60 Danbury Road, Wilton, CT

Introduction

The commercial office building at 60 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.

PROJECT OVERVIEW

Location: Wilton, CT

LEED Status: Precertified Core & Shell Gold

Completion Date: Winter 2008

Size: 81,950 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, Norwalk, CT

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 themes used to create a more healthy environment for tenants, a more cost-effective building to operate for the owners and investors, and an overall project that was less of an impact for the environment and the community.

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 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. Structured parking for more than 50% of the parking required for cars and bicycles was constructed, minimizing the introduction of additional impermeable surfaces.

Environmental Design Associates, landscape engineers for the project, 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. Picnic tables and benches as well as wireless access were installed in the park to encourage tenants to work out of doors and take advantage of daylight hours. Bocce courts and horseshoe pits provide recreation areas within the wooded areas.

Design goals for civil engineers, Tighe & Bond, were set to achieve more than 90% of the storm water to be filtered to remove 80% of the total suspended solids. A variety of onsite infiltration methods were used to reduce storm water runoff on the entire site. Transportation to nearby public transportation centers is provided by a free shuttle service. Secure bicycle storage in the garage and a corporate fitness centers are amenities.

Water Efficiency

In the building shell and core, the MEP engineering firm, Robert Schunk , P.E., specified high-efficiency, low-flow sensor activated lavatory sinks and toilet fixtures Water use was reduced 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. All of the paving materials were ground on site and reused. The general contractor, John Moriarity Associates, established a procedure for the separation and recycling of construction waste.. At the project’s conclusion, over 99% of all construction waste was recycled.

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 to meet LEED criteria. Tenant guidelines were written to require energy efficiency in the interior build-outs. LEED-CI (corporate interior) specifications are given to tenants for their use if desired.

Building Operation

Building management selected vendors familiar with and committed to the use of recycled products. The management has a program for pro-actively maintaining mechanical equipment, control systems and the envelope components. In addition, a specific protocol was developed to utilize 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 as well as the management of their interior spaces. A non-smoking policy allows smoking in locations 25' away from the building.

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.