

Lyndon P. Lorusso
Applied Technology Building



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Architecture / Interior Design / Planning

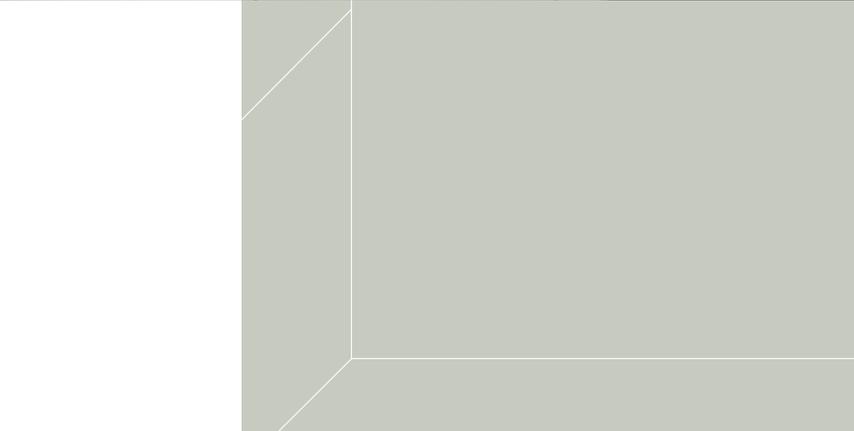
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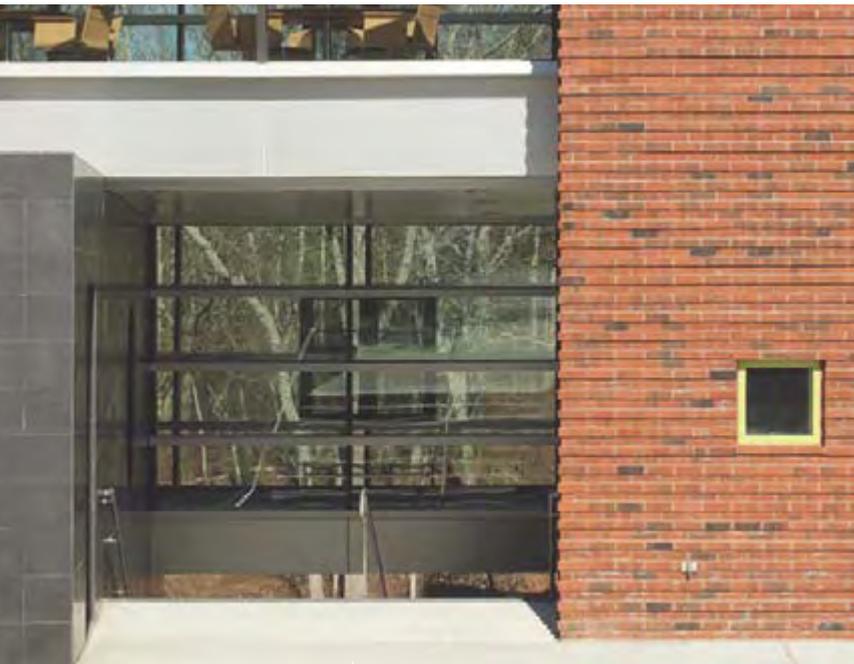


Cape Cod Community College

Cape Cod Community College is an innovative institution providing educational programs and services to meet the diverse needs of the residents of Cape Cod, the Islands, and adjacent areas of Southeastern Massachusetts. As the sole comprehensive college on Cape Cod, it provides the only regional access to higher education for many residents. The College is a student-centered learning community that prepares students for a rapidly changing and socially diverse global economy. To this end, it offers degrees in the liberal arts and sciences, career and technical degrees and certificates, and workforce education. The Lyndon P. Lorusso Applied Technology Building, a new state-of-the-art teaching and learning facility, represents the College's commitment to environmental sustainability. It is the Commonwealth's first LEED (Leadership in Energy and Environmental Design) certified "green" building.

