Synergizing Sustainability

Hoboken Brownstone hopes to revolutionize green building by combining mass-wall building enclosure, energy-recovery ventilation, and alternative energy.

As the construction industry continues to move toward embracing green materials and building methods, a New Jersey construction company is utilizing and promoting a combination of sustainable building techniques in hopes of turning the green building movement into a revolution.

"We don't believe there's any building where all three technologies—mass-wall building enclosure, energy-recovery ventilation, and alternative energy—have been brought together in the same building," says Daniel Gans, cofounder of Hoboken Brownstone Company.

These three technologies, which Gans and Hoboken Brownstone cofounder George Vallone—both of whom proudly identify themselves as New Jersey natives—were inspired to use after consulting with New York City green architect Michael McDonough, are mandated in Europe but have yet to be enforced by American building code officials.

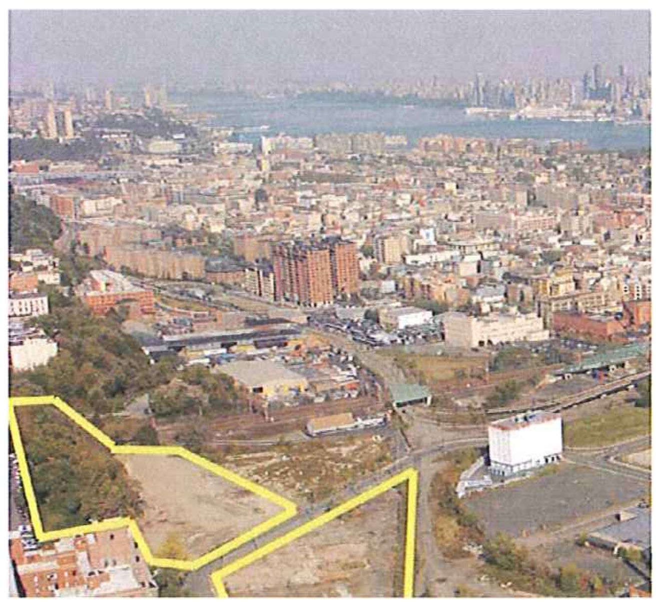
Vallone and Gans aim to demonstrate the value of these three techniques with Van Leer Place, a sustainable, mixed-use development of more than 400 homes and 7,500 square feet of retail space to be built on the brownfield site of the former Van Leer Chocolate Factory at 110 Hoboken Avenue in Jersey City. Their first step won't be a small one—they must replace the seven-acre site's arsenic-contaminated soil.

While many American construction companies have begun using alternative energy systems like solar and geothermal, Vallone and Gans argue that these alternative systems can't be fully utilized without proper building enclosure and energy-recovery ventilation (ERV).

Vallone and Gans have learned from McDonough, whom they consider a mentor, that even though an alternative energy system is an integral element of ecofriendly design, it can't work properly in a building that is constructed using traditional methods. Instead, McDonough purports, using adequate building enclosures made with autoclaved aerated concrete (AAC) and ERV are crucial to making sure that a building's alternative energy systems function properly.

"Building enclosure is the most important thing. It's responsible for the most amounts of energy savings, if it's a good building," says Vallone. "And if it's [the] typical kind of building that gets built in our country, it's responsible for the most amounts of energy lost."

Mass-wall building enclosure, says Gans, slows down the rate of thermal decay. In the winter, "it keeps the building warmer longer," he



Top left: A rendering of Van Leer Place, a sustainable, urban, mixed-use community to be built on the site of the former Van Leer Chocolate Factory. **Below:** Van Leer Place will transform a seven-acre brownfield site in Jersey City.

Courtesy Chester, Ploussas, Lisowsky Partnership

explains, "and the opposite in the summer when the air conditioning cools the building down.

"So when the building begins to heat up when the air conditioners click off, that cool thermal energy gets returned to the interior space. It keeps it cooler longer, and that's what the mass wall is all about."

Building codes now require kitchens, bathrooms, furnaces and water

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From left: Rep. Albio Sires, Hoboken Brownstone Company's George Vallone, Jersey City Mayor Jerramiah Healy, and Hoboken Brownstone Company's Daniel Gans at the groundbreaking ceremony for Van Leer Place.

heaters to be vented, Vallone adds. But with traditional methods of air ventilation, he says, "you're sucking the energy right out of the building," and therefore, wasting thermal energy. By using energy ventilation, which "transfers thermal energy from the exhaust air that's being vented out," he explains, fresh air is intercepted and retained inside the building. "You're recapturing and recycling the thermal energy," he says.

With Van Leer Place, Vallone and Gans are hoping to demonstrate for other construction companies that their holistic approach to design is more energy efficient than other ecofriendly designs. The two believe so passionately in their approach that they have even taken their ideas to politicians like Jersey City Mayor Jerramiah Healy and New Jersey 13th Congressional District Rep. Albio Sires (D), both of whom, Gans and Vallone say, have been very supportive.

"We went to [Rep. Sires] and told him the ideas we had," says Vallone, "and he said, 'This makes sense what you guys are talking about. We sit in committees in Congress and we don't know what to do. And here you are, talking about a real idea—energy conservation. Let's look at that. Let's put a value into that.'"

Because mass-wall building is new, Gans estimates that Van Leer Place will very likely cost more to build now than it would in the future. "Anything done the first time is more costly," he explains. "I'm sure that when Ford built his first car, it cost him a lot more and took a lot more time than it did when he started the production. That's part of the science project [part] of it all. But we're basing our thoughts on some very known concepts that are followed in Europe and are the state-of-the-art in building science. And we're trying to bring those things to the United States and use them in our climates and [under] our conditions."

For Vallone and Gans, combining mass-wall building with energy-recovery ventilation and alternative energy is the outcome of a 30-year interest in green building and design. Having received a $3.6 million grant from the New Jersey Bureau of Public Utilities, and with bills pending in both chambers of the New Jersey legislature to approve Van Leer Place as the first of the state's Urban Energy Technology Demonstration projects, Hoboken Brownstone Company is poised to become a model of state-of-the-art green building methods in New Jersey. The company's work is also sure to be noticed on the federal level as agencies work to meet the new standards set by President Obama in his executive order that mandates improvements in buildings' environmental and energy performance.

"We're perfectly happy to share what we've learned in our experiences and bring the same kinds of consultants and vendors that we've assembled to build our projects," says Gans. "We'd be happy to use that in assisting [builders and government agencies] with their projects."

Courtesy Hoboken Brownstone Company