

US EPA ARCHIVE DOCUMENT



Sustainable Design & Building

Green Design: Building a Better World at a Small Public Institution

Updated January 2007

Summary: University of Maine at Farmington is a small public baccalaureate institution committed to quality programs in arts and science, teacher education, and human services. Through presidential leadership and the active participation of faculty, staff, students, and alumni, their new Education Center will be more than “just” a place for teaching. Scheduled to be built in 2005, this project showcases presidential leadership and an inclusionary process in which a new green building can be designed on a modest budget.



umaine
farmington

Campus Profile

**University of Maine
Farmington, ME**
UG Students: 2,273
Faculty & Staff: 370
Operating Budget:
\$29.3 MM
of Buildings: 41
Campus Area: 50 acres

Project Goals

- Build a model LEED-certified public building in Maine.
- Use the building to encourage faculty, staff, and students to think and educate themselves about how their everyday actions and decisions affect the earth
- Model good environmental citizenship for students and community in the place where future educators will be taught.

Architectural Plans for the new Education Center

- The building will be 42,000 square feet.
- There will be six special classrooms; three all-purpose classrooms; and eight special project/student group workrooms.
- The building will also house a number of “centers” such as: the Western Maine Partnership, Everyone’s Resource Depot, Center for Excellence in Teaching and Learning, a Curriculum Resource Center, and Faculty and Department Offices.

Green Activities

A Green Campus Coalition group was first formed on campus in 2000. The college adopted an environmental mission statement in 2001.

Description

- There is a need for a new education and teaching facility.
- There are limited funds
- As a small public institution, UMF is unlikely to construct another “signature” building in the next 50 years, says its president, Theo Kalikow. It is important, therefore, to many members of the campus community to construct this building as a legacy to the values and goals of the institution.

U.S. EPA New England Best Management Practices Catalog for Colleges and Universities.

For more information about the catalog and other case studies visit

<http://www.epa.gov/region1/assistance/univ/bmpcatalog.html>

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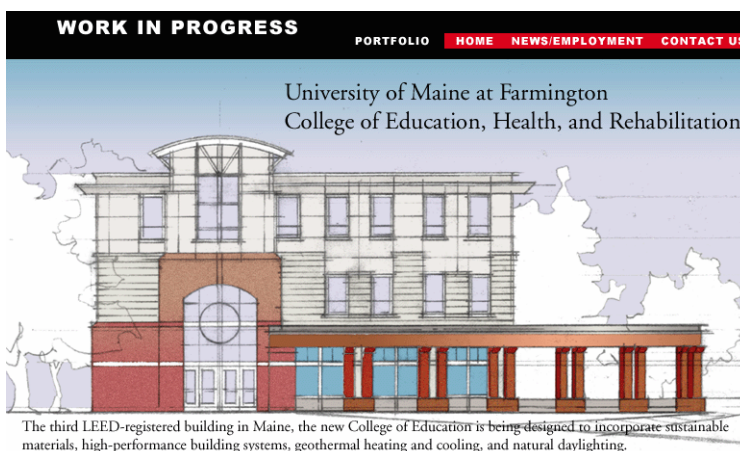
Pre-Project Considerations

- Become educated about green building principles, examples at institutions of higher learning, and the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.
- Build green building criteria into the Request for Proposal (RFP) and building specifications.
- Develop and implement an inclusive process in which interested parties can define green architecture and identify those elements that are most important to UMF.

LEED is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. It was created to define “green building” by establishing a common standard of measurement and to promote and recognize green building.

Steps Taken

1. President Kalikow attended the first conference of the Green Campus Consortium (a group from Maine public and private institutions and state agencies).
2. Faculty, staff, and students became involved in the Consortium.
3. A meeting of the Green Campus Consortium was held at the Marine Science Center at the University of New England and focused on the green design process and features incorporated into the new Science Center.
4. The architect selection committee for the UMF Education Center was convened and included representation from the campus green group.
5. The RFP was issued seeking an architectural firm for the project. Certain green building criteria were included in the RFP.
6. The President encouraged the campus green group to research desired features for the building.
7. Two students were funded to research green design and materials, up-front and long-term operation costs of green buildings, experiences of other campuses and the LEED criteria.
8. Faculty incorporated research on such issues as building site, land issues, certified wood, water, and energy consumption into students’ course curriculum.
9. An architectural firm was selected for the project.
10. A staff person from the Rocky Mountain Institute visited UMF and gave a presentation on green building to the campus. The audience included the architect and other interested parties.
11. A list of approaches and priorities for green features was provided to the architect and the building committee for further evaluation.
12. The development director and the architect attended a workshop in Baltimore concerning funding for green buildings.
13. The Building Committee and the President’s Council decided that the Education Center should be LEED-certified.
14. On-site drilling demonstrated that geothermal processes can be used for heating and cooling.
15. Search for matching grants and funding continues based on the “green building” story.



