

[Green Technology Home](#)

MAGAZINE



Current photo of LA City College's new Child Development Center, nearly complete

A Bright Future

The Win-Win-Win of Community College Green Building Programs

By Racquel Palmese

Community colleges find themselves at the nexus of change. Charged with retraining workers for 21st century jobs, community colleges also cope with swelling ranks of students and funding cutbacks. But the bond-driven building and energy retrofit projects underway at California's community colleges are a win for everyone. They put money into the economy and support contractors, service providers and industry. They help train a new workforce, and enhance and educate their communities. As test beds for experimental technologies, these state-of-the-art buildings also advance the development of green products and services.

So far in California, according to the U.S. Green Building Council (USGBC), 40 higher education buildings, comprising almost 748,223,914 square feet, have been certified at various levels of [LEED](#) (the USGBC's Leadership in Energy and Environmental Design). Most of them belong to community colleges. The highest scoring building, achieving 55 points for a Platinum certification, is the Newark Center for Health Sciences and Technology at Ohlone College (see related [article](#)). Only eight of the building projects settled for the lowest LEED rating (LEED Certified). Eighteen projects achieved Silver, ten got Gold and four made it all the way to Platinum, the highest rating.

But that's only the beginning. There are 408 higher education buildings pursuing LEED certification in California alone, comprising almost 4.5 billion square feet. Many of these belong to community colleges, making a big green dent in the total square footage of the California community college system.

Building Things Left and Right

Contributing enormously to this total is the Los Angeles Community College District (LACCD), which describes its renowned building program as one of the largest public sector sustainable building efforts in the U.S. LACCD is also the largest community college district in the nation, serving 200,000 students per year at its 9 campuses. The district is spending \$5.7 billion in voter-approved dollars to build green with the goal of having the whole system eventually become grid neutral, or producing as much electricity as it uses. See related [article](#).

If you attend a conference having to do with green building, or visit a campus with a green building program, chances are you'll run into [Larry Eisenberg](#), the executive director of Facilities Planning and Development for LACCD, presenting on his building program or gathering information in his ongoing pursuit for the newest green

technologies and ideas. He's one of the most in-demand speakers on the subject of higher education green building in the US.

Asked how the bond-funded \$3.5 billion green building program at LACCD is going, he said, "fabulously well. We are building things left and right." He's referring to LACCD's 30 current buildings projects, most of which are "design-build," meaning architects, engineers and contractors work in teams, a radical break from the past where they each bid individually, often to the detriment of the projects. "We just had our design-build meeting and it played to a standing room only crowd," Eisenberg said. "There were literally hundreds of people interested in doing business with us."

He admits that the hyperactivity around his building program probably has a lot to do with the shortage of construction jobs right now, but he's glad that the District is a major economic driver, putting money into the community. "There are tens of millions of dollars in projects we're talking about, and we're trying to get as much out on the street as we can right now. This is a great year to build."

It's a great year because prices for construction are coming down - anywhere from 30 - 50 percent below his estimates, says Eisenberg. "We're seeing a return to numbers from the early 2000's. We're being very careful, spending public money in a very dear way."

Construction Costs Down - Alternatives Up

As construction costs come down, money can be freed up for alternative energy projects. Cynthia Hughes-Doyle, a senior associate at Davis Langdon, international cost-management consultants, says that building budgets are typically set, so if a project is coming in under budget, it is possible to include some additional things, like alternative energy. The company's seminal [studies](#) on the real cost of green building blew apart previous notions that sustainable features added up to 30 percent to building costs, showing that building green can be done at little or no additional cost.

"We're seeing lower construction bids across the board," says Doyle, "not just in the public sector, but the commercial sector as well. We don't particularly see changes in materials," she continues, "and labor has not been renegotiated as yet. Profits are coming down for the contractors and general contractors. We're telling our clients it's worth it to take a hard look at contingencies you have set aside and the strength of your documents."

"Alternative energy systems and other things that would make a more environmentally responsible building, things that have higher costs up front but can pay out over the long run, become more possible at this point. We're seeing more folks put in alternative systems that they might not have felt they could afford as add-alternatives for projects," she says. "They can set up their projects to pick and choose a little more. Could they add on solar PV panels? Could they add on a green roof? Can they dedicate more building utilities to saving water, recycling gray water? Can they enhance the building's skin to enhance energy performance?"

Even with energy prices down, it is still cost effective to build green and retrofit buildings for energy efficiency, says Hughes-Doyle. "There's every likelihood that energy rates will go back up. Community colleges that will own and occupy their buildings for the duration still need to look at energy efficiency. Reducing energy consumption by 20-30 percent, which is very, very do-able with current technology, is something districts should definitely be concentrating on."

