

DESIGN MATTERS

Doyle Conservation Center Gives Virtuoso Performance

By Jeffrey Stein

"GREEN DESIGN" IS THE WAY THE Trustees for Reservations describes its new Doyle Conservation Center at 325 Lindell Ave. in Leominster. With its clapboard siding, sloping roofs and appropriate scale, it looks right at home at the end of a meadow near a quiet road through the woods just off Route 2. With its solar electricity, thermostatic-controlled super-insulating windows, geothermal heating and cooling system, healthy building materials and water-conserving landscape, the facility and that meadow seem to have a companionable relationship, and it promises to be that way for several generations.

The 14,000-square-foot Doyle Center houses new Central Regional Offices for the well-known nonprofit Trustees of Reservations. A series of connected pavilions surrounding a sunny, south-facing courtyard supports a staff that oversees several of the trustees' core programs, including land conservation, resource protection and planning, environmental education and GIS mapping. One of the pavilions contains a light and airy multipurpose, 150-seat auditorium that will host public programs. Another, a 2-story office pavilion that is both warmed and cooled by how air flows naturally through its space, looks from inside a lot like a timber-framed cathedral. Though this pavilion is not large itself, its form and wood framing recall the mammoth manufacturing buildings of Doyle plastics that, earlier in the 20th century and not so far from this site, employed 60 percent of

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Leominster's workforce.

The client for this building, the 113-year-old Trustees of Reservations, is one of the nation's oldest conservation organizations. It protects 53,000 acres in Massachusetts, its work is supported by nearly 40,000 members and the Doyle Center is one of the first buildings it has ever built. It is also one of the greenest buildings in Massachusetts.

Green and Gold

Green design is a simple idea and its impact on people and the ecology of which we are a part can be profound. Green design means high-performance buildings, but not necessarily high-tech buildings. It means buildings that will last a long time. It means buildings that are connected to their landscapes. It means buildings that are truly useful to their community, and feel so good to be around and are so well-liked that the productivity of those working inside them rises measurably. And green design means buildings that will have a low impact on the air, water and surrounding land, which, at the Doyle Center, is home to thousands of species of life in addition to the site's human inhabitants.

The U.S. Green Building Council has initiated a program that monitors green design. It is known as LEED - Leadership in Energy and Environmental Design - and has set national standards through its Green Building Rating System, which shows exactly the impact a building has, both positively and negatively, on its users and surroundings. As design professions become more knowledge-based, programs like LEED make apparent what "high-performance" means. The LEED system attaches values to alternative



The new Doyle Conservation Center in Leominster, which has been praised for its environmentally friendly design, is one of the first facilities built by the 113-year-old Trustees of Reservations.

transportation, innovative wastewater technologies, renewable energy use, recycling construction waste, indoor pollution controls and design innovation. Actually, LEED identifies 70 separate aspects of building construction and performance that count toward ratings of Certified, Silver, Gold or Platinum. LEED has awarded the Doyle Conservation Center its Gold rating.

Here are just a few of the details that contributed to the Doyle Center's LEED Gold rating:

- **Siding:** A commercial product used at the Doyle Center called Werzalit, made of hardwood particles recycled from the furniture industry, will not warp, buckle, blister, flake or peel. It contains no toxic substances and comes with a baked-on finish that will not need paint for 15 years.

- **Flooring:** All "hardwood" floors at Doyle Center are made of bamboo, which is actually a grass, the roots of which are harvested sustainably every three to five years (they grow back). Bamboo has a higher density than wood, can be sanded and repaired, and comes pre-finished, so there's no off-gassing from varnish or polyurethane.

- **Wastewater:** The Doyle Center uses Clivus 3-ounce foam flush Nepon toilets, which use a biodegradable surface agent and three ounces of water to flush. Wastes go to a recycling digesting composter in the basement that produces a single plastic bucket full of soil approximately every year and a half.

- **Electricity:** Photovoltaic cells mounted on the roof produce 25 percent

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of all electrical needs, on a system of "net metering." No storage batteries are used, so when the building produces more electricity than it requires, the surplus is fed to the electric grid, causing the Doyle Center's electric meter to run backward. A \$340,000 grant from the Massachusetts Technology Collaborative helped with this.

• **Furniture:** Desks and worktops are not made of wood but of waste hulls from sunflower seed production, bound with wheat and natural resins and pressed together to form a board called "Dakota Burl."

• **Carpets:** Eco Solution Q carpets from Shaw Fibers cover floors at the Doyle Center. They contain 25 percent reclaimed fiber, the highest amount available in any carpet today. The product is designed to be completely recycled at the end of its useful life.

• **Lighting:** During the day, 80 percent of interior lighting comes from sunlight, both direct and reflected.

• **Landscape:** Landscape architect Michael Wasser has carved a series of ponds and stone weirs that slow and filter the flow of storm water, and has also populated the remaining site with native plant species that do not need much water to flourish in the first place.

The Doyle Center's entire LEED list is much more comprehensive. Here is what to learn from just this small bit: architects do not come up with these ideas all by themselves. Everyone connected with this project thought clearly about the relationship the Trustees of Reservations needed to have with this place; to feel, in fact, a sense of this place and love it well enough to make it continue. Credit must go to Somerville-based HKT Architects, the designers of the Doyle Center. That credit is shared with engineering landscape archi-

ects Hines Wasser & Assoc. and members of the staff of the Trustees of Reservations. In fact, credit also must go to the anonymous donor who precipitated the whole project, giving \$5 million for this building and its landscape, the biggest cash gift ever donated to the trustees. The donor wanted a noteworthy building that would help the Trustees of Reservations in their conservation mission. Here it is.

In the end, this design approach is called green building because this sort of architecture uses the forest as a model of behavior. If the buildings with which we are replacing forests (quite a few acres each week in Massachusetts, you should know) cannot perform almost as well as the forest itself, our own species is in for trouble, and soon. Of course, just now no building performs as well as a forest. Producing oxygen, modulating temperatures, preserving water resources, providing habitat for thousands of species - these are beyond our capabilities as designers at the moment. But this is definitely the design parameter that architects should be targeting. And HKT Architects, with landscape architects Hines Wasser, have taken a big step toward achieving that goal here.

On Oct. 13, the Putnam Conservation Institute, a new program of the Trustees of Reservations, will host one of a continuing series of conferences at the new Doyle Center. Entitled "Managing Land and Visitors: Stewardship Challenges of Natural and Historic Places," the event will feature speakers from six regional conservation organizations, plus representatives from several independent firms.

"Here's how to manage land and visitors," they should say, while pointing to the inspiring construction around them. Visit them on-

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