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## BY MICHAEL C. DAVIDS

## Green Thinking at City Colleges of Chicago

The City Colleges of Chicago (CCC) is the largest community college system in Illinois and one of the largest in the nation, with 5,700 faculty and staff serving 115,000 students annually at seven colleges and six satellite sites city-wide.

CCC is in the midst of a Reinvention, a collaborative effort to review and revise programs and practices to ensure students leave CCC college- and career-ready. Its internationally-renowned College to Careers initiative partners faculty and staff with industry-leading companies prepare Chicagoans for careers in growing fields.

The City Colleges of Chicago includes seven colleges: Richard J. Daley College, Kennedy-King College, Malcolm X College, Olive-Harvey College, Harry S Truman College, Harold Washington College and Wilbur Wright College. The system also oversees the Washburne Culinary Institute, the French Pastry School, two restaurants, two cafes, five Child Development Centers, the Workforce Academy, the public broadcast station WYCC-TV Channel 20 and radio station WKKC-FM 89.3.

From its leaders and facility managers to faculty and students, City Colleges has in recent years worked to embed "Green Thinking" at the center of its operations. Those sustained efforts are already paying off. "From an environmental, economic and educational standpoint, strengthening City Colleges' sustainability efforts is the right thing to do," states Chancel-

lor Cheryl Hyman. "For example, making our energy use and buildings more efficient reduces the institution's carbon footprint, saves taxpayer dollars and demonstrates to our students what sustainability looks like in practice."

## **Energy Efficiency Efforts**

During the last 10 years, City Colleges of Chicago (CCC) has achieved significant reductions in natural gas and electricity use through the successful adoption of energy-saving tools. By taking advantage of a new tool (Energy Connect) that gives realtime access to energy usage statistics at all



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of its colleges and satellite sites, CCC staff have gained a more sophisticated understanding of energy use patterns and acted to identify and realize efficiencies.

"This work is ongoing, and we anticipate continued energy savings as our building management techniques become even more sophisticated," says John Sugrue, Associate Vice Chancellor of Administrative Services for CCC. "From 2003 to 2012, CCC's annual energy usage has decreased by 600,000 Therms of natural gas and 13 million kilowatt hours of electricity," adds Sugrue, who has been with CCC since 2002. Over the last 10 years, these energy savings averaged \$1.2 million a year from the 2003 baseline, saving the City Colleges, and thus taxpayers, significant money. The institution has seen ten straight years of improvements in this area. Savings during the last three years have been part of a \$51 million reduction in operations costs that have been redirected to the classroom.

To help achieve these energy efficiencies, CCC has used Energy Performance Contracting to automate its buildings and reduce energy usage. Building Automation Systems (BAS), lighting retrofits, equipment upgrades, occupancy sensors and variable speed controllers are paid for with future energy savings. These upgrades have given CCC building engineers the tools they need to track energy usage in real time, find faulty equipment and set schedules to reduce energy usage during

## BUILDINGS & ENVIRONMENTS







unoccupied periods.

Purchasing energy as a District, rather than as separate colleges, has helped CCC realize cost savings. Locking in long-term rates for electricity and having the flexibility to choose when to lock in natural gas rates for the coming winter has proven to be a cost reducing formula. Additionally, City Colleges of Chicago has used aggregated energy purchasing to increase renewable electricity procurement by ten percentage points above the Illinois Renewable Portfolio Standard. During FY2014, 18 percent of CCC's electricity will be produced from renewable energy sources.

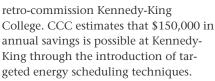
CCC has also found cost-savings by participating in a voluntary curtailment program that reduces electricity usage system-wide if the grid becomes unstable. Participating in this program has saved more than \$600,000 since 2008 and has helped CCC find opportunities for daily reduction in energy usage. CCC has also begun piloting an energy usage program at two colleges and a satellite location that allows the institution to target savings throughout the year.

Additionally, CCC is now working with the Smart Energy Design Assistance Center (SEDAC) at the University of Illinois to audit its energy use. SEDAC started working with CCC in January 2012 to



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▶ City Colleges students participate in Earth Day 2013 at Wright College



"City Colleges has always been mindful of energy use at its facilities throughout the city," says Diane Minor, Vice Chancellor of Administrative Services, who oversees all of CCC's facilities. "We decided to hire our first-ever Sustainability Manager in 2012 to strengthen our commitment to sustainable practices and facilities. We continue to see energy efficiencies and savings and are now incorporating sustainable practices into all of our decisions."

