

Jun. 23, 2012

# Case Study: The Homes at Old Colony Opens in Boston

By Chris Sullivan, Contributing Editor



Designed by The Architectural Team, Boston now has a major new affordable housing development that combines fresh, super-green architecture with new neighborhood amenities.

Opened this spring, The Homes at Old Colony is the much-anticipated redevelopment of the crumbling Old Colony housing complex in South Boston. Built in 1941, Old Colony was one of the oldest public housing project in the United States and it had become a symbol of poor housing conditions over the decades.

But with an injection of federal funds, an innovative master plan by The Architectural Team and a novel green-building approach sponsored by the Boston Housing Authority, The Homes

at Old Colony is now seen as a national model for sustainable multifamily design and successful urban living. Stemming from a grant for “environmentally sustainable public-housing transformation” given two years ago by the U.S. Department of Housing and Urban Development (HUD) through the American Recovery and Reinvestment Act (ARRA), the Old Colony project demonstrates how green building can enliven older communities that have dated housing projects.

Boston officials and real estate luminaries were on hand for the ribbon-cutting ceremony on March 20 at the new Joseph M. Tierney Learning Center, 125 Mercer Street, South Boston.

The redevelopment of Old Colony is extremely important to the residents of the development and the surrounding community,” said Bill McGonagle, administrator of the Boston Housing Authority, which has owned and managed the site since it was built. “We created construction jobs, and beautiful, affordable, energy efficient housing for the people of this community.”



New buildings on the 16-acre site include the first phase of the redevelopment, totaling 116 housing units contained in both a six-story midrise residential building offering one- to two-bedroom units, and four groups of townhouses offering two- to four-bedroom units. The modern, 10,000-square-foot community center was also dedicated; it will provide new social services to the revitalized neighborhood.

According to Michael D. Binette, AIA, principal at The Architectural Team, Old Colony was among the most physically distressed sites in the Boston Housing Authority (BHA) federal portfolio, paying annual energy and water costs of more than \$4,000 per unit due to its aged infrastructure.

“This redevelopment does more than merely rejuvenate a large Boston site,” says Binette. “The new Old Colony introduces ambitious green-building and energy-efficiency measures, making it arguably the first U.S. affordable housing project ever to meet major national criteria and certifications for sustainability.” According to The Architectural Team, Old Colony is tracking to achieve Platinum-level status under the U.S. Green Building Council’s LEED for Homes and LEED for Homes Midrise programs—for both townhouse and midrise structures and LEED NC Gold status for the Learning Center.

Old Colony is also designed to EPA’s Energy Star and HUD Healthy Homes Guidelines, with its site in accordance with LEED for Neighborhood Development.

“This development is by no means experimental,” says Pamela Goodman, president of Beacon Communities Development. “Rather, we relied on proven methods for green building design and construction and incorporated good neighborhood design and planning principles. This enabled us to not only replace seriously distressed public housing with a well-designed and constructed development that incorporates proven energy efficient technology and products, but also better integrate the housing into the adjacent community.”

### **More green housing to come**

Planning for the redevelopment of Old Colony began in 2009 with the BHA and master planner Chan Krieger, NBBJ. Later that year, BHA engaged Beacon Communities as developer and hired The Architectural Team as master planner and architect and Suffolk Construction as general contractor, to collaborate with the planning team and begin the design of Old Colony. The new plan involved demolishing seven dilapidated structures to develop Phase One. The second phase will add 169 new apartment units after existing structures are demolished in the early fall 2012. Phase two construction also calls for two new elevator buildings with one- and two-bedroom living units.



“We are very much looking forward to kicking off the second phase of the Old Colony redevelopment effort,” says McGonagle. “It is our goal to redevelop the entire site going forward. Phase two represents the BHA’s fifth HOPE VI grant and with each redevelopment effort the bar is raised to create greener, healthier and more energy efficient housing.”

The Architectural Team is well known in the Boston area and throughout the United States as a leading proponent of innovative, quality affordable housing and a successful planning practice. The firm, which celebrated its 40th anniversary in 2011, has designed over 500 multifamily housing projects creating over 55,000 units of housing throughout the US.—over half of which provide affordable housing. The firm has also developed a national reputation in historic adaptive reuse having preserved and converted over 150 historical structures to new uses primarily throughout the Greater Boston area and New England as well as New York, Michigan, Illinois, Pennsylvania, and Louisiana—to note a few.

### Neighborly image, smart solutions

“After 40 years of designing more than 55,000 units of multifamily housing, the firm has developed a broad knowledge, appreciation and deep understanding of the socio-economic impact these new developments have on a community,” says Binette.

“With the Old Colony project in particular, it was imperative for the team to design high-quality, affordable homes where residents feel safe, valued and a part of a larger whole. The design solution’s goal is intended be a beacon of hope for all who live here—that they feel part of a lively, sustainable neighborhood and an integral member of the Boston community. I believe the development team has achieved this goal.”