Whole-Campus Planning

Campuses are also starting to focus on reducing their costs by making sure they're setting up the entire campus to be green. Hughes-Doyle says, "They're delivering more environmentally appropriate landscape, citing, utilities, infrastructure across the campus, so the buildings that are being built can all take advantage of these things collectively. It's a very cost effective way to deliver green across the campus. In other words, the campus in one project can develop a storm water system that percolates storm water back into the ground for a much larger area of the campus, and then other buildings can tap into that system. The farther they push their sustainability master planning to the borders of their campus, the more cost effective it will be to deliver every green building they want to deliver in the future."

That's the plan at LACCD, where the mandate is to build to maximum environmental standards. "We're actually trying to make these new buildings zero-energy," says Eisenberg. "If we make them zero-energy, combined with our other campus-wide renewable energy programs, then they would achieve a Platinum (LEED) rating. At the moment we're not mandating that they be Platinum, but we're trying really hard to

make them as environmentally friendly as possible.

At Butte College in Oroville, California, solar projects are providing almost half the electricity needed for the main campus (see **sidebar**). According to Mike Miller, director of Facilities Planning and Management, the campus green building program is full speed ahead, with two buildings going up at the same time. He's planning for both to qualify for LEED Gold ratings. Replacing portables that have been on the campus for several years, the buildings are numbers five and six of their building program. (See related [article](#))

The Growing Role of Community Colleges

According to the California Community College Chancellors Systems Office ([CCCCO](#)), the authority over community colleges in the state, the California community college system is the largest system of higher education in the world. It consists of 72 semi-autonomous districts encompassing 110 colleges, 58 approved off-campus centers and 22 separately reported district offices. Assets include over 20,000 acres of land, 4,629 buildings and 58.5 million gross square feet of space (40.4 million ASF). The system also has many off-campus outreach centers and other facilities. At this point, it serves almost three million students, over seventy percent of the state's public college students.

In 2006, before the recession, before double-digit unemployment statistics and attendant massive demands for retraining of huge swaths of America's workforce, the California Community Colleges Chancellor's Office Facilities Planning and Utilization Unit produced a [Five-Year Capital Outlay Plan](#) for new and existing facilities. At that time, the Department of Finance projected enrollment growth of approximately 619,000 higher education students over a ten-year period, with 518,000 expected in the community college system. But as it turns out, this is now a gross underestimate. According to Mike Miller, " At Butte, we've seen 17 percent (enrollment) growth from just a year ago. I know other colleges are experiencing the same spurts. It's unfortunate, but when unemployment goes up, our enrollment goes up."

The five-year plan, covering 2007–2012, called for \$11.5 billion of capital facility needs, including \$6.4 billion for construction of new facilities and \$5.1 billion for modernization of existing facilities. An additional \$9 billion was deferred for future years. Along with some other costs, the community college building needs were estimated at about \$20.5 billion, which, even then, the CCCCCO said was "a conservative estimate...likely to be considerably understated...it is evident that the state's unprecedented postsecondary student growth in the next decade will place a larger burden, relative to the other public postsecondary systems, on the community college system - a burden the CCC system cannot effectively bear without significant new, increased expenditures for facilities."

Those increased expenditures, the report says, include total facilities needs for the next ten years, including the \$20.5 billion of capital facility needs identified in the five-year plan, are estimated at \$34 billion. Resources currently available are about \$14.4 billion, with the remaining to be funded by state general obligation bonds of \$19.5 billion. "This equates to a need for \$3.9 billion of state general obligation bond funding every two years," the report says.

"The funding for community college facilities is a responsibility shared by the state and local community college districts. The primary source of financing for the local share of construction costs is voter-approved local bonds. Voters traditionally have approved almost all bond measures for education, and at the time of the report, they had approved \$14.3 billion in bonds for 54 community college districts.

A Time of Great Change

"Frankly, I think community colleges are the most important public education opportunity to help with this current (economic) downturn in terms of retraining and training, teaching new skills," says Miller. "The jump in enrollment due to the tremendous unemployment rate is something that every community college in California, probably in the nation, is struggling with, because at the same time, we've had massive funding shortfalls.

"We're seeing that a lot of our sister colleges are having to do substantial cutbacks in operations because of these shortfalls. Butte has been fairly fortunate in that we have a conservative board and administration and haven't had to lay anyone off. We're keeping our doors open, and even though we don't know whether or not we're going to get funding to teach all these new students, we're going to try to teach them all, so we're not cutting any programs back. Community colleges, says Miller, "are the stopgap, the

safety net for the economy. They are educational institutions that can basically turn on a dime and train where training needs to happen."

Jose Millan, Vice Chancellor of California Community Colleges, says the role of community colleges is changing. "Part of the exciting aspect of working at community colleges now is it's actually a time of great change. We see economic changes occurring in our state and our nation, and community colleges are right with those changes. We see this new push for environmental sustainability, as evidenced by the passage of AB32 (California's [Global Warming Solutions Act](#)).