## **A New Sustainability Manager**

John Brophy is City Colleges' first Sustainability Manager. Since being hired in November 2012, he has among other things facilitated energy savings and recycling initiatives, prepared applications to support the institution's sustainability efforts and helped to plan facilities, classes



↗ New Olive-Harvey TDL Campus

↗ John Brophy, Sustainability Manager at CCC

and clubs that strengthen City Colleges' commitment to sustainability. He is Co-Chair of U.S. Green Building Council's Illinois Higher Education Sub-Committee.

Prior to joining City Colleges, Brophy worked for Green Roof Solutions, a leading distributer of American-made green roofing components. He has also worked for I-Go Car Sharing and was a consultant with AllCell Technologies. He holds a master's degree in environmental management and sustainability from the Illinois Institute of Technology and a bachelor's in political science from Boston College.

Brophy's role focuses on bringing sustainable practices into the operations of each of the City Colleges-and that includes major construction and renovation projects now underway across the city as part of CCC's \$524 million, five-year capi-



tal plan. The system's two high-profile capital projects now under construction are both targeting LEED certification, and they've both been designed with input from College to Careers industry partners, who are helping to better align City Colleges' curricula to workplace demands. Since the launch of College to Careers in December 2011, more than 100 industry partners have joined the effort by committing to review curricula and offer City Colleges students and graduates first pass at internships and job opportunities.

## The New Malcolm X College and School of Health Sciences

Mayor Rahm Emanuel and City Colleges Chancellor Cheryl Hyman broke ground October 2nd on the new Malcolm X College and School of Health Sciences. Designed with input from healthcare industry partners, the \$251 million campus will serve as the hub of the College to Careers healthcare programs to prepare students for the 84,000 healthcare jobs



City Colleges Chancellor Cheryl Hyman

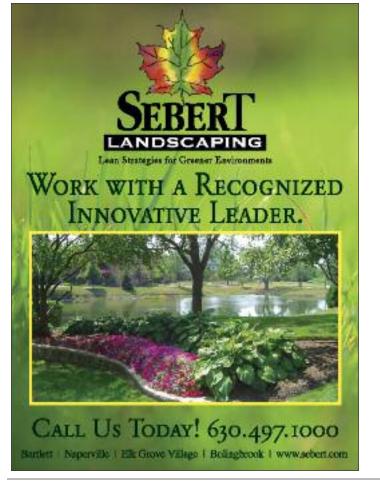
expected to come to the region over the next decade. Slated to be completed in late 2015, the new campus will host students beginning in January 2016.

"Here in Chicago, we are revolutionizing the educational model by linking highly-specialized, technical curriculums with the needs of our local employers essentially creating a direct bridge between students and jobs of the 21st century economy," Emanuel said.



↗ Shown here is the Chicago Divvy Bike sharing program location at Truman College

Located adjacent to the Illinois Medical District and across the street from the current college at Jackson Blvd. and Damen Ave., the 544,000 square foot new Malcolm X College, which is targeting LEED gold certification, will be able to accommodate approximately 22,000 students, 6,000 more than today. (See sidebar on the new campus' sustainable design elements.) It will include a virtual hospital; skill and simulations labs; state-of-the-art



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technology; a new conference facility with capacity for 1,300; and a student-accessible green roof that will be irrigated by a rainwater harvesting system. (Another CCC campus, Kennedy-King College, has a green roof spread across three different buildings, one of the largest such roofs in Chicago.)

"Today we lay the foundation for a best-in-class learning environment that will be the pride of the West Side and all of Chicago," Chancellor Hyman said at the groundbreaking. "The new Malcolm X College will be a centerpiece of our efforts to ensure Chicagoans are prepared for careers in growing fields like healthcare."

Moody Nolan, the nation's largest African-American architectural firm, serves as the project's Architect of Record. Due to this project, the firm is expanding its twoyear-old Chicago office from nine to 14 staff members.