Introduction





The Lyndon P. Lorusso Applied Technology Building

The Lyndon P. Lorusso Applied Technology Building integrates the College's innovative information technology systems and is a vital educational building for the campus that serves over 6,000 students per year. This new building features numerous cutting-edge sustainable design features. It is a model for the Commonwealth's program for environmentally sensitive design in the 21st century, and serves as a hands-on resource for teaching environmental technology, the natural sciences, and information technology, among many academic programs.



Cape Cod's unique geo-environmental and climatological features are particularly sensitive to the need for environmentally responsible planning and design. Over the past decade, the Cape's resources have been increasingly strained by growth and development. The Commonwealth of Massachusetts, through its Division of Capital Asset Management (DCAM), has made a commitment to environmentally sensitive design. As a means of measuring achievement, DCAM has adopted the LEED Green Building Rating System of the U.S. Green Building Council (USGBC), and has set a high standard for future projects. The Massachusetts Technology Collaborative, in collaboration with DCAM, has helped fund several specific renewable energy aspects of this project.



Sustainable Design

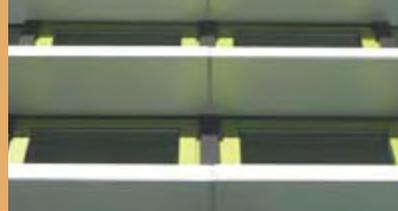
The Lyndon P. Lorusso Applied Technology Building is the Commonwealth's first to be designed under this new approach. This building meets the key aspects of the LEED program through its site design, daylighting, renewable energy usage, water conservation, materials, and innovation. The building is designed to achieve LEED "Gold" certification, one of the highest ratings attainable.



Site Design

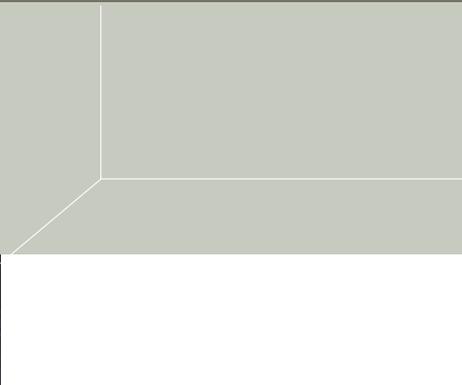
The site location is the result of a comprehensive campus planning process that takes into consideration future growth, relationships to existing facilities, preservation of natural vegetated areas, and enhanced circulation of students and vehicles. Cape Cod Community College is a commuter-oriented college whose central campus is surrounded by existing parking areas, linked by a circular roadway. The Lorusso Building is located adjacent to underutilized parking areas, thus reducing site disturbance by eliminating the need for new parking lots. The College has made a written commitment to preserving adjacent open space. Storm water from the landscaped areas is controlled to prevent erosion and to naturally irrigate vegetation. Light pollution is reduced by the use of site lighting fixtures that eliminate wasteful upward lighting. Paving materials were selected to reflect sunlight and reduce the build-up of heat in summer months. Deciduous trees shade the building in summer and allow solar heat to enter the building in winter, thus improving the efficiency of building systems.





Maximizing the use of daylight enhances the interior environment for learning while reducing the energy consumption that would require power generation for electrical lighting. The Lyndon P. Lorusso Applied Technology Building achieves this objective through a number of innovative features. The building is oriented on an east-west axis to create the maximum façade exposure to the sun from the south. At rooftop, a clerestory monitor floods the interior circulation corridor with bright daylight, which in turn is filtered into interior spaces at main entry points along the corridor. Horizontal “light shelves” in the upper portion of windows on the south façade reflect light onto the ceilings of classrooms, increasing the brightness and reducing the need for artificial light. North facing classrooms have large windows that allow maximum natural daylight to penetrate the building. Daylight sensors monitor the lighting in spaces and turn off the light fixtures when the light levels do not require them. Occupancy sensors provide additional control to turn off fixtures when spaces are not occupied.

