



**USGBC**  
Chapters in the Carolinas



BE&K Building Group



## Welcome from the USGBC Chapters in the Carolinas Leading Green Building Education and Advocacy in the Carolinas

As Chapters of the U.S. Green Building Council, our collective mission is united: to transform the way buildings in the Carolinas are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life in this region.

To that end, we are dedicated to educating and advocating on issues related to green building and sustainable development practices. Our chapters' membership comprises leaders and visionaries from all facets of the building industry and across sectors - from product manufacturers, environmental organizations, building owners and building professional to utilities, governments, research institutions, professional societies, universities and chambers of commerce. We know that, as important as it is to keep our own industry well-ahead of the green building curve, it is equally important to educate and inform the stakeholders and community leaders who have significant influence over building and policy decisions.

Our goal is to educate designers and builders about how to build more sustainably, to educate owners and end-users about the benefits of sustainable design, and to identify and fill gaps in the delivery chain of educational programs that our chapters offer. It is important that we identify state and federal sustainability issues, build relationships within the green building industry, and target service to underserved communities and groups.

Our USGBC Chapters' advocacy role also will continue to grow in importance as the benefits of green building increasingly are recognized by lawmak-

ers. In addition, we know that we must continually develop leadership capacity within our organizations, and to grow the next generation of knowledgeable green building experts.

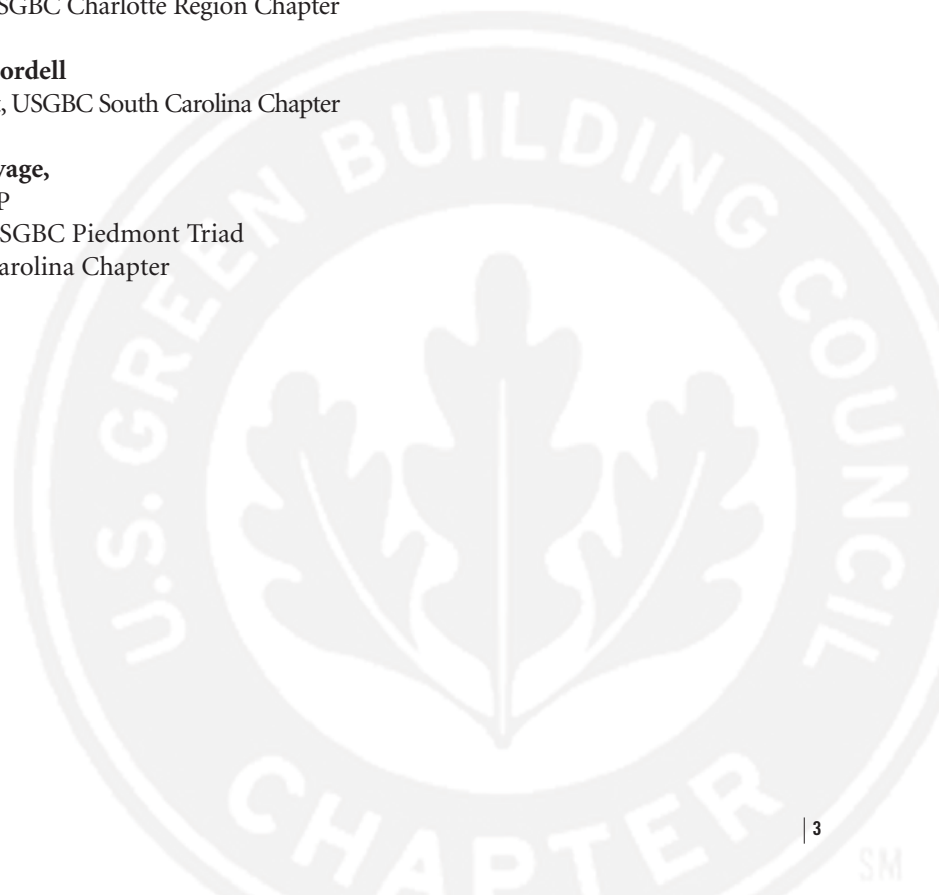
We look forward to continuing to develop relationships with chapters throughout the country, the Southeast and adjacent states. Not only can we share resources, we can share lessons learned to streamline and strengthen our green building efforts. We invite you to join us as we work to spread the message and mission of green building in our communities.