City Colleges of Chicago is committed to ensuring that the construction project benefits Chicagoans, especially the surrounding Near West side community. Of the approximately 950 jobs being created through the project, the vast majority will go to Chicagoans and up to 120 are being made available to qualified applicants residing in communities surrounding the college. To help people become qualified, last year it launched a Community Jobs Program that offers local residents free construction trade training at the Dawson Technical Institute (DTI), one of City Colleges' satellite sites. More than 30 community members have already been hired. Program participants helped with site preparation throughout last fall, while studying carpentry or concrete masonry at DTI.

The community college system has also worked to ensure that the construction process is an opportunity for good environmental stewardship. As an example, Brophy notes a decision made by CCC Senior Project Manager Dominick Owens before site preparation began for the new Malcolm X College. "We moved 140 trees from Malcolm X's parking lot, where the new campus will be, and re-planted them at the Daley College campus."

## **Olive-Harvey College's New TDL Center**

Chancellor Hyman was joined again by Mayor Emanuel on October 28th last year to break ground on the nearly \$45 million Transportation, Distribution and Logistics (TDL) Center at Olive-Harvey College, a first-of-its kind facility in the state of Illinois that will prepare students for the more than 110,000 TDL jobs coming to the region over the next decade in this sector.

"This new facility will supplement Olive-Harvey College's transportation, distribution, and logistics-focused curriculum to prepare students for a career in an indemand, high growth industry," Emanuel said. Current TDL programs at City Colleges include logistics (including warehousing and supply chain management), commercial driver training, forklift and public chauffeur courses (taxi and limousine).

The new TDL Center is funded by \$31.6 million from the State of Illinois and \$13.2 million from City Colleges and



is being administered by the Illinois Capital Development Board, which oversees state-funded, non-road construction projects.

"The TDL Center will employ numerous skilled laborers during construction and prepare thousands of students for high paying, in demand careers once it is complete," Governor Quinn said. "In addition, we will seek a LEED Silver designation for the center, which is a testament to the building's energy-efficient, environmentally-friendly design." (See sidebar on the TDL Center's sustainable design elements.)

Scheduled to open in 2015, the 103,000 square foot Olive-Harvey facility will include automotive and diesel engine laboratories, an engine dynamometer, classrooms, simulated driving facilities, a testing center and vehicle bays, among other features. To give students hands-on training in the industry, the facility will also feature a high-tech central store warehouse environment that will act as a supply chain hub to efficiently provide office supplies to City Colleges' seven campuses, six satellites and District Office.

"The central store will provide a practical, real-world training ground for students by integrating operations with the curriculum by teaching students how to take orders, how to fill them, and how to do so in a timely manner," Chancellor Hyman said. "Our students will learn the key concepts of logistics and supply chain management needs in an organization that is the largest community college system in the state with thousands of employees and students."

FGM Architects and construction management firm Gilbane Building Company have been contracted for the project. Demolition of temporary buildings on the construction site was completed late last year and construction continues throughout this year.

## Sustainable Building Renovations and Improvements

Beyond brand-new facilities, City Colleges' current five-year capital plan also includes improvements at all of its existing campuses and their satellites. For example, CCC is currently renovating the roof of Wright College's library building, an iconic pyramidal structure designed by architect Bertrand Goldberg. Goettsch Partners has designed a façade replacement for the library that doubles the insulation of the building envelope from R-10 to R-20 and brings in natural daylight through the addition of a skylight above the central atrium space. This renovation project, which began in Fall 2013 and is being overseen by Associate Director of Facilities Planning Robert Tamillo, is true to the original Bertrand Goldberg pyramid profile while providing a much-needed energy efficiency and performance update. It will be completed in 2014.

Also this year, following the replacement of Daley College's roof a large array of solar panels will be installed at this campus on Chicago's Southwest side. This project, supported by a \$245,000 grant from the Illinois Green Economy Network, will generate 130,000 kilowatt hours/year, saving CCC \$13,000 per year. Costs associated with the project will pay themselves back in about 18 years. (There are also small arrays of solar panels at Olive-Harvey and Wright Colleges.)

"We look for opportunities to incorporate sustainable initiatives into our ongoing building maintenance and operations as well as our capital projects," Brophy says.

For example, CCC is upgrading its HVAC systems, with the commissioning of energy-efficient HVAC systems at Kennedy-King College scheduled for the current fiscal year. Window replacements are being done district-wide, with Olive-Harvey being the most recent campus to receive this upgrade. Contracts are being finalized with architects and plans are underway to replace windows at Truman and Daley Colleges.