Participants

The group is inspired and encouraged by UMF’s President, the only college president to attend the first Maine Green Campus Conference in 2001. The design process is inclusive and participatory. In addition to the Building Committee, faculty, staff, students, alumni, and community members are involved. The Facilities Management group is a strong presence in the process, as well as the Development Office and Senior Administration. All of these members are providing direction to, and working with, the architectural and design firm.

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Performance and Benefits

Cost

- The structure has been designed to cost approximately \$110 per square foot.
- The architect was told to design the building to meet the LEED Silver-level certification at no additional cost above standard construction costs. As a small, public institution, UM Farmington is not able to pay a “premium” for a green building.
- Sixty percent of the total project is funded by \$4.8 million state bond. The college is currently seeking the remaining funds.

Features

- A geo-thermal heating and air conditioning system.
- Siting of the building and work spaces to enhance daylighting.
- High technology glazings (decrease heat loss in winter and reduce cool air loss in summer).
- A gray-water system to supply water for landscaping.
- Indigenous plants for landscaping needs.
- Use of recycled materials and recyclable materials.
- Avoidance of toxic construction materials, paints and other materials (e.g., carpets).
- Preference for certified wood and timber from Maine and purchase of other local materials.
- Potential use of high-insulation turf roof on a portion of the building.

Lessons Learned

1. Encourage faculty, staff, student, alumni, and community input
2. Empower faculty and students to conduct research to inform the process and the project.
3. Create a “legacy” building that people want to be a part of and that manifests the institution’s values
4. A small college can design – and will build – a green building on a tight budget.

Further Information or Resources

Theo Kalikow, President, kalikow@maine.edu

Mary Sylvester, Director of Development, mary.sylvester@maine.edu

Alan Kuniholm, PDT Architects, Portland, ME. Kuniholm@pdtarchs.com

U.S. Green Building Council at www.usgbc.org

LEED Rating System at www.usgbc.org/LEED/LEED_main.asp

Other Green Building Programs and Resources

Green Building design and construction has taken place at a number of colleges and universities. Review the web sites of the following institutions. For most of these sites, a quick search on “green building” will get you to specific information.

Brown University – www.brown.edu

Cape Cod Community College - <http://www.capecod.mass.edu/>

Emory University – www.emory.edu

Harvard – www.greencampus.harvard.edu

Middlebury College – www.middlebury.edu

MIT – www.mit.edu

Oberlin College – www.oberlin.edu

Tufts University – www.tufts.edu

University of Michigan – www.umich.edu

University of North Carolina – www.unc.edu

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University of Portland – www.up.edu
Vermont Law School – www.vermontlaw.edu

EPA's Web Site at <http://www.epa.gov/region1/topics/envpractice/gbuildings.html>
Campus Ecology web site at <http://www.nwf.org/campusecology/>

Commentary

The President, faculty, staff or students can lead Green building initiatives and projects. At many colleges, however, it is the facility manager that take the lead in pursuing innovative and cost-effective projects that contribute to the “greening” of the campus. For example, Cape Cod Community College (CCCC) in West Barnstable, Massachusetts installed a fuel cell at its campus in 1999 to feed electricity into the campus grid and provide seasonal space heating for the library. It also served as an educational tool for the college's Environmental Technology program. The fuel cell was the brain child of the facility director who incorporated the purchase and financing of the fuel cell as part of an energy saving performance contract that included 8 energy conservation projects and an upgrade to the existing energy management system. Without factoring the initial cost of capital, the operating costs equate to roughly \$0.15/kWh. Because the facilities manager has a strong interest in using other advanced technologies, photovoltaic panels have also been installed and the college is considering the installation of an enhanced hybrid fuel cell system that would produce about 300 kW of power and would have close to 80 percent efficiency. All of this at a small community college.