**Douglas Brinkley** AIA, LEED AP  
Chair, USGBC North Carolina  
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**Brian Bumann** RA, LEED AP  
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## Senate Bill 668: Promoting Green Building in North Carolina NC Triangle Chapter's Collaborative Advocacy Efforts Help Ensure Legislation's Passage



One of the two buildings that was used as the case study model for presentations on SB-668 after it was signed into law and codified as SB-1946. (Photo courtesy JWest Productions.)

Janet Cowell.

Due to the potential significance of this proposed legislation, it was clear to those of us in the building and design community that we needed to become involved in an advisory capacity, not only to make our voices heard, but also to ensure that the legislation incorporated meaningful and attainable levels of energy and water conservation.

To this end, the North Carolina Triangle Chapter of the USGBC joined forces with AIA North Carolina, the State Energy Office, the State Construction Office and Professional Engineers of North Carolina to form a separate but united entity, the North Carolina Sustainability Coalition. Our goal was to find the common ground between our organizations in order to speak with one voice in our advocacy efforts. After many meetings to review, discuss and debate the proposed bill drafts and what levels of conservation would be appropriate, the coalition honed in on 30 percent energy and 20 percent indoor water savings. As the bill moved through its final edits, 50 percent outdoor water savings and mandatory building commissioning was added, completing the package of sustainable legislation for state-owned buildings.

At the end of the 2007 General Assembly session, the bill was ratified as SB-668 and codified as General Statute 143-135.35 through 143-135.40 through Senate Bill 1946. The legislation establishes a new Sustainable, Energy Efficient Buildings Program which requires new buildings 20,000 gsf or larger of occupied

or conditioned space to exceed energy efficiency requirements of ASHRAE 90.1 2004 by a factor of 30 percent.

For renovations, the bill requires 20 percent energy savings for projects whose renovation costs are 50 percent or greater of the insurance value of the building, and the renovated portion of the facility is larger than 20,000 gsf of occupied or conditioned space. Facilities also must consume 20 percent less indoor water than the baseline calculated for the building per the fixture performance requirements of the 2006 NC Plumbing Code.

In order to be able to verify the mandated performance requirements, the legislation requires that each energy and water component of the building shall be commissioned beginning no later than the schematic design phase and continuing through the initial operation of the building. To be able to monitor the initial cost and continuing costs of the energy and water systems, the statute further requires that a separate meter be installed for each electricity, natural gas, fuel oil and water utility system.

Since the bill impacts projects that entered their schematic design phase on or after Aug. 8, 2008, the overall financial savings is yet to be fully realized. However, the taxpayers of North Carolina should anticipate that SB-668 will save them tens of millions of dollars on an annual basis in unused energy and water costs.

I can't help but think that the sustainable vision of the then Senator Cowell soon will bear the fruit of economic and environmental savings not only to the citizens of North Carolina but also to her in her role as state treasurer. How sweet the irony.

**By Douglas M. Brinkley AIA, LEED AP  
Chair, USGBC North Carolina Triangle Chapter**

Early in 2007, Senate Bill 668 came onto the radar screen of many people, not only in state government, but also in the business and industry communities in North Carolina. This forward-thinking legislation is an act to promote the conservation of energy and water use in state, university and community college buildings throughout North Carolina. The primary sponsor for this legislation was then state senator, now Treasurer



## U.S. Green Building Council North Carolina Triangle Chapter: The Go-To Green Resource in North Carolina's Triangle Region



The chapter's Talk-N-Walk tour group at the SAS Solar Farm in Cary

**By Douglas M. Brinkley, AIA, LEED AP  
Principal, Pearce Brinkley Cease + Lee, PA  
Chair, USGBC North Carolina Triangle Chapter**

The seed for North Carolina's first U.S. Green Building Council chapter was planted by one of the country's earliest green champions of sustainability, the late Gail Lindsey, FAIA. She was instrumental in developing the USGBC's LEED rating system and was a founding member of the American Institute of Architect's Committee on the Environment. Gail was a friend and mentor to many of us and her influence created the "green spark" that ignited the chapter's development in 2002. Since its inception, the North Carolina Triangle Chapter has grown from a founding core group of eight people to almost 500 members today.

