East Flatbush Library Renovation LEED ID Credit: Green Education

LEED

LEED (Leadership in Energy and Environmental Design) is a globally recognized third-party green building rating system provided by the USGBC (U.S. Green Building Council). Among many other things, LEED provides a framework for efficient and cost-saving buildings that promote environmental sustainability and health of the building's occupants. LEED recognizes performance in location and planning, sustainable site development, water savings, energy efficiency, materials selection, waste reduction, indoor environmental quality, innovative strategies and attention to priority regional issues.

To learn more about LEED and the USGBC, please visit the website here: https://www.usgbc.org/leed/why-leed.

Project Summary

The LEED project scope consisted of a full interior renovation of approximately 8,000 sq. ft. on the first floor of the East Flatbush Branch Library. The existing building systems including mechanical, plumbing and electrical were over 25 years old and due for an upgrade. These systems were removed and replaced with more efficient HVAC, lighting, electrical and fire alarm, plumbing and sprinklers. This redesign has acquired the status of a LEED Silver project.

Project Design Team

BPL Team: Angeline Quirona, Project Director CPFM

Architects: LevenBetts

Structural Engineer: Sillman

MEP/LEED: Plus Group Consulting Engineering

Lighting Designer: Lumen Architecture

Code/Expediter: William Vitacco Associates

Envelope Consultant: James R Gainfort AIA Consulting Architects

Specifications Consultant: Construction Specifications, INC.

Cost Estimating: NASCO Construction Services

Summary/Stats of LEED Achievements

- Total water consumption is 36.65% less than the baseline.
- Total energy consumption is 30.4% less than the baseline.
- 75% of existing wall, floor, and roof materials were re-used.
- 75% of construction and demolition materials were diverted from landfills.

Sustainable Sites

This category addresses the building location, existing community, and surrounding environment. It encourages alternative transportation, community connections, and a conscious awareness of the relationship between the building and the existing local ecosystem. Below are some of the aspects of this category included in this project:

- Community Connectivity: Rather than consuming additional resources for a new building on an undeveloped plot of land, this project is renovation of an already developed structure. Its current location in an urban area builds community and ensures that visitors of the library do not have to travel far to reach a grocery store, post office, medical center, and other essential services.
- Alternative Transportation – Public Transportation Access: The library is within walking distance of bus stops for the B8, B35, and B15 transit lines. This reduces the amount of pollution from automobiles as visitors of the library have access to public transportation.
- Heat Island Effect- Roof: The roof of the library was designed with a high SRI (solar reflectance index). This results in less solar heat being absorbed by the roof and re-emitted into the environment and other surrounding buildings. Among other things, this reduces the amount of energy that goes into air conditioning to cool all these affected spaces. To learn more about heat islands, visit the EPA website here: https://www.epa.gov/heatislands.

Water Efficiency

This category looks at reducing indoor and outdoor water use and having an “efficiency first” approach to water conservation. Below is an aspect of this category included in this project:

- Water Use Reduction: The new library contains sinks with automatic faucets and low-flush toilets that make sure less water is wasted with every hand-wash and toilet flush. The building’s estimated water consumption is a 36.65% reduction from the baseline. This puts less pressure on the city water supply and wastewater systems.

Energy and Atmosphere

This category addressed energy use reduction, energy-efficient design strategies, and renewable energy sources. Below are some of the aspects of this category included in this project:

- Optimize Energy Performance: The library's new systems reduced the amount of total building energy consumed by 30.4%. The following contributed to this reduction:
    - Existing, aged lighting was replaced with new energy efficient lamping like LED's. New lighting controls (such as occupancy and vacancy sensors) were provided as well. These changes result in less overall energy consumption by the lighting systems.
    - Existing HVAC systems have been replaced with a gas and electric-powered packaged roof-top system that provides energy efficient heat and cool air for the main reading area and an electric-powered variable refrigerant flow system that provides heat and cool air to the perimeter spaces with higher occupant densities. Both systems provide clean air to the library and contribute to the building's overall lower energy consumption.
- Green Power: The library has a 2-year renewable energy contract to provide 70% of the building's electricity from renewable sources. To learn more about this an he purchase of Green-e renewable certificates, visit the Center for Resource Solutions website here: https://www.green-e.org/

Materials and Resources

This category focuses on minimizing the negative impacts associated with the extraction, processing, transport, maintenance, and disposal of building materials. Below are some of the aspects of this category included in this project:

- Storage and Collection of Recyclables: The library provides clearly labeled recycling bins for paper, corrugated cardboard, glass, plastics and metals.
- Construction Waste Management: During construction of the new East Flatbush Library, at least 75% of the debris was diverted from disposal in landfills and incineration facilities. Instead it was recycled or salvaged to be re-used in the future manufacturing processes.

Indoor Environmental Quality

This category addresses design strategies and environmental factors having to do with indoor air quality and occupant comfort (thermal, visual, and acoustic). Below are some of the aspects of this category included in this project:

- Environmental Tobacco Smoke Control: The library has a no-smoking policy that applies indoors, within 100 ft of the building entrance. This minimizes the

exposure of building occupants, indoor surfaces and ventilation air to environmental tobacco smoke.

- Indoor Chemical and Pollutant Source Control: Several measures were taken to minimize building occupants exposure to potentially hazardous particulates and chemical pollutants.
    - Indoor ventilation systems are provided with MERV 13 filters for cleaner air
    - The janitors closet air is continually exhausted to prevent any potential cleaning fumes from spreading to the air.
    - The building entrance has an entryway system that collects dirt and particulates from the outdoors.