

40 Danbury Road, Wilton, CT

Introduction

The commercial office building at 40 Danbury Road in Wilton, Connecticut was designed and built to meet the high performance building standards called LEED (Leadership in Energy & Environmental Design), the U.S. Green Building Council's robust certification program. This case study highlights the project's design process and its most notable green features.



Goals and Design Process

From the initial programming and pre-development meetings, Davis Marcus Partners made the creation of a sustainable facility a priority. The stated goal for all team members was to create a "green building" and to work together to achieve the highest possible LEED certification ranking. Each member of the project team had some LEED experience and welcomed the opportunity to contribute to the design and construction of one of the first new construction LEED certified projects in Fairfield County. LEED consultant, Viridian, coordinated the team's efforts and encouraged the collaboration and exploration of new ideas for sustainability.

The team included not only engineers, planners, and designers, but the contractors and brokers and the management team. Collaboration and "value added" "outside the box" thinking were the constant theme used to create a project that is a more healthy environment for occupants, more cost-effective for building owners to operate and tenants to lease, and less of an impact for the environment and the community.

PROJECT OVERVIEW

Location: Wilton, CT

LEED Status:
Precertified Core & Shell Gold

Completion Date: Summer 2008

Size: 150,000 square feet

Use: Commercial office space

Cost: in excess of \$315/sf

Owner: Wilton 40/60, LLC
An Affiliate of Davis Marcus Partners

Architect: Antinozzi Associates Architects, Bridgeport, CT

Construction: John Moriarty & Associates, Inc., Winchester, MA

MEP/FP Engineer: Robert Schunk, P.E., Stamford, CT

Site Engineer: Tighe & Bond, Shelton, CT

Landscape Designer: Environmental Design Assoc. Wilton, CT

LEED Consultant: Viridian Energy & Environmental, LLC,

Site Development

The original site was a corporate headquarters and parking lot adjacent to other commercial buildings. The new construction was organized to create a campus, visually linking the two new buildings (40 and 60 Danbury Road) and two existing buildings. A natural wooded park was created with walkways between buildings. The new building was sited to front commercial Route 7, giving desired visibility for tenants, but the structured parking garage backs up to enhanced wetlands. The wetlands were cleaned of previous debris; hardy native plants were selected to enhance wetland function and storm water management was designed to reduce scouring and damage to natural resources. The site design included structured parking for more than 50% of the parking requirements for cars and bicycles, minimizing the introduction of additional impermeable surfaces.



Landscape engineer, Environmental Design Associates, designed the park with native plantings and limited irrigation with climate-based controls. Exterior light fixtures were selected to provide safe and secure surroundings without adversely impacting the night sky. The woodland park includes picnic tables and benches and wireless capabilities to encourage tenants to utilize the out of doors and take advantage of daylight hours. Bocce courts and horseshoe pits provide recreation areas.

Design goals for civil engineers, Tighe & Bond, required that more than 90% of the storm water was to be filtered to remove 80% of the total suspended solids. A variety of onsite infiltration methods were used reducing storm water runoff on the entire site. Transportation to nearby public transportation hubs is provided by shuttle service and secure bicycle storage and fitness centers are included as amenities.

Water Efficiency

In the building shell and core, design engineers, Bob Schunk & Company, specified high-efficiency, low-flow sensor activated lavatory sinks, toilet fixtures and showerheads. The result is a reduction of water use by 31% below the U.S. Energy Policy Act standards established in 1992.

Energy Efficiency and Indoor Environmental Air Quality

The project team set a goal to reduce energy costs by at least 10% when compared to other buildings of similar type and use. From the onset, this became a marketing strategy as well as a professional and business goal. The goal was reached and even exceeded.



- A white TPO roofing membrane was selected to enhance the roof-insulation system and reduce heat absorption.
- The exterior wall system was designed with additional insulation and high “e” rated glass. The design was coordinated with the interior VAV system design to maximize energy resources and minimize fuel costs.
- Lighting systems were installed with occupancy sensors and dimming controls to maximize energy efficiency.
- High efficiency HVAC equipment was selected to operate with refrigerants that minimize emission of environmentally undesirable compounds.

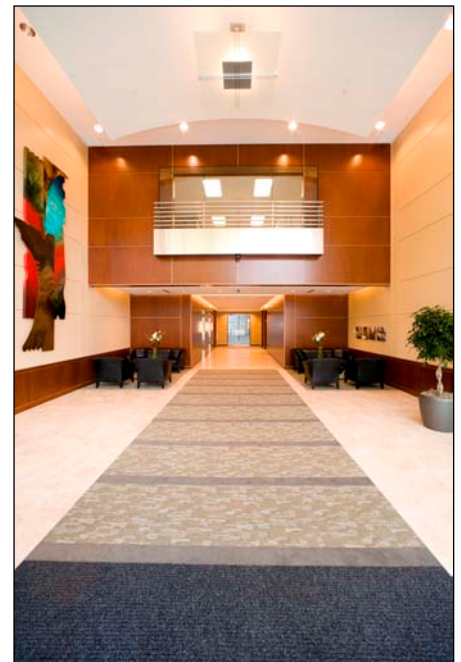
The project team also made a concerted effort to improve indoor air quality and comfort.

- Architect Antinozzi Associates designed the exterior with large insulated perimeter window units that span from 2’6” to 9’6” above the floor to maximize views to the exterior and allow a greater amount of natural lighting.
- The installation of outside air sensors measures the CO2 levels inside the building and adjusts the ventilation levels continuously for comfortable inside air temperature and efficient energy usage.
- Interior finish materials, such as paints, wall coverings, and carpets were chosen and installed with adhesives that would minimize exposure to harmful vapors.
- These installation standards and constructability requirements were made a part of the tenant standards for build-outs.

Recycling and Materials

Demolition of the existing pavement was required to ready the site for construction. All of the paving materials were ground on site and reused. Contractors established a procedure for separation and recycling of construction waste prior to construction start. At the project’s conclusion, over 90% of construction waste was diverted from landfills and incineration.

Design professionals, the contractor and owner discussed the building’s components, system by system, to understand the team’s options for specifying materials with recycled components. Common area materials such as carpeting, wood, and wall coverings were selected that met LEED criteria. Tenant guidelines were drafted to specify similar choices for build-outs for interiors.



Building Operation

Building management representatives specified vendors who are familiar with and committed to recycling, actively maintaining mechanical equipment, control systems and envelope components, and keeping the new building clean using environmentally-friendly cleaning products. Property managers will familiarize each of the new building’s tenants with the design and construction considerations made toward sustainability and encourage each to incorporate green concepts into the design and construction of their respective work spaces. A no-smoking policy specifies locations outside the building. Each tenant will be given information that would facilitate LEED for Commercial Interiors certification as part of the Tenant Guidelines.

Lessons Learned

- Because LEED certification was a central objective from the start, the team was able to achieve its goals with relative ease. The building is currently Pre-certified Gold Standard.
- Coordination of design, construction specifications, and construction trades is critical.
- A level of interpretation is required to apply LEED guidelines to a specific project and a LEED consultant is an invaluable member of the team.
- An educated and committed owner is necessary for a successful project.
- Tenant standards need to be created and incorporated into the leases.

For More Information

Contact the Viridian Energy and Environmental, LLC, (203) 299-1411, www.viridianee.com.