Interest in green building is strong throughout the state and in addition to the birth of the Triangle Chapter, two other robust and viable chapters have developed in the state, the Charlotte Region Chapter and the Piedmont Triad Chapter. Our three chapters continue to experience increased interest by the



The SAS Solar farm solar panels.



**Maria Kingery, co-owner of Southern Energy Management, the company that installed the SAS solar farm, with Douglas Brinkley AIA, LEED AP, chair of the Triangle Chapter. (Photo courtesy Russ Stephenson - Raleigh City Councilor**

building industry in the USGBC and the LEED rating systems, and have grown to a combined membership of more than 1,100 members. This rapid growth is testimony to Gail's legacy and how important sustainable building prac-

tices have become in North Carolina.

The North Carolina Triangle Chapter's mission is to be the regional point of contact to promote development, design and construction practices, buildings and communities that are environmentally responsible, profitable and healthy places to live and work. With this mission, we work to serve the Triangle Region and the state of North Carolina through implementation of the LEED rating systems, information exchange and education. We seek to encourage widespread knowledge and acceptance of LEED including an integration of high performance guidelines into every project.

Success is evident across the state in the ever-increasing number of projects which have been registered for LEED certification. Currently there are more than 500 LEED registered projects in

North Carolina and 80 more that already have achieved their certification.

Our chapter's three primary goals for 2009 and 2010 are:

1. To become the "go to" green resource organization in the Triangle and in North Carolina;
2. To increase the diversity of our programs and membership to effect a more equitable and economically profitable community; and
3. To implement a statewide advocacy program to educate and promote for policies and legislation which will have a responsible positive impact on the built environment.

We invite you to visit our website at [www.triangleusgbc.org](http://www.triangleusgbc.org) and to join our chapter in our journey towards a more sustainable North Carolina.

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Crozier Architecture LLC



## U.S. Green Building Council Piedmont Triad Chapter, North Carolina

### Growing the Next Generation of Green Leaders

**By Beth Sinnott, Chapter Secretary**  
**Matthew Rodda, Chapter Vice-Chair**  
**Jennifer McLean, Chapter Development**  
**Associate - Southeast**  
**USGBC Piedmont Triad North Carolina Chapter**

The Piedmont Triad region of North Carolina, with more than 20 higher education institutions in a relatively compact area, shows tremendous opportunity to be a leader in green building research, training and partnerships. This region of North Carolina consists of 12 counties in north-central North Carolina and is named for its three major cities - Greensboro, Winston-Salem and High Point. The area's economy historically has concentrated on textiles, furniture and tobacco. While there still is considerable manufacturing, transportation services and tourism/hospitality are gaining prominence in the regional economy. Connecting the marketplace with academia and young professionals is critical for taking sustainability to the next level.

The Piedmont Triad Chapter of the U.S. Green Building Council is working to support the exciting projects now underway as well as create new partnerships. The following projects are great examples of the energy and possibilities coming out of universities and community colleges in the Triad.

#### Reaching for perfection at the Proximity Hotel

One of the most exciting developments in the Triad is a public-private partnership between a local university and a highly successful hotelier. The Proximity Hotel in Greensboro, well-known to many in the green building community for being the nation's first LEED Platinum hotel, also is a research site for the School of Engineering at the North Carolina Agricultural &



Greensboro, N.C.'s Proximity Hotel is the only LEED Platinum hotel in the United States.



The Proximity Hotel lobby

Technical University. The result is a much-coveted one-year record of sophisticated energy measurements that have led to significant carbon and cost savings for the owner, hands-on experience for the engineering students, and a model for future partnerships.

The university is a historically African American college that was established in 1891 and built in 1893. For its small size (around 10,000 students) it has a respectable and growing research portfolio. The School of Engineering holds grants from the U.S. Department of Energy, Department of Transportation, NASA and the National Science Foundation. The research projects, while highly technical, have immediate practical applications in the region's diverse marketplace.

In the design stage, the owners of the Proximity Hotel found themselves only



The hotel's suites offer unmatched city views.



My Sister's House

a few credits short of qualifying for LEED Platinum. The engineering program, with the help of a grant from the Department of Energy, had the answer - enhanced commissioning. Beyond standard commissioning, which ensures that systems are functioning as designed, LEED enhanced commissioning requires involvement by the commissioning agent in all phases of the project from design through construction - even including staff training after the construction is complete.

