

MA – TAUNTON -- NEW GREEN HOUSING DEVELOPMENT REPLACES DECAYED PUBLIC HOUSING

Private Press Release carried in:

- Fosters.com
 - Foster's Daily Democrat
- Wednesday, February 18, 2015



Completed Bristol Gardens (Courtesy Photo)

PORTSMOUTH – A decayed public housing development has been replaced by a new affordable green town house and apartment complex thanks to Petersen Engineering; a Portsmouth-based engineering firm that specializes in energy efficient mechanical engineering.

Built in 1951, Fairfax Gardens was a 150 unit public housing development in Taunton, Massachusetts that had fallen into disrepair. The development was cramped, not accessible nor energy-efficient. The units were overrun with mold and pests, and their finishes were severely deteriorated. According to an evaluation prepared by The UMass Dartmouth Urban Initiative, drug sales and use were also a large problem at Fairfax Gardens. Shortly after this evaluation, under a HOPE VI Revitalization Grant, the complex was demolished and, along with undeveloped land Parcel 6-A a mile away, was rebuilt into a green affordable housing complex.

“When you look at what this property used to be and what it has become, it's nothing short of a total transformation. The residents deserve to have a place that is safe, energy efficient and high performing – that's the kind of building we specialize in and we are very proud to have contributed to this project,” says James Petersen, principle engineer and founder of Petersen Engineering. The \$71 million new development, consists of 160 mixed-income units, with 88 new townhouses at Bristol Gardens built on the old Fairfax Gardens site and 72 new apartment

units and townhouses at Lenox Green built on Parcel 6-A. The new development has 20 buildings in total, including a community center and a maintenance building.

The U.S. Department of Housing and Urban Development website states, “The HOPE VI Program, originally known as the Urban Revitalization Demonstration (URD), was developed as a result of recommendations by the National Commission on Severely Distressed Public Housing, which was charged with proposing a National Action Plan to eradicate severely distressed public housing.” The Taunton Housing Authority was awarded a \$22 million HOPE VI Revitalization Grant in 2010 for Fairfax Gardens.

Petersen Engineering, Inc. acted as the mechanical engineer for the project and handled the engineering services for all of the building systems within the new complex, utilizing a sub-consultant for electrical engineering. Petersen Engineering was chosen based on its positive reputation and proven track record in the greater-Boston area to work as part of integrated teams on projects with goals of super high energy efficiency. Additionally, the firm came to the job through their association with the Northeast Sustainable Energy Association (NESEA).

Petersen Engineering did not come to the job without its fair share of challenges to create affordable green housing units. Working with the developer's goals for a super high-performance project, Petersen Engineering was tasked with designing the HVAC, plumbing and sprinkler systems as well as integrating their designs.

“It was an Energy Star® certified project, but the actual performance of the building exceeded the Energy Star® standards because that was the priority of the developer; to have a ground breaking project in terms of energy efficiency,” Petersen said.

Founded in 1992 in Portsmouth, Petersen Engineering began with HVAC and plumbing design and has since grown to include building science, enclosure design and integrated design. Petersen's primary focus in design is to reduce, or remove, the energy waste of a building. Engineers that work for Petersen Engineering are experts in building mechanical systems and are educated in the environmental and cost savings of making buildings energy efficient.

In his own right, Petersen is a strong advocate for green and environmentally sustainable practices. Petersen Engineering is a corporate business partner of the Portsmouth-based Green Alliance, a union of environmentally conscious businesses and individual members, which works to educate the public about sustainable business and buying practices.

Petersen has even converted his company's offices, located on Mapelwood Avenue, in a historic 1804 federal-style building, into a space that can compete with any new building for energy conservation and environmental stewardship, while keeping it to the strict standards of the Portsmouth Historic District Commission.

“Generally when you are doing something that hasn't been done before, or is not standard in the industry, you are going to have some steps forward and steps back, so sometimes it is surprising,” Petersen said.

Petersen, along with Hank Keating, vice president, design and construction at Trinity Financial, and Lauren Baumann, vice president at New Ecology, Inc., the sustainability consultant of the project, will speak about the Fairfax Gardens project at the NESEA Building Energy 15 conference at the Seaport World Trade Center in Boston on March 5. The NESEA conference is a peer-to-peer sharing conference and the presentation will be on the lessons that were learned in applying passive house principles to 160 units of affordable housing.

“That conference attracts people like us that are committed and passionate about improving the quality of buildings,” said James Petersen, owner Petersen Engineering, Inc.

Close to a year's worth of energy data from the completed project will be available at the conference.

Passive house principles, which originated in Germany, is a program designed to reduce the energy used in a building by 80 to 90 percent below what the building code compliance requires. There are strict standards to passive house principles, one requires that the building be made in an air-tight manner. The design for many of the buildings in the new Fairfax Gardens complex are set to meet this requirement.

“The project goal was not to guarantee that we would get to the passive house standard for building leakage, but it was a delight to the team that several of the buildings actually did get to the air tightness standard set out by passive house and exceeded it,” Petersen said.

“Building air leakage is a significant source of energy use, especially during the heating season, which we can all relate to right now,” Petersen said.

The ventilation systems are integrated within the sealed building enclosure for comfort of the occupants and for reliable and efficient running of the systems.

“Because the heating requirement was so low we were able to use a unusual product to heat as well as air condition the space,” Petersen added.

Valance systems, which is like perimeter thin-tube baseboard, are placed at the ceiling and wall intersection in the building and operates similarly to systems in a person's home, runs hot water through thin tubing during the winter for heat and chilled water in the summer for cooling. This product and approach wouldn't work if the requirements had been normal.

“One of the big benefits of using that product was it results in a heating and cooling method that is very low maintenance therefore saving the owner operating maintenance costs and it's also very durable, it is going to last a long time,” Petersen said. "It is one thing to do something differently and promise results but demonstrating the results is where the rubber meets the road."