



CAPITAL DEVELOPMENT BOARD

Capital Development Board

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Every day is “Earth Day” for the state’s new green building projects

Several innovative state-funded construction projects around Illinois showcase the latest green building technologies

Green – it’s not just for Earth Day any more.

The State of Illinois has many building projects recently completed or in the works that exhibit a high degree of energy efficiency and minimal environmental impact. Projects include college classrooms, armed forces facilities, veterans homes, state office buildings, and even a president’s final resting place.

“It is important that we invest in the green technologies of tomorrow,” said Governor Pat Quinn. “These projects are not only increasing energy efficiency and improving infrastructure; they are also demonstrating our commitment to creating the jobs of tomorrow.”

The Capital Development Board administers all non-road, state-funded construction projects and has been at the forefront of the Governor's push for the use of green technologies in all projects involving state properties, whether it be a roof covered in live plants, geothermal wells for heating and cooling, or no-irrigation landscaping.

Most of these building projects are designed to meet the coveted Leadership in Energy and Environmental Design, or LEED, certification. The LEED certification can be silver, gold, or the highest level obtainable – platinum- a testament to the state's commitment to "going green" with its construction projects. The certification process begins at the early stages of the project. The project team will develop goals for the project and determine what level of certification is to be achieved. The final certification comes after the building is completed and all documentation has been thoroughly reviewed by the U.S. Green Building Council.

LEED is an internationally recognized green building certification system, providing third-party verification that a building was designed and built using strategies aimed at improving performance in energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. Developed by the U.S. Green Building Council, LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

Studies have shown that a two percent investment in "green" materials and techniques during design and construction results in a 20 percent reduction in a structure's energy use and operating costs during the lifetime of a building.

The following is a list by Illinois community of completed or ongoing CDB-administered green building projects. Many are currently in design and therefore specific green technologies to be used in them will be known at a later date.

Green building projects in Illinois

Carbondale

Construction is underway on the \$62.8 million Southern Illinois University Transportation Education Center, which will be submitted for LEED Silver certification. The building should be complete by late 2012. Green elements in the project include the site selection, which minimizes environmental impact; solar reflective roof materials to reduce the "heat island" effect; minimizing light pollution; no-irrigation landscaping and low-flow plumbing fixtures; geothermal energy sources; diverting 75 percent of construction waste from landfills; use of recycled content construction materials; use of materials as much as possible that are obtained within a 500 mile radius; low volatile organic compound emitting interior finish materials to improve air quality; and customizable lighting and temperature controls for each building area.

Champaign

The \$27.5 million Parkland Community College Student Services Center is now in design, and a LEED Silver certification will be sought. Bids will be opened later this year, with completion expected in Spring 2013. Green features to be incorporated include sun shading on the east and west facades of the main entrance to reduce heat; displacement ventilation in the large, open first floor spaces; low volatile organic compound emitting interior finishes; substantial recycled content in building materials; diverting 75 percent of construction debris from landfills; and efficient low-volume plumbing fixtures. In addition, a live vegetation roof and heat recovery devices in the ventilation system are being explored as possibilities.

The \$13.6 million Parkland Community College Applied Technology Addition is now under construction, and a LEED Silver certification is being sought. Ground was broken on March 7, with completion scheduled for Spring 2012. Several of the green design features include alternative transportation access; bicycle storage; storm water management; landscaping with reduced irrigation needs; 75 percent of construction waste will be diverted from landfills; 20 percent of construction materials will have recycled content, and 20 percent will be obtained from the region; low volatile organic compound emitting interior finishes will be used; and geothermal heating and cooling will be utilized.

The \$60.4 million renovation of Lincoln Hall at the University of Illinois is underway, and a LEED Gold certification is being sought for the project. Completion is scheduled for the Spring of 2012. The reuse and rehabilitation of an existing building is greener than constructing a new replacement building. Demolition materials and construction packaging will be recycled; workers will salvage, refinish, and reuse existing wood trim and wood doors; removed slate roofing tiles will be ground up for mulch to be placed in landscape beds; finishing materials will have recycled content; many construction materials will be produced regionally to reduce transportation costs; the building will feature dedicated outdoor air supply units with heat recovery for centralized and efficient fresh air intake and exhaust; low water volume plumbing fixtures will be used; displacement air diffusers will be used in classrooms and the Lincoln Theater; efficient lighting with daylight harvesting and occupancy sensor controls will be included; and variable frequency drives for pumps and motors will save on energy and wear and tear.