Using sub-meters on multiple systems, the engineering students worked with the building owner and operators to optimize the solar thermal system and boiler operation to deliver the energy savings the project designers had anticipated. Without the students' time and dedication this may not have been possible.



## Designing for the greater good at My Sisters' House

Another university project in the area demonstrates the impressive energy and broad social consciousness of the new crop of design students. These young people illustrate how the principle of sustainability can do more than save energy - it also can change how we connect with our communities. A team of students at the UNC-Greensboro School of Interior Design is partnering with the nonprofit group Youth Focus to deliver a LEED-certified facility for young women in the community.

The project is called My Sisters' House and will serve as a home for young single mothers and their children, who may otherwise become homeless. The student team hopes to gain the LEED certification and open its doors in the fall of 2009. Janel Graupensperger, a senior who leads the project, obtained her LEED Accredited Professional credential in order to pursue this project. "Sustainability is everything," says Graupensperger. "It's about sustainable materials and energy efficiency but it also is about being a good neighbor and doing the right thing."

As if managing a LEED project and completing a thesis were not enough to keep her busy, Graupensperger also is preparing to lead a group of Emerging Green Builders (EGBers). EGB committees exist in many USGBC chapters. They are set up to be self-organizing in order to discover the interests and needs of newly graduated students and young professionals.

When asked what the future needs and interests of the EGBers might be, her answer was enlightening. Instead of requests for professional mentoring and networking (which are important), she stressed the need to reinforce the principles of sustainability and deliver on the intellectual side of the equation with, for example, topics on bio-mimicry and cradle-to-cradle design.

## Building a Strong Foundation in Sustainability at Community Colleges

The Triad's Community Colleges are incorporating sustainability into their curricula as well. Lead by Marty Marion, AIA, LEED AP, the coordinator for the Architectural Technology program, Forsyth Technical Community College (FTCC) offers an associate's degree in applied science. "We use sustainable/green design as the filter for virtually any architectural topic," says Marion, who has been actively integrating sustainable design practices into his teachings for more than seven years.

As a measure of their success, the students from FTCC have garnered many awards from the North Carolina Sustainable Building Design Competition. Created in 2000 as a way to engage students from universities, colleges and community colleges in sustainable design and construction, student teams submit display boards, specification manuals, energy calculations, budgets and completed LEED checklists for review by a panel of judges. FTCC entries have been very successful over the years, placing second twice and third twice, while taking home at least five honorable mentions.

At the eastern edge of the Triad, Alamance Community College (ACC) will launch a certificate program in alternative energy technology in the fall of 2009 with student's completing up to 18 credit hours studying environmental sustainability, renewable energy and alternative power systems. ACC also is developing an associate's degree program in alternative and renewable energy. Students that graduate from both of these programs receive a quality education and are able to transfer directly into a four-year program or begin a career with a strong knowledge of sustainable technologies.

These examples - and many others - show our region can depend on our youth and our higher education institutions to keep us energized and focused in the green building revolution. The prospect of green building research, training, and partnerships in the Piedmont Triad and elsewhere in the Carolinas is very exciting!

## Rain Checkers



## U.S. Green Building Council Piedmont Triad North Carolina Chapter: Taking the LEED in the Sustainability Revolution

**By Greg Savage, LEED AP**

**Director Sustainable Construction, John S. Clark Company LLC  
Chair, USGBC Piedmont Triad North Carolina Chapter**

The USGBC Piedmont Triad North Carolina Chapter is the youngest of the North Carolina chapters. We began our journey about four years ago and through a collaborative effort of a very committed and talented board of directors and our many other volunteers, we became a chapter in September 2008. Our membership has grown dramatically, and continues to increase and exceed our goals.

Our chapter's mission is to accelerate the implementation of sustainable building concepts, technologies and practices through education and advocacy in the Piedmont Triad, North Carolina communities and region.

We have completed many educational and outreach sessions, including LEED AP study groups. We are developing this year various LEED resource groups with helpful green building information posted on our website. We have a new Emerging Green Builders group made up of students and young professionals that are energized in bringing green buildings to the region and to our future. And we have seen an overwhelming increase in new projects being registered for LEED and many getting LEED Certified, with even more still under discussion. We have developed an alliance with many government agencies and other environmental groups through our advocacy efforts.

