SHOWCASE PROJECT: BOSTON HOUSING AUTHORITY: ST. BOTOLPH APARTMENTS

SOLUTION OVERVIEW
Built in 1972, St. Botolph offers 132 efficiency and 1-bedroom apartments for low- and moderate-income elderly and disabled persons. The 8-story building is located in the heart of Boston’s historic Back Bay neighborhood. Components of the building units have extended themselves beyond their projected life span and exacerbating conditions have led to increasing operational costs, especially related to energy.

To meet growing energy retrofit demands and other capital improvement needs, Boston Housing Authority (BHA) has undertaken a Rental Assistance Demonstration (RAD) conversion. RAD is a HUD program that allows public housing authorities to leverage private capital to finance upgrades to housing stock.

SECTOR TYPE
Multifamily

LOCATION
Boston, Massachusetts

PROJECT SIZE
91,000 Square Feet

SOLUTIONS
BHA is working to ensure that through this RAD conversion, St. Botolph continues to remain a sustainable and healthy living environment for residents. Through the installation of energy-efficient technology and smart engineering, the RAD conversion is expected to lead to decreased energy use, water use, and carbon emissions. One of the technologies in the project’s scope that will help achieve these goals are the variable refrigerant flow (VRF) heat pumps that will replace the existing electric baseboard heat.

The following measures are projected to reduce source energy use by 30 percent:

For more information, visit https://betterbuildingsolutioncenter.energy.gov
- Solar Thermal Domestic Hot Water
- Variable Refrigerant Flow Air Source Heat Pumps
- Energy Recovery Ventilators (ERVs) to serve all common areas.
- Boiler Plant Upgrade - Condensing mode boilers at 98% Thermal Efficiency
- LED lighting for all apartments
- Mix of LED upgrades, new lamps, and occupancy sensors for hallway and common areas
- Air Sealing & Insulation
- Low Flow Toilets -- EPA WaterSense compliant
- Aerators and Faucets -- EPA WaterSense compliant

OTHER BENEFITS
In addition to decreasing the property’s energy use and carbon footprint, the VRF heat pumps will lead to improved resident comfort.
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<thead>
<tr>
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<th>Annual Energy Use</th>
<th>Annual Energy Cost</th>
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<tbody>
<tr>
<td><strong>Baseline (2017)</strong></td>
<td>147 kBtu/sq.ft.</td>
<td>$217,400</td>
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<tr>
<td><strong>Expected (2021)</strong></td>
<td>102 kBtu/sq.ft.</td>
<td>$152,100</td>
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**Energy Savings**
31%

**Cost Savings**
$65,200

St. Botolph Apartments

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