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Clean tech for buildings takes root

By Matthew Dembicki, Published January 25, 2016

NEW ORLEANS — New buildings at community colleges provide fertile ground for campuses to not only integrate technology to save energy and money, they also provide hands-on learning experiences for students and instructors.

"Everyone is building now to LEED-standard buildings," said Roger Ebbage, director of energy management and water conservation at Lane Community College's (LCC) Institute for Sustainable Practices.

The Oregon college's institute — dubbed the "building that teaches" — provides the latest in technology, from natural ventilation to solar water heating, and it also allows for students and staff to test systems for efficiency. For example, the Institute for Sustainable Practices has multiple heating and cooling systems. Students can experiment to find the best combinations that produce the lowest carbon emissions and lowest utility costs.

"Pay attention to the learning opportunities that are there," Ebbage said at a session on clean-tech opportunities during the American Association of Community Colleges' annual Workforce Development Institute.

Community colleges as sustainable living labs

He also emphasized that the academics and workforce sides are brought together at the institute. In fact, the institute taps facility employees to talk to students about the systems and how to make improvements.

"Usually there is a firewall between the two," he said.

In demand

Building control technology, which provides more points of control over energy use in a facility through technology, is a hot workforce area. A technician can monitor and make adjustments to maintain energy costs, from fan speed to temperature and airflow. Energy consumption can even be automated based on occupancy of a building.

LCC, which started its building controls tech program in 2013, has industry partners that include Siemens, Johnson Controls and Automated Logic. Siemens has 342 jobs posted for students coming out of the program based on their understanding such systems, Ebbage said.

Despite the availability of good-paying jobs, industry and colleges continue to struggle to draw students' interest in these careers. They are skeptical that these jobs are here to stay and whether the pay is good, Ebbage said. They often hear conflicting media reports on how well the energy sector is doing.

Better alignment needed

Roger Grant, program director for the National Institute Building Sciences, a nongovernment nonprofit, said that building efficiencies have dramatically improved over the years, but there is room for improvement. The main problem is that energy efficiency is not integrated into daily management practices, he said.


A SEED-DOE partnership: Better Building Guidelines

Some of the barriers include a patchwork of technical standards and codes, no national skill standards, and nonaligned training content and programs, Grant said.

There is also no infrastructure to support national credentials, he said.


The U.S. Environmental Protection Agency once faced similar challenges in convincing the public to use energy-efficient appliances, Grant said. But it was able to pull the industry together to agree on accepted standards that the public could easily recognize, which was key to the success of EPA's Energy Star program.

The U.S. Department of Energy is helping by recognizing certain energy-related jobs, such as building energy auditor, energy manager and building operations professional. Through better outreach, government and industry can make the public aware of these jobs, Grant said, noting that building science occupations earn 14 percent above the national average and are projected to grow nearly 10 percent from 2013 to 2018.



Roger Ebbage, director of energy management and water conservation at Lane Community College's Institute for Sustainable Practices, speaks at AACC's Workforce Development Institute.

Photo: Matthew Dembicki



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