There is a green building revolution that is real, important, sustainable and happening all around us. The seeds of change have been planted and it is apparent that we are all a part of a larger sustainability revolution that is becoming mainstream throughout the world. It is time to begin transforming the marketplace for buildings, homes and communities. To refocus on the benefit of the green built environments for the human community where it is not just buildings but it is the people.

Our chapter is prepared to embrace the many challenges as part of this essential transformation of the built environment. We all must embrace this movement and have a broader vision to bring it to all people. Our chapter initiatives in 2009 and 2010 will be a grassroots effort to advance green homes, green buildings, green schools and sustainable cities by increasing our

education and outreach programs to the communities. We will focus on fostering social equity, promoting green collar jobs to retrofit America, advocating for green building policy and renewable energy to help reduce global climate change and depletion of our natural resources, and promoting green innovation.

The main step for true sustainability is to ensure the livability of our planet for generations to come. We challenge everyone to embrace this green building movement, get involved, and help us to promote and create healthy communities for all people regardless of income, race or any other social factor.

Please visit our chapter's website at [www.usgbc-ptnc.org](http://www.usgbc-ptnc.org), share our vision and join us.

Southern Community Bank



## U.S. Green Building Council South Carolina Chapter: Programs Deliver Leading-Edge Green Building Education



Hubbell Lighting Solutions Center, LEED Silver (Image courtesy of McMillan Smith Partners)

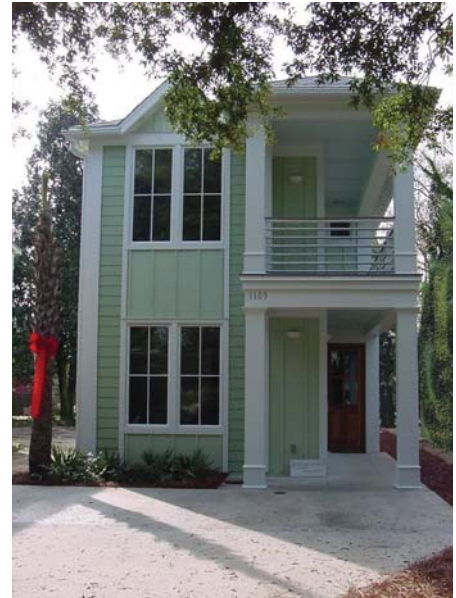
**By Jenny Wiedower**  
**Executive Director, USGBC South Carolina**  
**Chapter**

The South Carolina Chapter, now in its fifth year of operation, continues to grow in size, impact and credibility within the state and our region. Development across the state - from coastal resorts to urban manufacturing to rural campuses - is moving in a sustainable direction, and USGBC-SC Chapter wants to create a positive impact on the state's building environment by accelerating the adoption of green building practices, technologies, policies and standards.

In the past year alone, South Carolina has added 14 names to the list of LEED-certified commercial projects, and the

number of registered LEED projects has grown by 60 percent. Despite a slow economy, our chapter membership continues to grow, as a diverse cross-section of private and public sector individuals understand the value to everyone of sustainable communities.

Four branch regions throughout the state (Upstate, Midlands, Grand Strand and Lowcountry) serve as centers of activity for chapter members and the greater community. Each branch hosts monthly educational meetings (that's 48 programs each year!) that are valuable and convenient, and challenge attendees to embrace innovative elements of sustainability. Branches often team-up to co-host programs with some obvious partners (AIA, IFMA, ASHRAE), and



LEED Gold Home in Georgetown, SC (Image courtesy of Walsh Krowka and Associates)

sometimes not-so-obvious partners (chambers of commerce, local nonprofits) in order to reach a wider audience whose relationship with the built environment differs from professionals in the building industry. Through the well-established, successful branch structure, the chapter is able to facilitate local-level green building networks, and build its exposure and integrity through the state.