CCC facilities have also installed LED lights as part of the energy efficiency efforts. These have mostly been installed in exit sign lighting in all buildings, although an LED project to upgrade the lighting in Truman College's parking garage was also completed successfully in late 2012. New LED fixtures throughout the garage have reduced energy use by more than 70 percent, saving approximately \$41,000 annually.

## **Greening Student Habits**

Recycling is an important part of City Colleges' sustainability efforts, and an area

that Brophy is focused on. "Recent improvements in this area have been very exciting," Brophy says. The institution transitioned to a single-stream recycling effort in late 2012 and early 2013, and recycling rates since then have increased. By the third quarter of 2013, "the rate had increased to nearly 20 percent," Brophy noted.

At Malcolm X College, a "Green Committee" worked with engineering/ maintenance staff to implement the new recycling system and "has been instrumental in educating students and staff of the importance of recycling," Brophy said.

But CCC is also trying to reduce its stream of recyclable materials. Three of the colleges, Dawson Technical Institute and the District Office have in recent months installed water bottle refilling stations, which encourage students and staff to avoid using plastic bottles.

CCC also encourages students to take advantage of more sustainable transit options. The U-Pass program provides unlimited rides on city trains and buses and Divvy bike-sharing stations are located within a few blocks of most campuses. Additionally, Wright College has an electric car charging station; Brophy hopes to add more stations down the road.

The new TDL Center at Olive-Harvey will have a car-charging station when it's completed, and the college plans on using two electric-powered step vans for intercampus deliveries. "Students in the logistics program at Olive-Harvey will get hands-on use of electric vehicles as part of their classes," Brophy adds.

## Environmental Programs and Practices at Wright College

While Malcolm X and Olive-Harvey colleges should soon have LEED-certified facilities, Wright College is frequently recognized for its commitment to sustainability. It achieved Bronze Level status from the Illinois Governor's Campus Sustainability Compact in October 2012 and been named a Tree Campus USA by Arbor Day Foundation for three years in a row.

The college, on Chicago's northwest side, has had an ongoing relationship with the U.S. Green Building Council (both national and the Illinois chapter) for a number of years. It has coordinated with the *continued on page 24 »* 

## City Colleges

» from page 8 organization on a series of continuing education workshops ("Nuts & Bolts - Green Building for Contractors") for construction professionals. More than 600 professionals have participated in these workshops. Wright also offers a two-week module in LEED as part of one of Wright's environmental technology program courses, taught by longtime USGBC-IL Education Committee Board member John Albrecht. In addition, USGBC par-

ticipates in Wright's Green Apple Day of Service each year.

Wright's Environmental Technology program has received an annual award for education by USGBC-IL, and its Building



Students walk to class at Wright College, on Chicago's Northwest Side

Energy Technologies program curriculum received a national award from USGBC. The program offers quality, affordable education to building engineers and operations staff requiring certification in energy monitoring.

David Inman is the Director of Wright's environmental program at Wright, the mission of which is to provide quality education that prepares students with the knowledge and skills required for technical and managerial positions in the energy efficiency, emergency management, and environmental, health & safety fields. Inman oversees various academic curricula and staff relating to the college's sustainability pro-

grams. These include associate's degree and basic certificate programs in environmental technology, and associate's degree program in emergency management and other basic certificate programs.

## SUSTAINABLE DESIGN ELEMENTS IN CCC'S NEW FACILITIES:

## **NEW MALCOLM X COLLEGE CAMPUS**

## Sustainable Site

- » Reusing existing impervious urban site that qualifies as a Brownfield site.
- » Close proximity to public transportation, for both buses, elevated train and bike route.
- » Providing bicycle storage; CCC also plans to partner with the City to have a Divvy bike-sharing station at building.

#### Water Efficiency

- » Using low-flow water fixtures to save approximately 33 percent of the potable water versus standard fixtures.
- » Using a Cistern to collect rain water for irrigation of plantings on the roof garden.

#### Energy and Atmosphere

- » Using roof monitors over large gym spaces and large skylights over the main concourse and circulation.
- » Using enhanced refrigerant management.
- » Pursuing providing a portion of the electricity from renewable sources.