Daylight





Multiple design approaches are used to increase energy efficiency and reduce consumption. Solar energy collectors installed on the rooftop consist of 122 photovoltaic panels that generate 27 kilowatts of renewable energy. Combined with the dual occupancy/daylight sensors and daylight controls, the building systems will use 35% less energy than conventional systems. Green Power, purchased by the College, provides 100% of the Lorusso Building's power for a minimum of two years from a renewable source. Optimized energy performance of building systems has been incorporated into the design, and additional commissioning of the constructed systems has assured this performance. Enhanced controls for the systems will continuously monitor the systems' efficiency. The elimination of chlorofluorocarbons (CFCs) in the HVAC systems helps to reduce ozone depletion in the atmosphere.

Renewable Energy



A variety of measures are taken to enhance water efficiency and reduce the overall consumption of water both inside and outside of the building. The design approach combines water reduction features that include: a water collection and reuse system that eliminates a permanent irrigation system by using native, drought-resistant species in the landscaping; an 8,000-gallon system that collects rainwater from a rooftop storm drain and stores it for reuse in flushing toilets; and low-flow toilets, fixtures, and waterless urinals. These sustainable design practices reduce the overall water consumption by 85% compared to a standard system.

Water Conservation



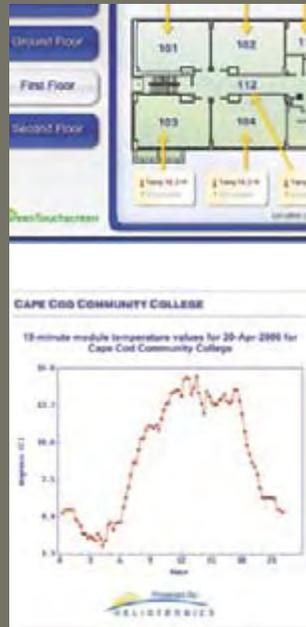
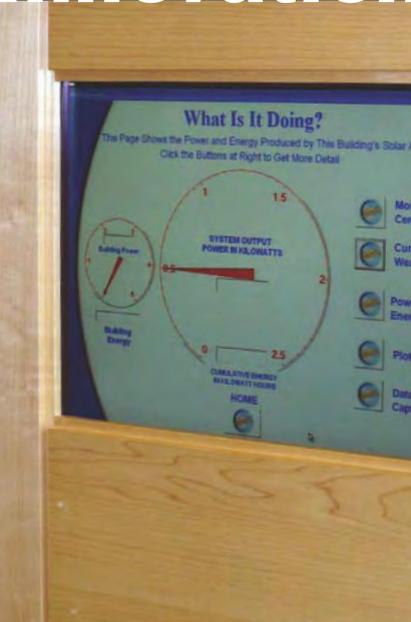


Materials

A major design goal was to select materials that conserve natural resources, including energy and water. The Lorusso Building is built from recycled or partially recycled materials wherever possible. Locally extracted and manufactured materials comprise over 40% of the total cost of the building materials. The use of local materials reduces the transportation cost and environmental impacts. For instance, the brick used on the exterior is manufactured within 500 miles from the site. More than 90% of the construction waste was diverted from landfills to be either recycled or reused. Many of the materials used in the construction incorporate extensive recycled content in the manufacturing process. Certified wood products from environmentally managed forests are used throughout the building from door veneers to wood blocking. Such forests assure that wood species can continue to be grown and harvested for future generations. Low-emitting materials meeting USGBC standards are used for adhesives, sealants, paints, carpets and composite wood components.

