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## Reinventing the university

### Colleges and universities are funneling scarce funds to major building projects that will appeal to a rapidly changing student demographic

By *Larry Flynn, Senior Editor -- Building Design & Construction, June 1, 2003*

The economic boom of the 1990s fattened state coffers even as the stock market boosted endowments, enabling public and private institutions of higher learning to invest in major building renovations, additions, and new construction to attract more — and better — students.

While plenty of projects remain in the pipeline, the economic malaise that has settled over the commercial and industrial sectors also is adversely affecting funding for higher education. By most accounts, higher education construction spending growth is slowing, budgets are tightening, but administrators continue to seek ways to finance projects needed to stay competitive. Enrollment in degree-granting post-secondary institutions reached a record 15.3 million in 2001 and is projected to increase 16% between 2001 and 2011, according to the U.S. Department of Education. Funds may be scarcer in coming years, but the market will be there for years to come.

Students are already gravitating toward schools with 1) the most attractive living accommodations, 2) the most up-to-date and environmentally friendly building infrastructure, and 3) the most technologically sound environments. Building Teams that respond to the needs of this lucrative market will move to the head of the class.

#### **Please don't call them dorms!**

Campuses across the country are upgrading and adding to their residence halls (not dormitories) to keep pace with the changing lifestyles and expectations of today's students. At the same time, they're looking to foster a sense of community between incoming students and upperclassmen, and to provide a more secure environment.

"Everyone is doing residence halls — both new construction and renovation," says Michael L. Rickenbaker, AIA, director of facilities planning at Southeastern Louisiana University, Hammond. Students today are used to having their own rooms, preferably with private baths — at most, they might be willing to share a bath.

At Colorado College in Colorado Springs, business manager David Lord says today's collegians "like their independence and the flexibility to prepare their own meals. If you don't have it, then you lose a competitive edge in attracting students."

In updating its campus master plan, Colorado College focused sharply on student housing. "We're a residential college," says Lord. "Sixty percent of our students live in campus residences, and we wanted to move that percentage to 80%."

One reason for doing this was to foster a greater sense of community and interaction between the various age groups on campus, on the theory that older, more mature students influence the younger students. "Juniors and seniors want to live in apartments, so that's what we've tried to build," says Lord.

Colorado College's Western Ridge student residences, designed by Sasaki Associates, San Francisco, and completed in 2001, are comprised of five apartment buildings and three academic theme houses, totaling 135,000 sq. ft. In the theme houses, students studying particular disciplines, such as languages, live in 24-bed residences, which share a common bath and public lounges.

The residences are tied together by such gathering places as a café, a commons, and a plaza.

Lord says that on-campus residency of upperclassmen has increased, and there's a waiting list for Western Ridge apartments. "We built it and they came," he says. Parents like having their children living on campus for the added security.

The residences have helped attract students to our campuses, even more than we expected," says Lord.

#### **Sustainability sprouts on campus**

Rising energy costs and the re-emergence of political and social awareness among students are driving higher education administrators to adopt sustainability and environmental stewardship policies. Sustainable buildings are seen as both a drawing card and an educational tool.

In Iowa, the Des Moines Area Community College's new West Campus has been designed for environmental friendliness, says David Dulaney, AIA, a principal of locally based Renaissance Design Group.

For the campus's new technology center, RDG designed a steel-frame structure that emphasized daylighting, airflow, and glazing selected based on the building's orientation to the sun. A geothermal-based mechanical/electrical system has significantly reduced the energy costs in the tech compared to a conventional classroom building, says Dulaney. Heat pumps in the building use large

coils submerged in a manmade pond to extract heat from the pond in the winter and discharge heat into the pond in the summer. In Southern California, Los Angeles County now requires all new building and major renovation projects conducted as part of the \$1.24 billion Proposition A Los Angeles Community College District building program to receive certification from the Washington, D.C.-based U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program.

One of the first such projects to fall under the LEED umbrella is a 30,000-sq.-ft. student admissions building and parking garage at Los Angeles City College. It will be submitted for a LEED silver rating upon completion next year.

Designed by the local architectural firm Amphibian Arc, with the Los Angeles office of Syska Hennessy Group (SHG) as M/E/P subcontractor, the structure features an efficient building envelope that incorporates solar panels on the skin. Inside, an under-floor air-distribution system will provide greater flexibility, improved thermal comfort, enhanced indoor air quality, and better user control over the interior environment.