#### **Materials and Resources**

- » Exceeding the energy efficiency performance requirements.
- » Utilizing high performance thermally broken curtainwall frames and glass.
- » Utilizing regional and recycled materials.
- » Using FSC Certified Wood products.
- » Requiring the contractor to recycle construction waste, and provide indoor air quality management plan during construction.
- » Using high reflectivity membrane roofing materials
- » Providing extensive green roofs for 25 percent of the roof.
- » Creating an outdoor plaza on the 3rd floor as part of the green roof that also uses high reflectivity pavers.

## Indoor Environmental Quality

- » Using low emitting materials: adhesives, paints, flooring, composite wood.
- » Separating out exhaust for janitors and copy rooms.

## OLIVE-HARVEY COLLEGE TRANSPORTATION, DISTRIBUTION AND LOGISTICS (TDL) CENTER PROJECT

## Sustainable Site

- » Reusing an existing site that may be considered a Brownfield Development
- » College campus with excellent public transportation access
- » Maximizing open space on the existing campus
- » Stormwater quality and quantity control with the use of rain gardens and bio swales
- » Minimizing the heat island effect with reflective roof and pavement surfaces (exemplary credit since all new pavement is concrete)

#### Water Efficiency

- » Water efficient landscape design with native and adaptive plantings that do not require irrigation
- » Reducing water usage by at least 35 percent

## **Energy and Atmosphere**

- » Optimizing energy performance with a highly efficient building envelope
- » Highly efficient mechanical heating, ventilation and air-conditioning systems including the use of an energy recovery wheel.
- » On-site renewable energy with the use of a transpired solar collector
- » Enhanced commissioning of building and mechanical systems with future and verification

#### **Materials and Resources**

- » Construction waste management will recycle a minimum of 75 percent
- » Recycled content for new materials will be a minimum of 20 percent
- » Regional materials will be used for a minimum of 20 percent of new work
- » Certified wood products will be utilized.

## Indoor Environmental Quality

- » Outdoor air delivery will be monitored
- » The indoor air quality will be managed and measured as part of the construction and prior to occupancy.
- » Low-emitting materials will be used for interior finishes.\*

"Wright College's award-winning Environmental Technology programs prepare students to chart a more energy-efficient future," said Inman, who has worked at Wright for nine years and is a former Deputy Commissioner at the Chicago Department of Environment. "Our courses cover everything from how to manage buildings' energy use efficiently, to weatherization and renewable energies. And with photovoltaic and solar water heating systems and a green roof, among other sustainable practices, the college's awardwinning campus is itself a learning opportunity."

One of Wright's offerings in particular is probably of interest to Chicago building managers: its Building Energy Technologies basic certificate program. That program helps people learn how to comply with the new Chicago Energy Benchmarking Ordinance that City Council approved last year, which requires buildings in excess of 50,000 sq. feet to report energy consumption data. "As City Colleges works to comply with the new ordinance, the program at Wright is helping other building owners comply using the EPA's Portfolio Manager monitoring tool," says Jeremy Gantz, a City Colleges spokesperson. The City of Chicago expects to employ the EPA tool as part of the newly approved building energy use reporting rules.

## **Building a Greener Future**

With new energy use tools and a fulltime sustainability manager in place and two new facilities targeting LEED certification on the way, City Colleges is confident it can continue to increase energy efficiencies in the coming years. Its optimism is understandable: the system managed to reduce its overall energy costs by \$913,000 in the most recent fiscal year (FY2013), compared to the previous year. Ongoing building energy audits and improved facility management techniques will likely deliver further value to the environment and taxpayers alike. But City Colleges' sustainability efforts aren't only about cost-savings. Brophy hopes they introduce City Colleges students to the importance of everyday habits like recycling and bicycling, as well as less visible institutional practices like energy-monitoring and sustainable procurement. (CCC's goal is that all purchasing should meet or exceed the EPA's Environmentally Preferable Purchasing (EPP) guidelines.) To help students learn about all these efforts, earlier this year CCC created a new web resource at ccc.edu/sustainability.

"Ultimately, as a higher educational institution, we're trying to lead by example," Brophy says. "City Colleges is committed to being environmentally responsible in our daily operations and our long-term planning. But we're also trying to help students commit to sustainable habits they'll carry with them for the rest of their lives."