The Old Colony development begins with the master plan, which called for new physical and visual connections to the South Boston neighborhood and natural amenities. The former super blocks are replaced with new block patterns that are consistent with the feel and scale of the surrounding neighborhood. Gone is the monotony of the identical barrack-like housing blocks; in their place is a varied and rhythmic massing of buildings along new streets and access points that make the streets safer and more pedestrian friendly. Individual stoops provide direct access to the townhomes, and the streets are designed to slow traffic movement.



Green features are incorporated throughout the plan and architecture, says Jay Szymanski, AIA, project architect and associate at The Architectural Team. “The buildings are oriented to maximize solar exposure, with carefully designed exterior envelopes that inherently reduce heating and cooling loads,” says Szymanski. “Efficient mechanical systems, appliances and lighting are matched by new policies at Old Colony to limit waste and improve indoor air quality.”

Set on a dramatic waterfront site, Old Colony’s new six-story midrise building follows the curve of an adjacent traffic rotary, giving a dynamic form for the new development. The midrise building’s roofline steps down to transition to new three-story townhomes, which relate in scale to the predominant and “triple-decker” form of South Boston’s vernacular residential buildings, with their classic front stoops and bay windows. Departing from the expected, however, are their steeply raked rooflines, oriented so that new solar panels on the rooftops get maximum exposure to the sun.



The nearby community building is clad with brick and other materials seen on the midrise housing, but mixes them with a playful window arrangement and modern materials such as cedar tongue-and-groove siding—with a bold pop of yellow accent. “The community center was designed as a very playful, socially inclusive building that would appeal to all who live in the community—from the children who attend the Head Start program now housed in the center to the seniors who have lived in the neighborhood for decades,” says Edward Bradford, AIA, project designer and associate with The Architectural Team.

### **Winds of political change**

Funded in part by economic stimulus spending, the Old Colony redevelopment has taken on a certain symbolic role in terms of changes in South Boston. Its phase two funding represents one of the final projects to be financed through the Hope VI housing program, which is being phased out and replaced by the new federal program, Choice Neighborhood. U.S. Senators Barney Frank and John Kerry were on hand to announce the funding of phase two at a public meeting held at the Perkins School.

“We also made sure that our contractor took the employment of low-income persons, minorities and women seriously in their hiring practices so that we were able to meet or exceed the goals established by the City of Boston,” adds Beacon Communities’ Goodman. “Finally, we incorporated the elementary school that is located on-site into the redevelopment effort, so that the educators could use what was going on as a teaching tool; we also funded a writer in residence that established and maintained a blog chronicling the redevelopment efforts.”

Aware of the project’s importance and prominence, The Architectural Team and Suffolk Construction supported outreach to the unemployed residents of Old Colony, as required by ARRA funding as well as residents in the City of Boston, focusing on minorities and women. “The construction work became a significant source of local employment, and the project team tracked job creation through the program,” adds Szymanski.

### **Additional green features**

The jobs proved a harbinger of improved prospects for residents of Old Colony. “The original three-story buildings spanned the property, blocking view and access to the park and waterfront that are just yards away,” says Bradford.

While The Architectural Team reused the foundations and some recycled materials from the old housing, none of the original buildings remain. “Today, residents are in healthy and affordable homes that are well-appointed and more efficient than most market-rate apartments in the U.S. today, further providing them with an optimistic view of the newly revitalized neighborhood that surrounds them,” Bradford adds.

As one of the more green projects of a new wave of federally funded affordable housing developments in the United States, The Homes at Old Colony stands as a prototype for future large communities. Among the new, energy-saving and sustainable features of Old Colony include:

**Smart Location.** The Old Colony project is in close proximity to many amenities, with a master plan that provides improved access and connections with the surrounding neighborhood, including: Public transportation (subway and bus); outdoor recreation at Carson Beach and three neighborhood parks; as well as stores and commercial areas all within a half-mile or so.

**Landscaping and Site Design.** The Architectural Team in collaboration with the landscape architect, Stantec, carefully considered ways to design a landscape that was both beautiful and low impact on the environment:

**Water conservation:** The site incorporates plantings that are drought tolerant, which means that they do not need much water and will survive during periods without rain. The limited irrigation system has many high efficiency features such as drip irrigation and controllers that reduce the amount of water wasted.

- Durability – the plantings were specified to be durable, resistant to wear and tear, and to not require many chemicals and fertilizers.
- Heat-island reduction: The design team incorporated light colored walkways into the design of the site to reduce the amount of heat absorbed by these surfaces in the summer. This will make the site more comfortable in the summer heat, and reduce cooling loads on the buildings.
- Storm-water management – The site has been designed to infiltrate as much water as possible through pervious pavers (at the entry to the midrise building as well as at the community building), vegetated areas, and underground storm-water infiltration systems.

