

Case Study



Overview

Site Details

- New construction
- Completed January 2009
- Education Facility
- 18,000 square feet
- Located in Duxbury, Massachusetts

Savings Numbers

The *New Construction Guide* is a nationally recognized resource bringing together 50 criteria defining high performance in building envelope, lighting, HVAC, power systems and controls.

This easy-to-use guide helps building design and construction professionals exceed state and national energy standards such as ASHRAE 90.1-2007 by up to 40%.

DUXBURY BAY MARITIME SCHOOL

Serving more than 1,800 students annually, the not-for-profit Duxbury Bay Maritime School aims to connect the community through educational and recreational programs with its primary resource, Duxbury Bay.

In 2008, the Duxbury Bay Maritime School set out to build a multipurpose educational building. The challenge was to create an energy-efficient building that meets the programming needs while blending architecturally with the other buildings on campus. Designers for the 18,000 square foot building met this challenge by working with NSTAR to follow the Advanced Buildings® *Core Performance Guide*.

Completed in June 2009, the new energy-efficient multipurpose building boasts maritime architectural features and houses accessible classrooms, administrative offices, workout areas for rowers, locker room facilities, and boat and equipment storage.

Technologies and Design Strategies:

Envelope. Installed R-7 continuous rigid insulation and R19 cavity insulation in the walls and R30 in the suspended floor; used closed-cell spray insulation in the roof; and installed high performance windows (.29-.32 U Value) and doors (.33 U Value).

Lighting and Controls. Installed efficient fluorescent lighting (32-42 watt compact fluorescent or T8 lamps) throughout; installed occupancy sensors in office and classroom space.

HVAC. The space was designed to take advantage of the natural ventilation (operable windows, venting dormers, cross ventilation, etc.) provided by sea breezes. Installed air cooling in office and classroom space only, while using energy recovery ventilation for bathroom, lockers, corridors. Utilized high efficiency (94.5% AFUE—15.0 SER) air heating-cooling units for 10 zones along with zone temperature sensors with remote thermostats.

Other Strategies. To complement the other high performance efforts, a high efficiency domestic water heater, waterless urinals and low-flow showers and water closets were installed.

Project Team

Owner Representative

Chuck Leonard,
Duxbury, Massachusetts

Civil Engineer

Amory Engineers
Duxbury, Massachusetts

Designer/Architect

Roundel 47
Scituate, Massachusetts

Sponsor Utility

NSTAR
www.nstar.com

About Advanced Buildings

Advanced Buildings offers a direct path to high energy performance in new commercial building projects.

An Advanced Buildings designation represents a best-in-class building that adds value and stands out for its energy efficiency and healthy environments. In addition to the *New Construction Guide*, Advanced Buildings offers a suite of tools and resources that help design teams achieve superior energy efficiency.

Advanced Buildings is developed and managed by New Buildings Institute with support from utility and public benefits organizations as well as foundation funding.

New Buildings Institute

New Buildings Institute (NBI) is a nonprofit organization working collaboratively with commercial building professionals and the energy industry to improve the energy performance of commercial buildings.

Mechanical Engineer

Building Facilities Engineering Co.
Beverly, Massachusetts

Electrical Engineering

Engineered Building Systems
Derry, New Hampshire

Construction Manager-General

Contractor

Ford Construction Co.
Norwell, Massachusetts

For more information about Advanced Buildings *New Construction Guide*, visit: www.advancedbuildings.net

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