Two new efforts at the chapter level already are significantly impacting South Carolina's green building community and policies. 2009 marked the South Carolina Chapter's first statewide conference and expo devoted solely to sustainable communities and green building: Sustain SC, held in Greenville, S.C., May 7 and 8. In its inaugural year, Sustain SC offered nationally recognized keynote speakers, 14 top-notch educational ses-



Lexington Medical Center Medical Office Building, LEED Silver (Image courtesy of Lexington Medical Center)

sions, building tours and networking sessions. It was met by more than 300 attendees, including a sold-out expo hall and a significant number of out-of-state attendees, thanks to the efforts of neighboring USGBC chapters. Sustain SC 2010, planned for early summer in the Charleston area, will be even bigger and better, so please stay tuned for details!

A chapter advocacy committee has expanded, leveraging the branch region expertise to identify and address policy and public interest issues at the local, regional and statewide levels. Subcommittees focused on green schools and green residential development work with the larger committee and a USGBC representative to mobilize information resources that complement the chapter's education and programs efforts.

The South Carolina Chapter is led by an extremely dedicated and talented board of directors and branch steering committee structure. More than 60 individuals throughout the state are in leadership positions, representing most of South Carolina's geographic areas and green building industries, while providing a wealth of experience to grow and strengthen the chapter. Standing committees manage chapter finances, membership, communications, programs, governance and more; and committees such as advocacy, education and research are ramping up efforts to have a greater impact in the body of knowledge available in SC in the green building sector. All committees are accepting new members.



North Charleston Elementary School, LEED Silver (Image courtesy of The Noisette Company)

In 2008, thanks to a matching grant through USGBC's Chapter Challenge Grant program, the chapter hired its first executive director, in an effort to extend its

scope and reach even further. The future of this organization is extremely exciting, and we welcome you to join us in shaping our chapter to best serve our state.

Pine Hall Brick



## Building Information Modeling and High Performance Buildings

**By M. Dennis Knight,  
P.E., CCS, CxA, LEED® AP  
Principal and Director of Practice  
Management, Liollo Architecture, Charleston  
Chair of the USGBC South Carolina Chapter  
Statewide Advocacy Committee**

Have you ever wished for a tool that would allow you to avoid a broken building or busted budget before the first front-end loader displaces a bucket of earth, or the first yard of concrete has been ordered? What if there were tools that could allow you not just to visualize how a building's exterior skin may look in three dimensions, but also to see how every piece of structure, assembly and operating system within it will look, fit and work together in three-dimensional, geometrically precise, photo-realistic clarity? A tool that would provide analytically correct visualization before a project is ever submitted to a local jurisdiction for approval or advertised for bid? That tool may be Building Information Modeling, or BIM, as it is becoming widely known.

The USGBC's LEED® rating system and other similar building performance rating systems like Energy Star, Green Globes and Earthcraft are transforming the building industry by focusing on reducing the environmental impact and

energy consumption of the built environment while, at the same time, improving the social benefits of both indoor and outdoor building environments for their occupants and the community. Buildings designed, constructed, operated and maintained according to these building performance rating systems guidelines are known as High Performance Buildings. BIM will provide owners, design professionals, and construction professionals with the tools necessary to meet these high performance demands.

According to the National Institute of Building Sciences' National Building Information Modeling Standards a Building Information Model is "a digital representation of the physical and the functional characteristics of a facility. As such it serves as a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle from inception onward."

BIM-capable software tools either may be integrated or interoperable. Integrated tools offer solutions to many separate design and construction processes and functions, such as physical modeling and analytic modeling in a single, sole source, proprietary software package. Interoperable tools allow the use of many separate software products that perform very specific physical or analytical modeling tasks. These have been developed by different companies to function together through either open or proprietary standard data exchange formats such as International Foundation Classes and Green Building XML.

Whether integrated or interoperable, these tools may or may not be parametric. Parametric means that a change made to one or more physical or analytical models triggers an automatic, simul-

taneous change in all other related, associated and affected physical and analytical models - thus keeping data current between all models in real time. For example, if an integrated tool or interoperable set of tools is being used to design a building and the designer decides to change the window glazing to a higher performing product in the physical model, then all related analytical models -- such as daylighting analysis, lighting design and HVAC systems load analysis, and the physical model of the HVAC system's air distribution layout and related systems -- simultaneously would be updated to reflect the effects of the change in glazing. Non-parametric, yet interoperable, tools would require the changed data to be exported out of the physical model and then be imported into the various analytical models via one of the data exchange formats to update all related systems and component design. Once the analytical models are run with the changed data, then their results would be exported out of the analytical tool and imported into the physical model to keep all data current. Though a multistep process, this increases accuracy by referencing one consistent database and improves productivity by eliminating many of the mundane tasks of manual data takeoff and creation.

