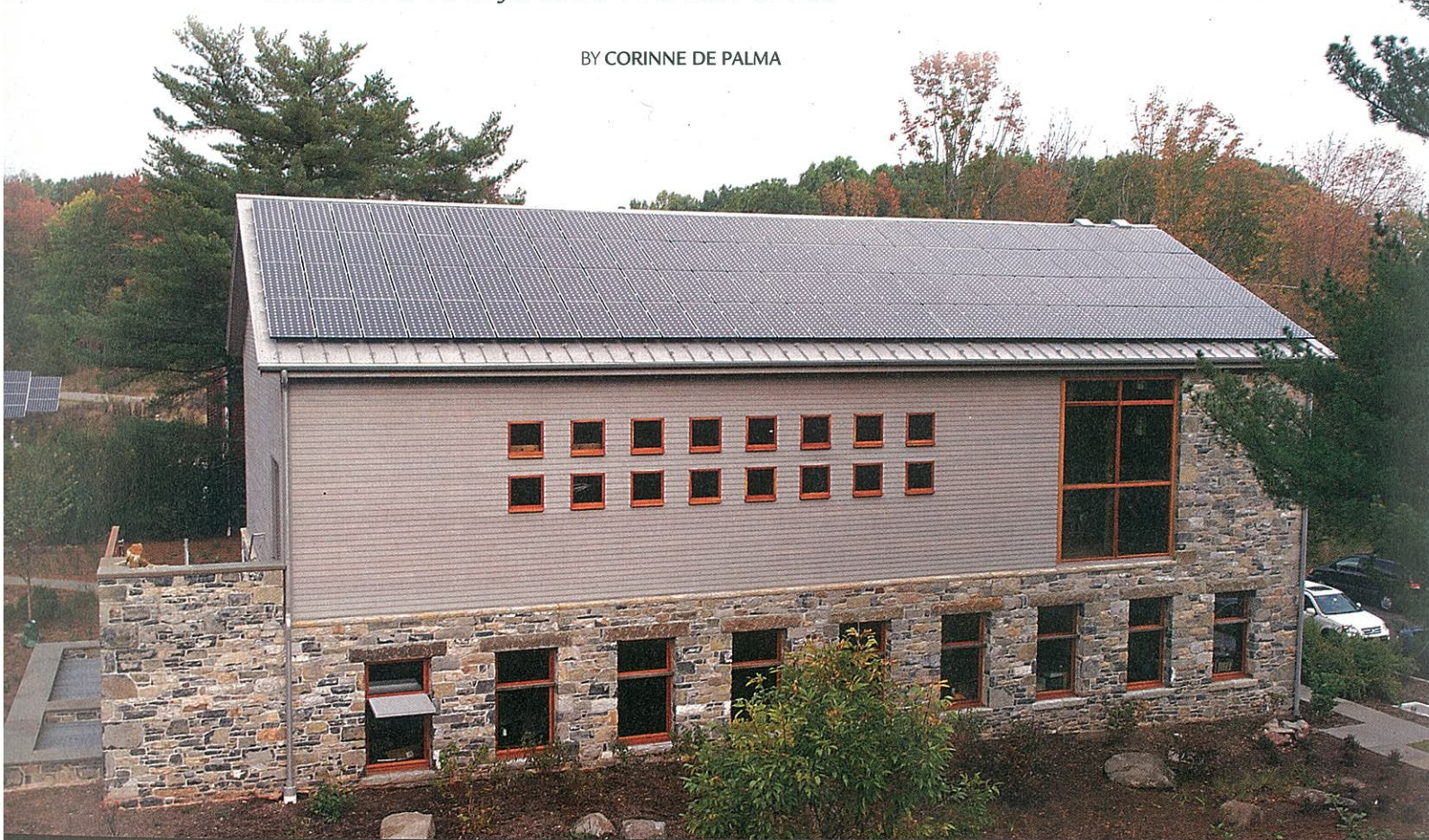


a barn for a schoolhouse

WITH THE HIGHEST LEVEL OF LEED CERTIFICATION,
AN INDEPENDENT GLADSTONE SCHOOL TAKES GREEN
DESIGN TO NEW JERSEY'S HIGHEST LEVEL.

BY CORINNE DE PALMA



"ONE OF THE MOST PROFOUND ADVANTAGES [OF BUILDING A LEED PLATINUM BUILDING] IS THAT THE BUILDING HAS THE OPPORTUNITY TO BECOME A 'TEACHER' TO OUR STUDENTS WITH ITS OWN HIDDEN CURRICULUM. AS WE BRING ALIVE THE BUILDING SYSTEMS AND MATERIALS TO THE CHILDREN, THEY IN TURN START TO UNDERSTAND THE CONSEQUENCES OF EACH OF THOSE SYSTEMS AND MATERIALS."

WILLOW SCHOOL FOUNDER MARK BIEDRON

When founders Mark and Gretchen Biedron set out to start The Willow School, they approached the endeavor with a simple objective: preserve academic excellence, combine it with the joy of learning, and root it in a program with strong virtues. From this base grew the commitment to create a healthy environment, and to develop a sense of personal stewardship of the earth while providing a healthy environment for their children. The recent Leadership in Energy and Environmental (LEED) Platinum certification of The Barn, the school's second completed building, makes it the first building in New Jersey to receive this prestigious award, and only the third school building in the country to do so.

