

55 Harvey at Providence Square provides 53 units of affordable housing for seniors. The 4 story building is located at the northwest edge of lot 52.01, block 418 in the City of New Brunswick in the State of New Jersey.



55 Harvey Street
New Brunswick, NJ





Location of Project: New Brunswick, NJ

Owner: Providence Square Housing Urban Renewal, LLC

Overview

55 Harvey at Providence Square provides 53 units of affordable housing for seniors. The 4 story building is located at the north-west edge of lot 52.01, block 418 in the City of New Brunswick in the State of New Jersey.

Site and Transportation

This project uses infill development and is located within walking distance of downtown New Brunswick, and is within ½ mile of the New Brunswick Amtrak station offering access to the entire Northeast Corridor. The building has an outdoor deck off of the community overlooking the neighborhood park.

HVAC and Envelope

The construction of the building used predominantly new panelized wood construction including open web floor and roof trusses, and masonry stair towers and elevator shafts. The building exceeded ASHRAE 90.1-2004 by 25% through the use of high efficiency HVAC equipment and an enhanced thermal envelope.

Water and Energy

High-efficiency plumbing fixtures were used to reduce water usage, and a centralized solar hot water heating system was installed to reduce the energy required to provide hot water. An 11kw photovoltaic system was also installed on the roof to help offset the energy consumption in the common areas of the building. To reduce the demand for electricity, ENERGY STAR-rated lighting fixtures and appliances were used where possible.

Occupant Training

In addition to implementing these sustainable features, each tenant will be provided with an on-site orientation and a user's manual on what these features are and how they can best be maintained.

Project Team

Architect: Kitchen and Associates Architectural Services

General Contractor: AJD Construction

Green Consultant: MaGrann Associates

Landscape Architect: Brickman Group

Civil Engineer: LGA / Birdsall Services Group

Process

Design

The site selection for 55 Harvey at Providence Square was critical in meeting the sustainability goals of the project. The building is located on an infill lot, within ½ mile of a regional train station and has access to existing infrastructure. Placement of the building on the site and various building layouts were carefully considered by the owner to maximize the underutilized space on the site while creating a complimentary building to provide a campus feel to an existing building on-site.

The project team, including the owner, architect, engineers, and contractor, participated in three 4-hour long design charrettes to review the design intent and potential strategies for making sustainable choices in the design of the project. Possible systems including a solar thermal system, a photovoltaic system, and a geothermal system were discussed as potential opportunities to increase energy efficiency in the building. Ultimately, it was determined that the most beneficial systems to include were the solar thermal and photovoltaic systems. During these meetings, cost benefit analysis of miscellaneous other systems were reviewed and, where appropriate, included in the design.

Following a discussion reviewing prescriptive strategies to participate in the Low Income Housing Tax Credit Green Point program offered by the New Jersey Mortgage and Finance Agency (NJHMFA), the owner decided to pursue LEED for Homes Mid-rise Pilot Certification. The LEED Checklist was used as a tool in determining additional strategies to be implemented during the design phase that could potentially benefit the building and its residents.

Build

Prior to the start of construction, the design team met with the contractor to review the expectations for the sustainable features and LEED requirements of the project. The contractor maintained a checklist of durability strategies throughout the construction of the building and provided submittals which were reviewed for the required sustainable content. Weekly site visits were also conducted by the owner and architect to observe the proper installation of these items. Construction waste recycling was implemented on the site and the project diverted 83% of the total project waste from the landfill.

Operate

Each tenant of the building will be provided with an on-site orientation and a user's manual on how to use green features of the building and how they can best be maintained.



Ratings and Awards

LEED for Homes Midrise Pilot Program

LEED Silver Certification – Pending

Finance

One of the significant challenges to incorporating green building into affordable housing work is the perception that going green increases the cost of the project significantly.

Green building offers a tangible payback in increasing energy efficiency and lowering tenant utility bills, as well as saving in operations costs. Durable, well designed buildings cost less to maintain and last longer.

Performance

The building has only recently become occupied so no data is available on the building's performance.

Lessons and Trade-offs

Initially, the building was designed to receive fresh air through a window crack method. In order to meet the LEED for Homes Midrise requirements for fresh air, the building had to take in a minimum of 22 cfm. A ruling by the US Green Building Council determined that a dedicated source was required to achieve the LEED fresh air requirement. Construction was over 50% complete at the time of the ruling and therefore there were only a few options available at the time to meet this requirement:

1. Install Heat Recovery Ventilators in each of the units - This option was not chosen due to the expense to redesign the mechanical system.
2. Install two tickle vents per unit in the brick - This option was not chosen due to the expense to remove a large portion of the brick on the building's façade and then properly flash the through wall penetration.
3. Install one window vent per room - This option was the least expensive of the three, but obtaining the vents was difficult, as there are no suppliers in the USA.



In order to meet the LEED for Homes fresh air requirement, one window vent per room was installed. In order to avoid a change like this during the construction it is important to begin discussion with the USGBC and the design team to ensure the project will meet the fresh air requirements.

List of Green Strategies

Build

- Brownfield and Infill Development
- Native and Adapted Plants
- Integrated Design Process
- Building Information Modeling
- Life Cycle Cost Analysis
- Conduct a Soil Test
- Radon Mitigation System
- Water-Efficient Landscape Design
- Reduce Turf Grass
- Low Flow Fixtures
- Reduce Air Infiltration
- Glare and Heat Gain Reduction
- Insulate Exterior Doors
- Insulation
- High-Efficiency Lighting Systems
- High-Efficiency Water Heater
- Properly Sized HVAC Equipment
- Energy Star Equipment
- Occupancy Sensors

- Photovoltaic System
- Solar Hot Water Heating System
- Life Cycle Assessment
- Recycling Center
- Low Emitting Materials
- Individual Comfort Controls
- Indoor Air Quality Management Plan
- Entryway System
- Moisture Control
- Interior and Lighting Design
- Views and Operable Windows
- Crime Prevention Through Environmental Design

Build

- Construction & Demolition Waste Reduction
- Indoor Air Quality Management Plan
- Building Flush
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Operate

- Operator and Occupant Training
- Integrated Pest Management
- Preventative Maintenance