Design work is underway on the \$80 million University of Illinois Electrical and Computer Engineering Building, for which the highest LEED certification, Platinum, will be sought. The facility will pioneer several energy efficient building systems and set the bar for future campus building projects. A bid schedule will be established when state funds are released for the project. The building will contain a host of new as well as tried-and-true green technologies: A building envelope with a very high R30 insulation value; a terra cotta pressure equalizing rain screen system; passive solar design to maximize the use of natural daylight; the infrastructure for a 300 kilowatt rooftop solar power system which can supply up to 11 percent of the building's energy needs;

displacement ventilation in large areas to better disperse heated and cooled air; an active chilled beam cooling system for certain areas; energy recovery wheels within the primary ventilation system; recovery of energy from the exhaust created by the heating system; heat recovery chillers to more efficiently produce heated and chilled water; occupancy sensors to control lighting and utilities; LED lighting; low flow plumbing fixtures; variable speed drivers on fans and pumps to save energy and prolong the life of these devices; using no-irrigation native plants for landscaping; 80 percent of the exterior window glazing will be shielded from the direct summer sun; and 100 percent storm water retention through infiltration trenches. The completed building will optimize energy performance to save about 46 percent on energy costs.

Design work is underway on the \$23.2 million University of Illinois Integrated Biotechnology Research Laboratory, and a LEED Silver certification will be sought. Green features will include alternative transportation access; bicycle storage; storm water management and reduced landscape irrigation; water-saving plumbing fixtures; enhanced refrigeration management; 75 percent of construction debris will be diverted from landfills; construction materials will contain at least ten percent recycled materials, and at least 20 percent will be obtained regionally; low volatile organic compound emitting interior finishes will be used; user-controlled lighting systems; and enhanced indoor air quality management.

Chicago

The \$65.5 million 200-bed Department of Veterans Affairs facility in Chicago is in the preliminary design stage. A LEED Silver certification will be sought once the project is complete. The project will be bid in 2012 with estimated completion by the end of 2014.

The \$55 million Truman City College's Student Services Center is nearing completion. LEED Silver certification will be sought for the structure. The new facility includes bicycle storage; a cool roof; no-irrigation landscaping; water use reduction through low-flow fixtures; diverting 75 percent of construction waste from landfills; at least 20 percent of construction materials will be purchased locally or regionally; and low volatile organic compound emitting interior finishes.

In 2009, CDB completed an \$8 million climate control system retrofit for the Michael A. Bilandic Building, a 21 story office and courts building, which featured the installation of new heater and chiller units that have reduced energy consumption by more than 15 percent per year.

DeKalb

Preliminary design work is underway to renovate and expand Stevens Hall at Northern Illinois University. The \$24.5 million project will be submitted for LEED Silver certification.

Edwardsville

Construction is underway on the \$81.8 million Southern Illinois University Classroom and Science Lab Building, for which LEED Silver certification will be sought. Completion is expected in Spring 2012. This new building will include bicycle storage and changing rooms; no irrigation landscaping; diverting 75 percent of construction waste from landfills; at least ten percent of construction materials will be purchased locally or regionally; low volatile organic compound emitting interior finishes; and a cool roof.

Galesburg

The new \$6.05 million Armory and Readiness Center in Galesburg is complete, and a SPiRit Gold certification is being sought – this is similar to LEED Gold certification for U.S. military facilities. The building uses 25 percent recycled content building materials, light-colored roofs to reduce heat islands, adhesives and sealants that meet volatile organic compound limits and carpet systems that meet indoor air quality requirements. Occupied spaces are equipped with louvered sun screens to reduce passive solar heat gain and sound absorbing walls for acoustic environment control. The use of bio-swales, or a detention pond with plantings to help absorb moisture, remove 80 percent of suspended solids in order to help with storm water management. Light pollution was reduced with on-demand lighting and directing illumination downward onto the site. Trees were skillfully located to reduce heat islands and native species were selected so irrigation was not needed. In addition, large overhead doors were located along the south façade of the structure to provide wind protection during the winter months.

