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New England academic institutions lead the way with innovative green design projects

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The academic world has long been respected for its innovation, with groundbreaking research and innovations oftentimes hallmarks of America's colleges and universities. Therefore, it's only fitting that so many campuses around N.E. have become incubators of green building design and education and responsible for some of the region's cutting edge LEED residential, laboratory and academic facilities.

At the Mass. Maritime Academy, green housing has gone off the grid. Located on a scenic peninsula campus at the western mouth of the Cape Cod Canal, the Cadet Housing building is a model of energy efficiency and sustainable building. An abundance of high winds on the canal powers a 242-foot high wind turbine that provides renewable and clean electricity to the campus facilities. Photovoltaic panels are installed on the rooftop of the residence hall which also provides green power. 100% of the buildings wastewater is treated on-site, achieving a 48% reduction in domestic water use. The design incorporates many energy efficient lighting and domestic plumbing fixtures, and the building contains a high percentage of recycled content materials. The construction manager was Erland Construction and the architect was Prellwitz Chilinski Associates.

Across the Mass. border, The University of R.I. is demonstrating their interest in energy conservation, especially in their recently completed green residence hall that will generate considerable energy savings for the school. With an "energy star" white roof and high efficiency glazing in place to minimize energy costs, as well as a high efficiency HVAC system with heat recovery, the team certainly has taken into account the value of sustainable design and construction. LEED site development standards were adhered to during construction which meant a minimal amount of tree clearing was done, allowing much of the surrounding forestry to remain untouched.

In addition, residents of the building enjoy a higher quality of life thanks to the use of low VOC materials, while minimal use of carpeting and VCT also reduce maintenance costs. The building's construction manager was Bacon Construction Co., and the architect was RGB Design Studios.

It's not just colleges, however, that have embraced green construction. The 21,000 s/f Garthwaite Center for Science and Art at the Cambridge School of Weston, in Weston, Mass., is an educational facility that houses science laboratories, classrooms and community galleries, as well as administrative and faculty offices. Designed by Architerra Inc. of Boston, the facility was constructed by Consigli Construction Co., Inc. of Milford, Mass.

To supplement the passive solar design that draws sunlight deep into the building, a high-performance heating and ventilation system was installed that features in-floor radiant heat, an efficient wood pellet boiler that burns waste wood fiber, and an enthalpy heat recovery wheel that captures up to 87% of the heat that would otherwise be lost.

In addition, the building features a living green roof which is visible through the building's many triple-glazed fiberglass windows. Composting toilets, waterless urinals and low-flow faucets with electronic sensors help reduce water consumption to a scant 10 gallons per day, all of which - along with storm water runoff - are captured in underground chambers that slowly return it to the aquifer.

Meanwhile, a new facility is currently under construction at the University of Mass. Medical School in Mattapan. The Mass. Biologic Laboratories Research and Administration Building will ultimately advance its public health mission as a leader in immunization and production, and the new two story building will be programmed with administrative office space and laboratory research. The site, which was previously developed but surrounded by a mature growth forest, presented a special challenge to the design team who strived to save a large portion of mature trees during the design and construction of the building.

The project is LEED registered with a goal of LEED Silver certification. William Berry & Son is overseeing construction, and Tsoi Kobus & Associates is handling design.

The N.E. region is home to hundreds of higher education academic institutions that in many cases are leading the path for the development of green buildings nationally. If you are interested in learning more about the regions efforts, this year's Greenbuild Conference and Expo in Boston is a great place to start. Sign up for a tour or attend an educational session. For more information, visit www.greenbuild365.com.

Jeff Lavery is communications coordinator for ConsigliConstruction Co., Inc., Milford, Mass.

New England Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540