Few, if any, tools exist today that allow the physical design and analytical modeling of all aspects of a building's design, construction, operation and maintenance in a single software tool. However, many companies offer integrated and interoperable products that can perform many of the major physical and analytical modeling tasks. These tasks include such things as architectural design, structural design, energy analysis, HVAC system design, lighting design, daylight simulation, code checking, physical coordi-



nation and clash detection, program validation, space planning, inventory management, cost estimating and scheduling, and facility management using one consistent and related set of data.

BIM tools help enable design and construction teams and committed owners to achieve high performance in a built environment. They allow building designers, constructors and owners to optimize the whole building, rather than taking a silo approach to optimizing standalone components within the various disciplines and trades involved. The use of BIM tools, as part of an integrated approach to building design and project delivery, facilitates better communication, increased collaboration and enhanced coordination earlier in a project's life cycle. That leads to better deci-

sions that increase the ability of stakeholders to have positive effect on a building's social, environmental and economic costs and impacts sooner, while the project is still in the design phase rather than later after the installation of bricks and mortar have begun.

A BIM created at a project's inception can provide value and savings during the design and construction phases of a project. However, roughly 85 percent of a building's cost occurs after it is occupied. Thus, greatest value of BIM will accrue to owners who require its use during design and construction and then develop the management processes and discipline to use and maintain the BIM throughout the building's life cycle.

As building performance rating systems are transforming the built environ-

ment, so too are BIM tools transforming the way buildings are designed, constructed, owned and operated to meet the challenges and demands of those rating systems. Building owners, users, communities and municipalities within our country and around the globe are demanding that we reduce our dependence on the use of fossil based fuel sources and protect the environment. BIM along with intelligent, thoughtful and respectful design and construction practices can help us do just that.

For additional information on the availability of integrated and interoperable BIM products see the BIM Handbook, A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers, and Contractors published by in 2008 John Wiley & Sons.

## Kinetics



## USGBC Charlotte Region Chapter LEED, Energy Star, Asset Value and Retrofits

**By Derek McGarry, PE, LEED AP**  
**President, Refresco PLLC**  
**Board Secretary, USGBC Charlotte Region Chapter**

Today's commercial real estate market is taking a beating, with a grueling recovery likely a long way off. As financing for new development activity has dried up, the focus throughout the market has quickly turned to existing investments. Owners and property managers are finding they must put their best foot forward to attract, or even just retain, tenants. In many cities, a glut of new space combined with shrinking companies has made for an extra-difficult market. These factors have pushed USGBC's LEED for Existing Buildings, Operations and Maintenance (LEED-EBO&M) rating system to the forefront. LEED-EBO&M provides a framework for environmental, comfort and efficiency improvements through upgrades in existing buildings.

In the public sector, a different motivation has inspired a focus on existing buildings. Several federal grant programs, funded through the recent American Recovery and Reinvestment Act of 2009 have municipalities across the country scrambling to come up with the best ways to capitalize on extra funds. Grants through the Department of Energy, called Energy Efficiency and Conservation Block Grants, allow investments in energy efficiency projects and other emissions-reduction strategies. Again, LEED-EBO&M has arrived at the table with an attractive process.

For those building owners that want to forge ahead and prepare for economic recovery, the main push is to increase the future sale price of their assets. LEED-EBO&M can come through with a solution. A growing demand for buildings that are LEED-NC (New Construction) certified has boosted sales and leasing data to support green investments. LEED-EBO&M allows owners to apply the same

concept to their existing portfolio.

Regardless of industry or sector, there is one more driving factor that has increased the activity in building retrofits – rising energy costs. In many areas across the Southeast, a large portion of our power supply comes from coal-fired plants. Unstoppable demand from emerging economies, even in the recession, has caused the price of fuel to increase drastically. Future growth projections will continue this pressure. In North Carolina, Duke Energy Carolinas recently sought approval for an 18-24 percent increase in utility rates in one year. This comes on the heels of flat rates for the past three decades.

