

Affordably Green

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Buildings account for approximately 38.9 percent of total U.S. energy consumption and 72 percent of total U.S. electricity consumption. Buildings in the United States contribute 38.9 percent of the nation's total carbon dioxide emissions. Between 1950 and 2000, the U.S. population nearly doubled. However, in that same period, public demand for water more than tripled. Building-related construction and demolition debris totals approximately 160 million tons per year, accounting for nearly 26 percent of total non-industrial waste generation in the U.S. Combining construction and demolition with materials and waste, yields an estimate that building construction, renovation, use and demolition together constitute about two-thirds of all non-industrial solid waste generation in the U.S.

These statistics illustrate why green standards in the design and construction industry are no longer just theoretical principles, but rather necessary standards to which all designers and builders must adhere. While everyone can agree upon the principles of sustainable and green design, the added upfront cost has acted as a brake on full implementation. Recently in New York City we have seen a rise in the number of LEED-certified commercial buildings and luxury residential developments. Many of our large developers have committed themselves to the development of a new generation of eco-friendly buildings.

The affordable and mixed-income residential markets are a large and important part of our built environment and have lagged a bit behind commercial and high-end developments. With tighter budgets, these buildings face greater challenges incurring the upfront costs associated with sustainable design. At the same time, the need to reduce their utility bills makes sustainable design all the more necessary. We are pleased to note that, in spite of the economic obstacles, the past few years have given way to a new generation of affordable and mixed-income green residential projects in New York City.

One of the driving forces behind this progress is Enterprise Green Communities, the first national green building program developed for affordable housing. As an arm of the national non-profit Enterprise Foundation, Enterprise Green Communities offers grants, loans, tax-credit equity, training, and technical assistance to give developers and builders the resources they need to bring affordable green projects to life. Their award-winning initiatives provide tools, services and products that put into practice their findings on the most cost-effective sustainable design.

Our office is currently designing and has recently completed many housing developments that prove that green buildings can be economical and meet sustainability goals as high as any other building type, using Enterprise Green Communities, LEED and NYSERDA standards.

One example is Atlantic Terrace, an 80-unit, mixed-income home ownership development in the bustling Fort Greene section of Brooklyn. Convenient to an array of restaurants, trendy shops, and renowned cultural venues including BAM and the Mark Morris Dance Studio, Atlantic Terrace is a 'green' development, featuring materials and finishes that are locally made in Brooklyn. One of the only buildings in Brooklyn to combine a mix of affordable, middle income and market-rate cooperative apartments, Atlantic Terrace is an Enterprise Green Communities project and is on track to achieving LEED-Gold certification, without solar panels, geothermal systems, or many of the other high-tech, expensive features most typically identified with sustainable design.

How were we able to do it? Firstly, achieving buy-in from the general contractor and all of the engineers, as well as the client team, was essential. Commitment of the entire team to the concept of building a sustainable building on time and on budget was necessary to ensure the close collaboration of the team. All parties agreed to communicate closely throughout the project. This enabled the architectural team to develop construction details with the contractor that resulted in a highly efficient exterior envelope. Close interaction among the contractor, sub-contractors, architect and mechanical engineer allowed the construction to go smoothly. The cumulative experience of the design and construction team resulted in the incorporation of many new, low-tech ideas and concepts that kept costs within the budget.

Secondly, green standards are incorporated into all aspects of the architectural design and mechanical and electrical systems at Atlantic Terrace. A high-performance HVAC system features a quiet and highly efficient heat pump system, providing both heating and cooling to individual spaces. The system is fed by 98% efficient condensing boilers and a cooling tower. In addition, high-performance windows and a tightly constructed, well-insulated exterior wall create an energy efficient and comfortable building. Interior finishes include both recycled and rapidly renewable materials as well as locally built cabinetry from sustainably harvested wood.

Atlantic Terrace is a success because it is both sustainable and affordable. We believe Enterprise Green Communities has the right idea. It is possible to bring the health, economic and environmental benefits of green building to low-income communities nationwide. Designers and builders committed to the process can create developments that are affordable while minimally impacting the environment.

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