Grayslake

The \$23.4 million College of Lake County New Science Building will soon be in the early design stage, and a LEED Silver certification will be sought for the building.

Joliet

The \$8.8 million Joliet Junior College Facility Services Building opened March 29. LEED Silver certification is being sought for this newly-opened building, which features a geothermal heating and cooling system; LED lighting systems; low flow plumbing fixtures; most building materials purchased within a 500 mile radius; maximum use of natural light to provide illumination; a white roof to reflect the sun's rays and cut down on cooling costs; UV-coated windows to reduce fading and cut down on heat entering the building; and low maintenance landscaping that requires less watering.

The \$55 million construction of a Medical and Long Term Care Facility at Stateville Correctional Center is in the early planning stages. A LEED silver certification will be sought once the project is complete.

Kankakee

The \$48 million Armory and Aviation Support Facility in Kankakee is in the early planning stages, with construction scheduled to start in 2013 and completion in 2015. A LEED Silver certification will be sought once the project is complete. Green features will include a bio-moat for security and storm water management; the use of concrete for paving to reduce the "heat island" effect; energy-efficient window glazing and solar ducts to reduce the heat entering the building in the summer; photovoltaic panels to power external lighting; geothermal heating and cooling using water source heat pumps; maximum use of natural daylight to illuminate the building; and high efficiency water fixtures

Macomb

Design work is underway on the \$71.8 million Western Illinois University Performing Arts Center, with a LEED Silver certification being sought. The project is tentatively scheduled for bidding in 2012 with completion in 2014.

Moline

Construction work is underway on the \$18.4 million Western Illinois University Quad Cities Riverfront Campus renovation and should be complete by late 2011. LEED Silver certification is being sought. This renovation of existing buildings includes bicycle storage and changing rooms; a white roof; geothermal heating and cooling systems; no irrigation landscaping; diverting 50 percent of construction waste from landfills; at least ten percent of construction materials are being purchased locally or regionally; low volatile organic compound emitting interior finishes; a 20 percent reduction in water use with low flow fixtures; indoor chemical and pollutant source control; energy efficient lighting system control; and use of natural lighting in 75 percent of the spaces.

Meanwhile, design work will soon begin on the second phase of the WIU Riverfront Campus, a \$42 million project that will feature new construction and existing building renovation that will also be designed to meet LEED Gold specifications.

Mt. Vernon

The \$26.8 million Armed Forces Reserve Center in Mt. Vernon was completed in the fall of 2010 to LEED Silver standards but official LEED certification will not be sought. The project features geothermal heating and cooling, water retention systems, low volatile organic compound emitting interior

finishes, 20 percent recycled content in construction materials, and at least 20 percent of materials coming from the region.

Normal

The \$19 million Heartland Community College Workforce Development Center has achieved official LEED Silver certification. The building opened in August 2007. The 100,000-square-foot building uses 180 geothermal wells to optimize building energy performance; ventilation units which provide a 100 percent outside air supply while efficiently recovering heat from the exhaust air system; strategic sources of natural light to reduce the use of artificial light sources during daylight hours; occupancy sensors for lighting throughout the facility; highly reflective and efficient light fixtures such as T-5 fluorescent tubes and compact fluorescent bulbs; sensors on bathroom fixtures to reduce water waste and keep facilities more sanitary; state-of-the-art carbon dioxide monitoring equipment to ensure high quality indoor air; recycled-content construction materials; low volatile organic compound emitting interior finishes; ground-facing light fixtures to reduce light pollution; low-maintenance landscaping for more efficient water use; recycling bins for paper, cans and plastic bottles placed throughout the facility; green housekeeping practices which utilize less toxic cleaning materials; Green Star or other certified green furnishings; and Energy Star computers and appliances.

Construction of a \$16.5 million Readiness Center in Normal is in the design phase, and a LEED Silver certification will be sought for the project.

