their apartments, the Helena's management encourages residents to adopt green housekeeping practices. A welcome package distributed to new tenants includes information about the

The Helena did receive its LEED certification, achieving a Gold rating. However, more than a year after opening, the owner and its consultants are still dealing with a few loose ends. Designers planned to use the waste heat created by the building's two 70 kW microturbines to heat the domestic hot water supply. But the turbines, along with the same units specified for other recently completed New York residential buildings, are now waiting for final approval from the city's fire department. "We are anxious to get the turbines online," says Durst, calling the delay the project's "biggest surprise." This relatively minor glitch in the context of the otherwise successful project does not affect the building's smooth operation, and it remains a highly desirable place to live. The Helena has no vacancies and maintains a long waiting list for its apartments, says Durst.

Given the current strength of Manhattan's residential rental market, it isn't surprising that Durst's company is betting that the rental boom will continue. Some 20 blocks south of the Helena, the developer is building another FXFOWLE-designed mixed-use tower that includes 458 rental apartments. It is expected to achieve at least a LEED Silver rating after completion in Spring 2007. But even if the market slows, Durst's business strategy should prove sustainable in every sense of the word. As Lippe points out, "to the extent the market begins to falter, [green] developers will be better positioned to keep their buildings full."



http://greensource.construction.com/projects/0704_helena.asp