Where’s the Drainage Plane?
Should the most effective drainage plane behind stucco rest between two layers of building paper? A debate has risen.

A Clean Washer
Quality, manufacturer-approved EIFS washers and fasteners should be the only option contractors choose.

A Coating Concoction
Are 100 percent, VOC-free ceramic coatings a game-changer for paint contractors?

A Pioneering Spirit
Carleton College’s dedication to sustainable building resulted in green residence halls built with energy saving insulated concrete forms.

New Product Buzz Guide
Founded in 1866, Minnesota’s Carleton College was the dream of pioneers who believed that knowledge was the real frontier. And this pioneering spirit endures. For example, the small, private liberal arts school was the first college in the world to have an industrial-size wind turbine to generate energy. It is one of only 15 to receive an “A” from The College Sustainability Report Card (www.greenreportcard.org), an interactive website that provides in-depth sustainability profiles for hundreds of colleges in all 50 states and Canada.

Now, Carleton College has pushed the boundaries even further with two new sustainably designed, energy-efficient residence halls designed to achieve LEED Gold certification.

Designed by LHB Inc. architects, the new Cassat Hall and Memorial Hall buildings feature 91,536 total square feet, including 56 double-occupancy rooms, 26 single- occupancy rooms, 21 suites and nine full kitchens. The buildings’ footprints were offset by a donated piece of land north of the campus.

The Carleton College design team identified more than 36 distinct aspects to the residence halls that are deemed sustainable features, including low-flush toilets expected to save 30 percent on...
water, copper tiles on southern-facing roofs to deflect heat gain, LED lighting, and sturdy, weather-resistant foliage planted around campus. There are also meters for water use and steam generation. Photo-voltaic panels help supply electrical needs, estimated at more than 10,000 kW annually. During construction, 90 percent of all waste was diverted from landfills and incinerators and redirected back to the manufacturing process. (A full list of building materials is available online at www.EDCmag.com.)

COMBINING AESTHETICS WITH ENERGY EFFICIENCY

Insulated concrete forms, or ICFs, were chosen to assist in achieving optimal energy efficiency. The team focused extensively on the building envelopes of the new dormitories. “ICFs were selected for their sustainable advantages, including durability, high thermal mass, and low air infiltration,” says LHB Architect’s Maureen Ness, AIA, LEED AP, CDT.

Due to the energy performance characteristics of ICF technology and the special occupancy nature of the buildings (residence halls are occupied from late August through April), low-energy-use electric fans replaced the requirement for air-conditioning.

Heating needs are met by in-floor radiant heating systems, which utilize steam supplied from a regional steam-generation plant, and supplemented, as needed, with individual room side-panel electric heat.

Noise attenuation, local materials, building comfort and safety, and indoor air quality requirements were also met by the performance characteristics of ICFs, which also accommodated the gable rooftops. “Reward Wall Systems’ ICF product met all of our sustainable design criteria as well as providing the versatility required for the unique building footprints,” Ness says.

The project features ICF load-bearing walls in conjunction with hollow-core precast floor slabs. Aesthetic requirements were fulfilled with the ICFs, which provide the versatility to use any exterior finish application. Permanent attachment of the brick veneer to the concrete wall was required by the structural design. Reward Wall’s stainless steel tieKey was used to aid in the labor efficiency required to maintain and exceed construction schedules.

Reward Wall Systems and distributor Cemstone worked extensively with the architect during the design phase to assist in the development of accurate cost budgeting. According to the team, the school saved 20 percent per square foot by using ICFs versus standard
poured walls. According to recent data provided to Reward Wall Systems, the college spent a total of $54,000 additional dollars to upgrade a building with ICFs, PV systems and other green enhancements; the college is expected to save more than $29,000 in total energy use per year (excluding the cost savings from not using air conditioning), meaning a total payback of only 18 months.

**CONTINUING EDUCATION**

The award-winning Carleton College dormitory project was completed on schedule and on time for the students to move in at the start of the school year. Every lobby or common area in the school has an interactive touch-screen monitor showcasing features of the building. Currently, the college is running energy contests for the students to see who uses the least amount of energy per floor and per room. The college is also holding seminars to educate the community and its students on the green features of the school and how those green features make an impact for the community.

Carleton College is very serious about its obligations to be a good steward—to protect the environment and be respectful of the planet. This ICF project now has become a benchmark for schools to monitor and an example of how to get students to play an active roll in curbing energy use. **W&C**

Information provided by Troy Gibson, LEED Green Associate, Reward Wall Systems.

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