"The community colleges are working closely with the Public Utilities Commission, the California Energy Commission and the Air Resources Board to basically implement the provisions of AB 32 by helping businesses comply with those new requirements to reduce greenhouse emissions," he says. "In order to do that we're developing new programs, training workers, training business owners on the cost benefits of developing this new environmental sensitivity. On the other hand, we are developing new programs, new courses that take advantage of harnessing new renewable sustainable sources of energy for our state. Those energy sources could be solar, wind power, they could be biothermal power, biodiesel power."

In the area of green building, Millan says his office tracks and authorizes all community college building projects, whether the funds are paid for out of local bonds or statewide bonds. "All of it requires some authorization from our office," he says. "We assist the local colleges in getting the necessary approvals for their building projects through the Division of the State Architect."

In addition, the Chancellor's office funds a number of activities related to technological innovation, issuing grants to community colleges for development of new procedures and processes "all in the effort to improve the training and education received by our students so they are more marketable once they leave the community colleges."

The New Green Building Code

With California's green building codes (see [related story](#)) coming online, California's community colleges are building for the future. The State Architect, Dave Thorman, has stated that his goal is that after December 2010, all plans coming through the Division of the State Architect (DSA), which approves all community college building plans, will be reviewed for grid neutrality.

According to its newly updated publication, [Grid Neutral: Electrical Independence for California Schools and Community Colleges](#), "Future plans with grid neutral requirements include codifying grid neutral principles into the voluntary 2009 California Green Building Standards Code." While this is not mandatory at this time, the report says, "planning your grid neutral campus now is encouraged because the regulations are right around the corner. The California Green Building Standards Code could be in effect as early as 2012."

Theresa Townsend, senior architect with the DSA, says that "Planning and implementing grid neutral schools now will prepare schools and community colleges for compliance with AB 32. It is estimated that 39 percent of all carbon (CO2) emissions are attributed to buildings," she says. "This includes California's aging college and school facilities." The law will require that by 2010 the state must begin efforts to offset its carbon emissions from all sources, including educational buildings. By 2020 the state will be required to reduce its CO2 emissions by 30 percent, based on 1990 levels as established by the California Air Resources Board. In 2050 this will be raised to 80 percent.

"This is why we need to find out how much energy our buildings use," says Townsend, "to start work towards more sustainable energy efficient buildings and start producing on-site clean renewable energy. Now is the time to start planning how to go grid neutral and maintain grid neutrality for the long term."

Stimulus Dollars?

There are few potential opportunities for funding of community college building projects from the American Recovery and Reinvestment Act (ARRA), according to Jack Scott, California Community Colleges Chancellor. The CCCCO is a main participant in working out the details of Stimulus allocations to community colleges. In an in-depth memo, he outlines "several pots of Stimulus funding available for community colleges to pursue at statewide and local district or college levels." California will receive about \$31 billion in state aid over the next two years. Of this, K-12 and higher education will receive some \$7.9 billion, with an additional \$6 billion to fund "various labor and workforce developmental activities, of which community colleges are in a strong position to secure a portion of these funds." This funding will be a boon to the instructional and training aspects of community colleges, but according to Scott, the vast majority of funding will

not be accessible for building or renovation programs.

"At the moment the Stimulus money in the capital area looks remote," says LACCD's Eisenberg. "It's been going into other areas, not so much higher education facilities. For us, we're not really expecting federal Stimulus money for facilities. We do think that we'll see Stimulus money coming through on the training side in terms of paying for more training and curriculum. If the money comes through from Stimulus for construction, that would be fabulous, but at the moment we're not seeing that as a strong possibility."

Butte College's Mike Miller agrees. "I've been a little frustrated on that level. We don't see direct funding into the California community college system yet. We're exploring those pathways. I'm looking for funding for more energy efficiency projects and also for jobs training. I'd like to get some jobs training money and put people to work right in my facilities department on energy efficiency projects."

Larry Eisenberg thinks that LACCD is also retrofitting all its existing buildings to maximize energy efficiency. "We can train people to do weatherization types of projects, so there might be some (Stimulus) money coming in on the training side to help out with that," he says.

Test Beds for Innovation

Eisenberg is excited about community colleges and their potential to pilot new technologies. "We're testing innovative products that have remarkable potential for the economy and for the energy industry in general. If these products are successful, they'll be transformational in nature."

He uses an example of LED lighting for offices. "My office is the guinea pig at the moment," he says. "There are things in the energy arena - new energy generation technologies that have really amazing promise on the wind side, on the solar concentrator side - that are very exciting. We want to install them as pilots to test them out and see how they do."

He says colleges traditionally share their information. "A higher tide floats all the boats."

Does the future look bright for community colleges? "It sure does," Eisenberg says.



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