Cover Photo: Anton Anderson

Clean & Green

Sustainable Design at the Eastham Public Library

Project Team:
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P3 Project Management
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Library Dedication: February 4, 2017

LEED Certification Review Report

This report contains the results of the technical review of an application for LEED® certification submitted for the specified project. LEED certification is an official recognition that a project complies with the requirements prescribed within the LEED rating systems as created and maintained by the U.S. Green Building Council® (USGBC®). The LEED certifcation program is administered by the Green Business Certification Inc. (GBCI®).

LEED FOR NEW CONSTRUCTION & MAJOR RENOVATIONS (V2009)

ATTEMPTED: 57, DENIED: 0, PENDING: 3, AWARDED: 50 OF 110 POINTS

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation in Design
- Regional Property Credits

LEED: Leadership in Energy and Environmental Design

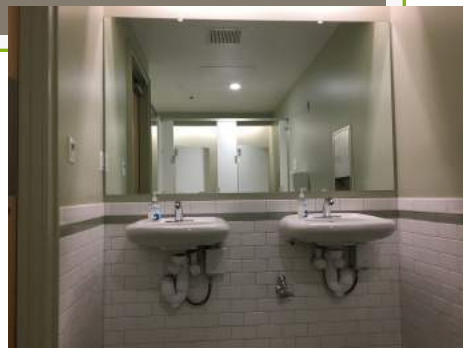
Sustainable Sites

- **Site development - protect or restore habitat**
- Intent: To conserve existing natural areas and restore damaged areas to provide habitat, promote biodiversity and protect open space.
- Many of the library's plants are native or adapted vegetation. The site includes a meadow by the pond.
- 43% of the site remains as vegetated open space.

Sustainable Sites

- **Stormwater Management**
- Intent: To limit disruption & pollution of natural water flows by managing stormwater runoff.
- The Library's roof slope directs rainwater runoff away from Depot Pond into a central catch basin.
- The parking lot uses a sand & gravel underlayment to improve the drainage, filtering, and recycling of rainwater away from Depot Pond and adjacent properties.

Water Efficiency



- **Water Use Reduction**
- Intent: To increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.
- The selection of restroom and sink fixtures reduces the Library's water use by 33%.

Water Efficiency

- **Water Efficient Landscaping**

- Intent: To limit or eliminate the use of potable water or other natural surface or subsurface water resources available on or near the project site for landscape irrigation.

- No permanent irrigation has been installed on-site, drastically reducing the site water use.

Energy & Atmosphere

- **Commissioning of the Building Energy Systems**
- Intent: To verify that the project's energy-related systems are installed, calibrated & perform according to the owner's project requirements, basis of design & construction documents.
- Commissioning activities were completed for the following energy-related systems: Heating, ventilating, air conditioning & refrigeration systems with associated controls; lighting & daylighting controls; domestic hot water systems.

Photo: Control box for HVAC System

Energy & Atmosphere

Note the light sensor in the lobby ceiling

- **Energy Performance**
- Intent: To establish the minimum level of energy efficiency for the building & systems to reduce environmental & economic impacts associated with excessive energy use.
- The Library's Whole Building Energy Simulation has achieved an energy cost savings of 49.91%. The total predicted annual energy consumption for the project is 89,945 kWh/year of electricity. The Library's interior lighting has demonstrated a 54% energy use reduction; exterior lighting an 82% reduction

Energy & Atmosphere

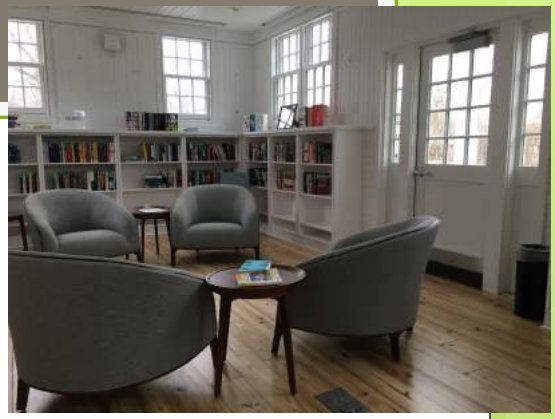
- **Fundamental Refrigerant Management**

- Intent: To reduce stratospheric ozone depletion.
- There are no CFC-based refrigerants serving the project building

Energy & Atmosphere

- **On-Site Renewable Energy**
- Intent: To encourage & recognize increasing levels of on-site renewable energy self-supply.
- 29.7% of the Library's annual energy consumption is offset by the PV system at the Town's capped landfill. The roof has been designed to be "Solar Ready' for future increased offsets of energy use by a PV system installed on-site.

Materials & Resources



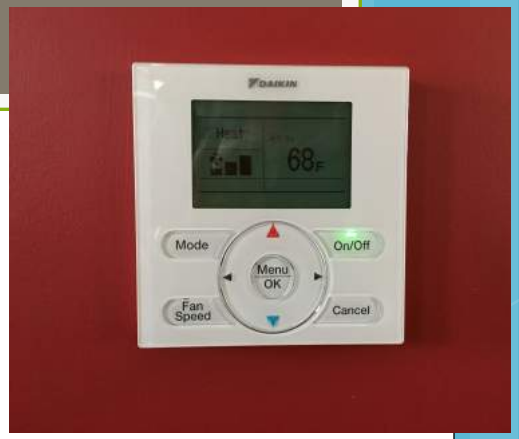
- Intent: To divert construction & demolition debris from disposal in landfills & incineration facilities; to redirect recyclable recovered resources back to the manufacturing process & reusable materials to appropriate sites; to encourage use of recyclables.
  - Waste Diversion: 78%
  - Recycled Content: 16%
  - Regional Materials: 17%

Photo: Reclaimed Southern yellow pine on the floor of the 1897 VIS Library

Indoor Environmental Quality

- **Low Emitting Materials-Adhesives, Paints, Flooring & Composites**
- Intent: To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers & occupants
- All interior finishes of the project have been selected to reduce the Volatile Organic Compounds (VOCs) present in the building, to maintain the health of library occupants.

Indoor Environmental Quality



- **Thermal comfort – Design & Verification**
- Intent: Provide a comfortable thermal environment that supports the productivity & well-being of building occupants.
- The Library's mechanically ventilated & conditioned space is in compliance with LEED standards.
- 70% of individual spaces have access to thermal controls (operable windows, thermostats)
- 100% of multi-occupant spaces have access to thermal controls

Indoor Environmental Quality

- **Environmental Tobacco Smoke Control**

- Intent: To prevent or minimize exposure of building occupants, indoor surfaces and ventilation air distribution systems to environmental tobacco smoke (ETS)

Indoor Environmental Quality

- **Daylight and Views**

- Intent: Provide for the building occupants a connection between indoor spaces & the outdoors through the introduction of daylight & views into the regularly occupied areas of the building.

- 95% of the Library's regularly occupied spaces have access to views to the exterior, greatly improving the connection between the interior spaces of the library & the outdoor environment and Depot Pond.

Innovation in Design

- **Exemplary Performance**

- Intent: To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in green building categories not specifically addressed by the LEED Green Building Rating System
- Site Development to Maximize Open Space: The Library project score is 43%; the requirement for exemplary performance is 40%.
- On-Site Renewable Energy. The requirement for exemplary performance is 15% and the project has documented 28.77%