Sustainable buildings offer an ideal teaching tool for colleges, says Rob Bolin, SHG's vice president of sustainable design. "By their nature, educational environments are teaching students about environmental topics by incorporating sustainable design into the buildings," he says.

That's the approach Atlanta's Emory University is taking. The university's desire to be an environmental steward, coupled with competition from other top-tier universities for the best students, has motivated Emory to embrace sustainability.

With both a LEED-certified biomedical research building and a soon-to-be-certified mathematics and science center to its credit, Emory is a leader in sustainable practice. The university has 10 projects in the LEED pipeline (including a new cancer center that will be submitted for LEED certification this fall) or that are being designed, renovated, or constructed according to LEED principles — a total of 1.1 million sq. ft. of space.

"Sustainability has gone from a buzzword to a prerequisite," says Scott Wheeler, staff architect for Atlanta-based Cooper Carry, designers of the math and science center, which opened last year.

The five-story, 138,000-sq.-ft. center, which also houses the environmental studies department, consists of three buildings connected by a slate walkway bordered by a floor-to-ceiling wall of windows and copper columns. The building was sited to preserve a stand of shade trees; the few trees that were cut down were chipped and used for erosion control and mulch.

Recycled materials, such as bathroom tiles made from junk-car windshields, and benches that were upholstered using leftover seatbelt scraps, were used throughout, resulting in a 90% reduction of waste sent to the landfill. Daylighting and energy-efficient lighting technologies, such as motion sensors and mechanized interior-window shades, were employed generously.

To reduce water usage, a closed-loop system was installed that recycles water to cool down instruments and lasers in the physics department's machine shop, says Cooper Carry's Mark Jensen, senior associate project manager and project designer. The system will reduce building water use by 2.8 million gallons a year, a 69% improvement from that mandated by code, resulting in an annual saving of \$8,800. A storm water retention vault catches runoff, which is then used for irrigation.

While many university administrators still question the first-cost tab for achieving LEED certification, others are embracing sustainable design as a means to reduce operational and maintenance costs of a building over its life cycle.

Such is the case at Colorado College, which will open a new science building in August that will seek LEED certification. "The college may not build another building that won't be LEED certified," says business manager David Lord.

## **Wireless revolution on campus**

It's no secret that college students have become super-sophisticated in their use of technology. Is there a freshman left on any campus in America that doesn't have her own cell phone or pager?

"Things go so much faster now than they did 20 years ago," says Tony Paustian, executive dean of the Des Moines Area Community College (DMACC) West Campus. "Our students want things on the go. Some of them take online classes and attend four or five different colleges at the same time. More than half have cell phones, not to mention PCs and laptops."

These days, the BMO (Big Machine On Campus) is the wireless laptop, which meets the needs of today's on-the-go students. Paustian says wireless technology is particularly important to students at DMACC's new campus because of their mobility and hectic lifestyle: "Many of them have their own families, and hold down more than one job."

Renaissance Design Group responded to the DMACC's requirement that the West Campus's new technology center function as a "supercomputer for education" by designing the functional spaces to look like a computer data board. Raised computer-access flooring provides flexible integration of future technology. "The building just wreaks of being high-tech and cool," says Paustian. Jerry Burkhardt, a vice president with Syska Hennessy Group in Los Angeles, says institutions must improve their wireless infrastructure because "students are demanding these technologies be available to them." SHG found itself handling so many requests from California colleges for assistance with wireless technology that it has developed a service it calls a "wireless

umbrella" that helps colleges improve the connectivity and coordination of their wireless networks.

The primary issue facing those responsible for colleges' communication infrastructure is the loss of cell phone and laptop signals on campus because of interference by buildings and trees. Contributing to the connectivity problem is the lack of an established protocol between wireless carriers and universities that sometimes results in individual university departments cutting their own deals with carriers to install wireless antennas and equipment on buildings.

More universities are establishing their own wireless Ethernet access-card-based networks to provide class and registration information to students who may be accessing the network in or out of doors. By logging on with a password, students can access campus information, download class notes, and access a variety of other functions. But coverage on lawns and in other common areas is a concern.