**Energy Conservation.** Significant levels of insulation and air sealing throughout the new buildings reduce energy consumption. In the midrise and community buildings, exterior spray-foam insulation aids with thermal insulation as well as air sealing. Units are compartmentalized from each other to reduce the “stack effect” which pulls cold air in at the base of the building and pushes hot air out the top of the building. For the townhomes, a medium-density spray foam fills the wall cavities and one-inch of rigid insulation blankets the exterior, reducing thermal bridging that brings heat and cold through the structure.

Throughout all the buildings, windows are Energy Star-certified and all central heating, cooling and hot-water systems are high-efficiency units. Additionally, each living unit is equipped with a heat-recovery ventilator (HRV) or energy-recovery ventilator (ERV) that continuously exhausts a steady, but small stream of air from bathrooms. The heat energy from the air is exchanged to heat the cold fresh air coming in from outside and being sent to the air-handling units to be tempered and distributed throughout the unit. This equipment ensures good ventilation and reduces energy use. Other features include:

- High-efficiency interior and exterior lighting fixtures equipped with controls to reduce electricity demand.
- Energy Star-certified appliances
- High-efficiency traction elevators in the midrise and community building that require less energy than a standard elevator.
- Use of light colored, highly reflective roof materials on the midrise and community building to reflect heat from the sun and reduce cooling loads.

**Renewable Energy.** In addition to reducing the buildings’ energy usage through efficient systems and building insulation, the site was oriented to maximize solar exposure to allow for energy generation to be collected through 140 kW photovoltaic panels installed on all phase one buildings. The panels are owned and operated by a third party, who then resells the electricity produced to Beacon Communities used for the common area electric consumption.

**Water Conservation.** A great deal of emphasis has been put on reducing overall water usage at Old Colony. An important part of this effort is to utilize fixtures (i.e., toilets and faucets) that are able to provide a comfortable experience for the user while using less water than a standard fixture.

- Low-flow bathroom and kitchen faucets, showerheads, toilets (pressure assisted), washing machines, and dishwashers.

**Healthy Buildings and Interiors.** Every apartment receives an ample quantity of fresh air received from the energy efficient ventilation system that continuously exhausts stale air from each apartment to maintain this healthy balance. Other healthy living features include:

- Low VOC paints, sealants, and adhesives
- Cabinetry that complies with CARB standards for urea formaldehyde emissions
- FloorScore certified resilient flooring
- Outdoor particle/contaminant control with walk-off mats at the midrise and community buildings
- Townhome entry areas allowing residents space to store personal belongings

**Materials Selection and Recycling.** Materials with high recycled content on the project include drywall, rubber flooring, steel and metals, cement and aluminum. Non-tropical woods were also selected to reduce rain forest deforestation.

### **An opportunity to educate**

The proximity of the project to the adjacent Michael J. Perkins Elementary School provided the unique opportunity to incorporate the design and construction process into the curriculum, says Szymanski, adding to Goodman's comment. "Various members of the design, development and construction team have visited the school to speak to the students about the construction activities that were ongoing literally outside their windows everyday," he says. "The teachers used real-world examples taken directly from the design and construction process and integrated them into their curriculum."

Szymanski adds that the unique educational collaboration is documented on an ongoing blog by a Boston-based author, Susan Goodman, which can be found at [ww.michaeljperkinsschool.blogspot.com](http://ww.michaeljperkinsschool.blogspot.com).

Beacon Communities, the project's developer and property management team, also engaged in an educational program aimed at teaching both residents and the maintenance staff about the importance of Old Colony's new sustainable features and how to use and maintain the systems and fixtures. Within the community building, a permanent display of the project's sustainable features is included as an educational tool to make visitors aware of the design elements that make this project environmentally-friendly.

Green certifications. Bradford lists the LEED certification and utility-supported energy efficiency certifications currently being pursued on behalf of The Homes at Old Colony:

- o Townhomes
  - o LEED for Homes – Platinum certification anticipated
  - o EPA Energy Star Homes certification anticipated
  - o Meeting Green Communities requirements
- o Midrise
  - o LEED for Homes Midrise – Platinum certification anticipated
  - o Massachusetts Multifamily High-Rise Pilot Program – Utility program for midrise residential buildings
  - o Meeting Green Communities requirements
- o Community Building
  - o LEED New Construction—Gold certification, anticipated
  - o Meeting Green Communities requirements
- Site Design
  - o LEED for Neighborhood Development—certification anticipated upon completion of phase two.

“The LEED certifications on the buildings indicate that they have been designed and constructed with a strong focus on energy and water efficiency, durability, healthy indoor air quality, and reduced impact on natural resources,” adds Bradford. “The result is buildings that are good for residents as well as the environment.”

The LEED for Neighborhood Development certification is especially noteworthy, Bradford adds. “This means that the site is being developed to high standards in terms of its sustainability not only as it relates to particular buildings, but also sustainability as it relates to the broader neighborhood, integrating the principles of smart growth and green building.”