The Lyndon P. Lorusso Applied Technology Building is a model for incorporating green design principles into building planning and design, and for utilizing the resulting facility as a teaching tool for the public and students. A web-based network monitors the energy generating and consuming systems in the building and links to public kiosks in the main entry lobbies. Visitors and occupants are provided with real-time information on the building's renewable energy production and weather information from the rooftop weather station. The monitors display data from the building's energy management system, meter gas, electric and water consumption, and provide information on the occupancy loads and temperatures in all spaces. Consistent with the College's educational mission, the kiosks also provide continuous data for use in teaching the facility management programs.

Innovation



Team |

User Agency

Cape Cod Community College

Client

Division of Capital Asset Management (DCAM)

Energy Partner

Massachusetts Technology Collaborative (MTC)

Architect

DiMella Shaffer

MEP Engineer

Richard D. Kimball Company, Inc.

Commissioning Engineer

SEI Companies

Structural Engineer

Lim Consultants, Inc.

Solar Consultant

Solar Design Consultants

Contractor

A.P. Whitaker and Sons, Inc.

Photographer

Richard Mandelkorn & DiMella Shaffer

Building Facts |

Area

27,000 square feet

Construction Cost

\$7 million

Construction Start

June 2004

Occupancy

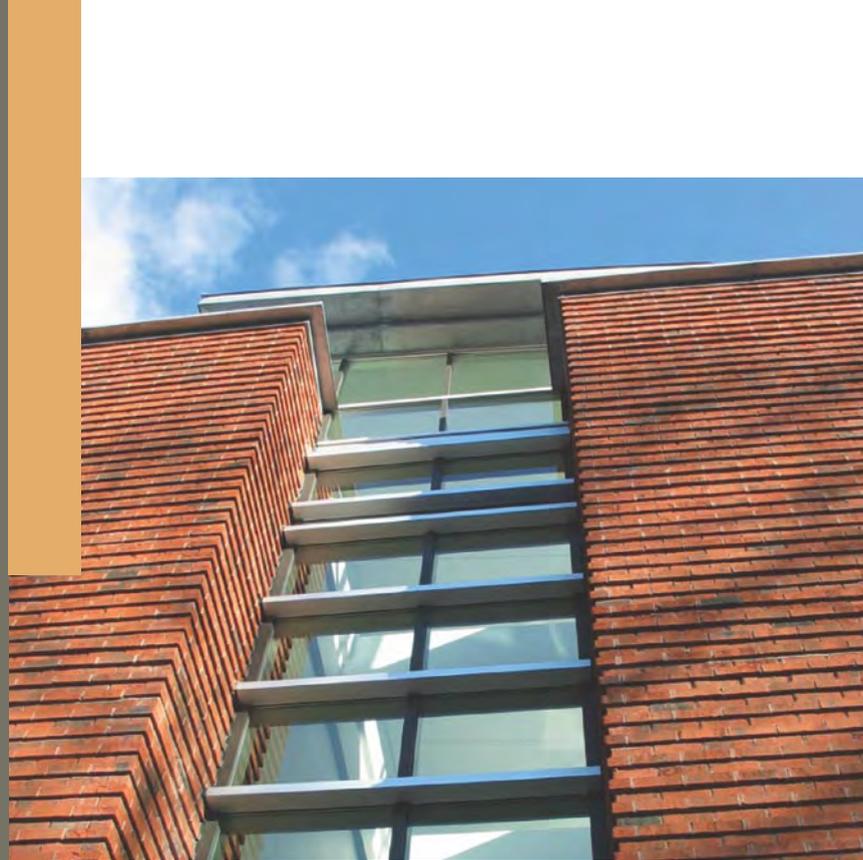
March 2006

Award

2004 DCAM Programming Study Award

Address

2240 Iyannough Road
West Barnstable, MA 02668



This building is dedicated in memory of Lila and Paul Lorusso's beloved son Lyndon P. Lorusso. Their unwavering philanthropic mission to provide greater opportunity to those in need has created a long-living legacy for their son. As we gratefully acknowledge the Lorusso's' great vision and generosity, it is with profound thanks that we similarly recognize and honor the gifts made by all of the donors who made this building possible.