To overcome this problem, universities like San Diego State are deploying their wireless data networks in common areas, such as libraries and dining. The University of Minnesota recently completed its first wireless data network installation as part of the renovation of the campus's Coffman Union.

While many institutions are installing more access points for wireless service, security has become a major concern when it comes to protecting a campus's wireless network. "You don't have to be wired into a hard line any more," says Frank Monaco, chief information officer and vice president of IT for Pace University, which has eight campuses in the New York metro area. "You can be parked outside a building, especially in our Manhattan campus, and with a laptop and the right security access you can infiltrate the network."

When doing higher education work, says Monaco, Building Teams should consider the projects wireless needs in the initial planning stages. "Have a consultant come in and evaluate where you might need additional access points, and where the AC power and network jacks should be positioned," he says.

Monaco followed his own advice after initial designs were completed on Pace's new health, fitness, and recreation center at its Pleasantville, N.Y., campus. He brought in a telecoms consultant to evaluate the building's wireless needs. Additional access points were added to the gymnasium area to accommodate future events.

"From a design standpoint, the concern was that it would hold up the design process and add significantly to the cost," says Dan Dilullo of architect Dilullo and Associates. "But it seems to be working out. We made sure we weren't going to do anything in the construction of the building that was going to cause any electrical or physical impediment to any wireless signal."

### **What it takes to succeed**

While the pace of growth in university construction may be settling down a bit from the frantic pace of the 1990s, the number of students attending post-secondary institutions continues to rise. Yet due to the slowdown in other market segments, so many more design and construction firms are vying for the same limited number of RFQs.

The Building Teams that get the college and university jobs will be those who are sensitive to the constraints and demands of today's institutions of higher learning, and who can combine expertise in specialized fields of design, such as multifamily residential or sustainability, with the flexibility and forethought to accommodate the rapidly changing needs of today's college student.

#### **Additional information resources**

Preventive Maintenance for Higher Education Facilities by Applied Management Engineering Inc. Features model of typical campus facilities, checklists, and dedicated Web site. Published by RS Means, \$149.95;

<http://www.rsmeans.com/bookstore/booksearch.asp?q=preventive+maintenance>

Preventive Maintenance Guidelines for School Facilities by John C. Maciha. Features a checklist, wall chart, and Web site.

Published by RS Means, \$149.95. <http://www.rsmeans.com/bookstore/booksearch.asp?q=preventive+maintenance>

U.S. Department of Education: [www.ed.gov](http://www.ed.gov)

National Center for Educational Statistics (U.S. Department of Education): [www.nces.ed.gov](http://www.nces.ed.gov)

For information on a Federal program that provides discounts for telecommunications services and technology improvements:

[www.sl.universalservice.org](http://www.sl.universalservice.org)

Building Type Basics for College and University Facilities by David J. Neuman. Published by John Wiley & Sons Inc., \$70;

[www.wiley.com](http://www.wiley.com)

#### ***Reduced funding spurs creative financing measures for post-secondary schools***

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## **schools**

University and college administrators are being more creative in obtaining funding for projects. "With the economy being what it is, colleges are facing very tight budget squeezes," says David Lord, business manager for Colorado College, a private institution in Colorado Springs. "Public institutions are being affected by a shrinking tax base, and with the decline of the stock market, many private institutions have lost money in their endowments."

To provide housing, many institutions are turning to privatized housing, wherein they lease the land to a developer, who builds the housing. Colorado College issued bonds to pay for its Western Ridge student residences. California State University-Los Angeles also issued bonds to fund its new bookstore, conference center, and student services building. In both instances, tuition fees are being used to repay the bonds.

Other colleges are leveraging corporate partnerships to help fund needs. In Iowa, Des Moines Area Community College (DMACC) is working with the business community to improve its communications infrastructure. "Business partnerships enable us to give our students much better prices for our services, we can get more bang for our buck, and the companies are shown in the best possible light," says Tony Paustian, executive dean of DMACC's West Campus.

Despite the economy, building programs at some institutions are being buoyed by large local and state funding programs. Two years ago, Los Angeles County, Calif., voters passed Proposition A, a \$1.24 billion bond referendum aimed at upgrading the nine community college campuses that comprise the Los Angeles Community College District (LACCD).