"While the challenges in pursuing LEED Gold certification on our first schoolhouse building prepared us well to take The Barn to the next level, building a LEED Platinum-certified building didn't come without its challenges," says Mark Biedron. "Just finding the right people for the design team was difficult; sourcing the materials and incorporating the best technology in our mechanical and electrical systems included a host of problems that were harder than we thought."

Of the 69 points available in the LEED certification rating system, the project earned 58.

"To move from the LEED Gold to LEED Platinum really meant looking for more opportunities to go beyond what we did in our first building — finding more materials with high recycled content, installing a larger photovoltaic system, sourcing more salvaged materials; and, using more Forest Stewardship Council-certified (FSC) dimensional lumber," Biedron says.

"And as we think about our next building, we are looking beyond LEED, beyond sustainable design to a way of thinking that is regenerative; to a 'living' building," he adds. "The school now sees its relationship with the natural world not only from the perspective of using less energy to heat and cool the buildings, less potable water to flush our waste, less materials that contain toxins, but also as an opportunity to constantly improve the health of both natural and human systems so that by participating with our natural systems rather than trying to control them and have dominion over them, man and nature can co-evolve into rich forms that give greater diversity and resilience to each other and to the whole that supports them."

INTEGRATED DESIGN

The Barn incorporates a whole building and integrated design approach. The design team evaluated all building elements, materials and systems as an integral part of the entire building rather than looking at each item solely on the basis of its own individual merit and cost. The building's site orientation and layout plan along with super insulation, high-performance windows, high-efficiency heating and cooling systems, and innovative daylighting strategies, all provide maximum energy performance. Photovoltaic onsite renewable energy generation provides 37 percent of the building's energy requirements. The building uses 70 percent less energy than a conventional building of the same type built to code.

Water conservation, another essential sustainable design component, includes harvesting rainwater from the 85 percent recycled stainless-steel roof and using it to flush toilets in the building, thus reducing stormwater runoff. The building also utilizes an innovative wastewater management system, where plants are grown hydroponically in septic water, which is treated and cleaned to recreational quality standards in the plant bed before it is returned to the ground, thereby promoting local groundwater recharge. The building uses 58 percent less water than a conventional building constructed to code.

The building is primarily constructed from salvaged, recycled and rapidly renewable materials. These include bamboo and cork floor-

THE BARN — THE WILLOW SCHOOL

WWW.WILLOWSCHOOL.ORG

LOCATION: GLADSTONE, N.J.

SIZE: 13,000 SQUARE FEET, NEW AND SOME RENOVATION

TOTAL BUDGET: 3.2 MILLION DOLLARS

CERTIFICATION: LEED PLATINUM

PROJECT TEAM:

GENERAL CONTRACTOR: SOLID WOOD CONSTRUCTION

GREEN BUILDING CONSULTANTS: MARK BIEDRON, SUSTAINABLE

GROWTH TECHNOLOGIES

ENERGY MODELING: MARCUS SHEFFER, INTEGRATED DESIGN COLLABORATIVE

COMMISSIONING AGENT: ENGINEERED ENERGY SYSTEMS, INC.

ARCHITECT: HONAN ASSOCIATES

MECHANICAL ENGINEER: LORING CONSULTING ENGINEERS

LANDSCAPE ARCHITECT: BACK TO NATURE LANDSCAPE ASSOCIATES, INC.

SITE ENGINEER: APGAR ASSOCIATES

WASTEWATER/STORMWATER MANAGEMENT: NATURAL SYSTEMS INTERNATIONAL LLC

PRODUCTS:

COTTON INSULATION: BONDED LOGIC

BATHROOM PARTITIONS: YEMM & HART

STRUCTURAL INSULATED PANELS: THERMACOR PROCESS

FLOOR TILE: TERRA GREEN CERAMICS; IBSTOCK ECOTERRE EARTH BRICKS

STAINLESS STEEL ROOF: FOLLANSBEE'S TCS II ROOF

ZERO-VOC PAINTS: BENJAMIN MOORE

FSC-CERTIFIED WOOD: CERTIFIED WOOD PRODUCTS

SALVAGED STONE AND SALVAGED WOOD: WOOD PLANET

ing, cotton insulation instead of fiberglass, salvaged wood beams from old factories, and limestone salvaged from three old barn foundations making up the bottom part of the building. In addition, only ultra-low or zero-VOC paints, coatings, sealants and adhesives were used. All materials were carefully examined to ensure they were the safest and most environmentally preferable products.

"Building a LEED Platinum building has many advantages — energy savings, water conservation, improved indoor air quality, conserving materials and resources," says Mark Biedron. "However, one of the most profound advantages is that the building has the opportunity to become a 'teacher' to our students with its own hidden curriculum. As we bring alive the building systems and materials to the children, they in turn start to understand the consequences of each of those systems and materials. Building and operating a green campus is a means of living out one of The Willow School's core pillars, 'education in ethical living,' both the ethical relationship between humans and the ethical relationship with our natural world. Our building, landscape and curriculum, through their programmatic advancements, will help educate a new generation of ecologically literate citizens who will understand how to live in alignment with our planet's ecological systems, which support us."

The Barn houses the school's middle grades, cafeteria, performing arts and science center. ■

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