Oglesby

The \$30.5 million Community Tech Center at Illinois Valley Community College has been designed and bid dates will be established in the near future. A LEED Silver certification will be sought for the project. Several of the building's green features include dedicated ventilation units that cycle based on room occupancy; energy recovery devices on air handling units; variable volume water pumps; high efficiency hot water boilers and domestic water heating system; variable frequency drives for motors that use less energy and result in longer motor life; lighting controls with occupancy sensors and multiple switching light levels; use of natural daylight for illumination; thermal efficient window glazing; and a reflective white roofing membrane. The building is expected to use about 37 percent less energy than a comparably sized structure without green features.

Palatine

The \$27.1 million Harper College Engineering and Technical Center will soon be in the preliminary design stage, and a LEED Silver certification will be sought.

Quincy

Preliminary design work has begun on the \$14 million renovation of the Kent Building at Quincy Veterans' Home to provide 54 skilled care beds. This renovation will be designed to meet LEED Silver requirements, and certification will be sought for the project. Future phases of the project will bring existing residential buildings at the Veterans' Home into compliance with codes and replace existing beds with skilled care facilities that meet current standards and provide care in a home-like environment.

Rantoul

The state plans \$38.1 million worth of improvements to Lincoln's ChalleNGe Academy at Rantoul, with a LEED Silver certification to be sought. The project will soon be in the design stage.

River Grove

Preliminary design work has begun on the \$14.2 million Technology Building renovation at Triton College in River Grove. A LEED Silver designation will be sought for the project.

Rockford

The \$48.7 million Rock Valley College Arts Instructional Center is in design. Construction is scheduled to begin in 2012 with estimated completion in 2014. A LEED Gold certification is being sought. This new building will feature a host of green features. The site will feature low-maintenance native vegetation that does not require irrigation; bio-infiltration trenches, rain gardens and detention basins to control storm water runoff; rain water harvesting for the re-use of this free water source; roofs covered with live plants; and light colored pavement to reduce the "heat island" effect. The building will include low-flow plumbing fixtures; a ground source geothermal heating and cooling system; large amounts of natural daylight to reduce lighting costs; automated energy efficiency controls; and walls and windows with high insulation values. Recycled, local materials will be used in the construction as much as possible, and rapidly renewable materials such as bamboo wall paneling will be used as well. Paint, carpeting, adhesives, sealants and wood will have lower levels of volatile organic compounds.

Shiloh

The \$7.07 million Shiloh Readiness Center has been built to LEED Silver specifications but official LEED certification will not be sought. The project is complete, and features storm water management; a reduced "heat island" effect; light pollution reduction; low volatile organic compound emitting finishing

materials; indoor air quality, lighting and thermal system controls; and use of natural daylight to provide illumination.

Springfield

The Department of Agriculture Administration Building roof replacement is a \$2.09 million project that was completed last year. It features a roof with live plants that need little care, reduce heating and cooling costs, and control storm water runoff.

The \$376,000 geothermal heating and cooling system at Lincoln Tomb State Historic Site in Springfield's Oak Ridge Cemetery is nearing completion. The wells to support the system were buried beneath the lawn in front of the Tomb so they won't be noticeable by visitors.

University Park

Design work is underway on the \$23.3 million project to renovate vacated space in the E and F wings at Governors State University for college use. The project will be submitted for LEED Silver certification.

Smaller Green Projects

The State of Illinois has received an \$8.3 million grant from the American Recovery and Reinvestment Act for energy-saving upgrades at state-operated facilities. Most of these improvements will be made this year, with other projects to be added in the near future:

- Collinsville Regional Office Building, replace and upgrade climate control systems and lighting.
 - McFarland Mental Health Center, Springfield, climate control system and boiler improvements in Building A.
 - James R. Thompson Center, Chicago, replace lighting and exit signs, \$708,950.
 - Department of Agriculture Administration Building, Springfield, replace lighting and water heaters, \$646,864.
 - Abraham Lincoln Presidential Museum, Springfield, LED lighting upgrades, \$25,676. The project is complete.
 - Illinois Youth Center – St. Charles, replace water heaters.
 - Fox Developmental Center, Dwight, replace water heaters.
 - Vandalia Correctional Center, replace water heaters.
 - Centralia Correctional Center, replace water heaters.
 - Jacksonville Correctional Center, replace water heaters.
- Lincoln Correctional Center, replace water heaters.