Only last month, voters passed Prop AA, another \$980 million bond measure.

The improvements at LACCD would not have been possible if not for Prop A, says Nonchi Wang, a principal with Los Angeles-based Amphibian Arc, designers of a new student admissions building at Los Angeles City College, which opens in September 2004. "LACCD had been overlooked for 20 years until the funding referendum," he says. "This is a unique opportunity for a community college."

In 1995, the state of Connecticut launched UConn 2000, a 10-year, \$1 billion capital plan to rebuild University of Connecticut campuses. A similar plan, 21st Century UConn, an 11-year, \$1.3 billion program, takes effect in July 2004.

The funding programs are intended to provide businesses in the state with a professional, qualified workforce, stem the "brain drain" of students who leave the Nutmeg State for other universities, and provide parents with a reasonably priced, quality alternative to expensive private colleges. "The acts talk less about bricks and mortar and more about the opportunity to provide students with first-class education and boosting enrollment," says George Kraus, UConn's director of design, planning, and construction. "Enrollments are up, endowments are up, minority enrollment is up, and the quality of student is up."

SmithGroup JJR Inc., Ann Arbor, Mich., is the master planner for both UConn programs. The first plan, completed in 1997, addressed where buildings would go and further opportunities for future buildings. "We're now putting identities to those building opportunities," says Kraus.

The funding from 21st Century UConn gives officials a sense of security about its program. "The money is going to be there," says Kraus. "It affects planning in that we now have assurances. We can start planning for building replacements and renewals. It enhances the master plan."

On a campus where many of its buildings were characterized as dilapidated, more than 150 major new construction and renovation projects are either in progress or have been completed under UConn 2000, including a new chemistry building, renovated residence halls, and a new visitors center. The university also created new urban campuses in downtown Stamford and Waterbury, as well as a marine science building in Groton.

The \$14 million renovation of the Wilbur Cross Student Service Building on the main campus in Storrs reflects the university's mission to "reach out, engage, and be a national destination," says Sandra Vlock, principal in charge of design for Abronies King Vlock Architects (AKV), Branford, Conn., the architect for the renovation and two museum renovations on campus.

Located in a building that originally was the university library, the halls were a dark, confusing labyrinth. "The goal was to transform the building to centralize student services, and to convey a sense of one-on-one personal service and accessibility," says Vlock.

The university likes to choose Building Team members with experience in particular building types, says Kraus. But for AKV, the student services center marked the firm's first such project. In its interview with the school, however, Vlock says the firm talked about its work in retail buildings, and that won them the contract.

"AKV gave us what we wanted," says UConn's Kraus. "You now have a sense of place, arrival, and knowing where you are going."

## *The Notre Dame of the South?*

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With \$200 million from Domino's Pizza founder Tom Monaghan, the Ann Arbor, Mich.-based Ave Maria Foundation is setting out to construct not only the first new Catholic university in American in 40 years, but with it an accompanying town center development 25 miles east of Naples, Fla., by the fall of 2006.

Located on 750 acres of land donated by Naples developer Barron Collier Cos., Ave Maria University plans to open with an initial enrollment of 650 students. Eventually, it is planned to grow to 5,000 undergraduates and graduates.

The foundation is developing the university, with Buffalo, N.Y.-based Cannon Design and the Rosemary Beach, Fla., office of Memphis-based Looney Ricks Kiss as architects. Barron Collier is developing the town center, also called Ave Maria, and surrounding properties in a joint venture with the university and the foundation. Edaw and Associates, San Francisco, is the land planner and architect for the town center, whose first phase will focus on housing.

Upon hearing of the foundation's plans to establish a new university in west Florida, Paul Marinelli, Barron Collier's president and CEO, contacted Monaghan and explained how a town would complement the university. "It's unique in that the town will be a compact, self-sustainable, walkable community," says Marinelli. "Housing will be provided for all socioeconomic brackets, and the university will provide cultural, educational, and recreational activities for the town."

The timing was right for the university-foundation-developer partnership. The West Florida Rural Stewardship Program in southwest Florida, which had just come into play, allows developers in Collier County — which claims to be the second-fastest-growing metro market in the nation — to transfer development rights from environmentally sensitive and undisturbed land over to disturbed land. The university and town center will occupy what was once farmland, which is classified as disturbed property.

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