The LEED-EBO&M rating system presents a relatively low cost way for owners to reduce costs and increase existing asset value. Three of the five main categories of the certification have to do with energy, water and indoor air quality (IAQ). All three impact the bottom line. Energy costs and water costs are rising, and IAQ directly impacts productivity in the workplace.

Figuring out how to address all these issues in a streamlined process has been a challenge for many that are exploring LEED-EBO&M certification. A historically attractive method of improvement, called Retro-Commissioning (RCx), has quickly been realized as a primary driver for leading the LEED-EBO&M vision. A hybrid approach, by adding some extra issues not historically included with RCx, has made this process a practical, no-nonsense path to certification.

Sometimes referred to as a building tune-up, RCx is a systematic process to improve how equipment and systems within a building function together. The fundamental benefit of such an approach is that an owner can maximize the value of what has already been paid for and installed in their facility. Many commercial buildings, especially larger ones, have complex systems comprised of large pieces of equip-

ment, from different vendors, speaking multiple control languages, and they are expected to communicate together in harmony. No matter how good a continuous maintenance plan is, no matter how few complaints are logged by property managers, almost every existing building can benefit from RCx. The Environmental Protection Agency suggests that RCx be performed every three to five years. A study of more than 100 RCx projects by Lawrence Berkeley National Laboratory (LBNL) found that the median payback of such a process is less than a year. The primary reason for this is that low-cost/no-cost operations and maintenance improvements can save big-time.

The statistics speak volumes on the opportunities that exist in existing buildings. Through building tune-ups, the LBNL study found that whole-building energy use can be reduced by an average of 15 percent (with the median payback time in less than a year). Reducing operating costs helps to maintain or build occupancy rates, reduces tenant turnover, and enables an owner to gain a competitive edge in the marketplace. 3rd party validation from LEED-EBO&M (including Energy Star) provides further enhancement.

If a registered professional engineer leads the RCx process, the owner can address IAQ issues at the same time. A building's indoor environmental quality affects the health, comfort and productivity of its occupants and ranges from mildly inconvenient to very serious. Retro-commissioning can help identify and address problems that can lead to future liability.

The process of RCx is focused on identifying and addressing O&M issues and low-cost improvements. It is important to realize that the process naturally illustrates capital-intensive upgrade opportunities as well, but is of secondary priority. It makes sense to execute O&M improvements immediately. Some low-cost measures, however, may not be appropriate if it applies to a system in need of replacement. An RCx process should consider the condition of all major building systems: enve-



lope, mechanical, lighting and plumbing. Understanding (or creating) the owner's capital planning needs in the future is necessary to balance the focus of efforts.

If a system is tuned up, it often goes from a state of overworking and under-delivering to a state that requires less work for improved comfort conditions. The byproduct of improving system performance is increased equipment life and reduced need for future repairs. This saves money and results in fewer comfort complaints, reducing headaches and costs for the owner.

A large portion of points from the LEED-EBO&M rating system comes from the building's energy performance. The program that USGBC has aligned with is the EPA's Energy Star certification for buildings. Using an online tool called Portfolio Manager, an owner or agent can review key energy use metrics and see how it stacks up to other buildings in the marketplace. More and more tenants are becoming concerned about environmental issues and how their work place measures up. Using the Portfolio Manager, an owner can generate a score from 1-100 that ranks their building against similar buildings. The online tool normalizes for the largest variables: weather, utility rates, equipment intensity, and occupancy.

Over time, Portfolio Manager can be used to validate the impact of RCx and other improvements. The brand recognition and success of Energy Star (created in the late 1980s) has developed the necessary trust from the marketplace that both owners and occupants can buy into.

The HVAC society that also provides the basis for most state energy codes, ASHRAE, has recently adopted a Building Labeling Program. Harnessing the power of Energy Star, ASHRAE has joined forces to promote more widespread use of the program. Before we know it, every prospective tenant or buyer will know how well your facility stacks up against the competition. With rising energy costs and attention on the environment, LEED-EBO&M is quickly becoming the de facto approach to maximize the value of real estate investments.

## U.S. Green Building Council Charlotte Region Chapter: Young, Growing and Active Chapter Making Its Mark on Green Building in North Carolina

**By Brian L. Bumann, RA, LEED AP  
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Chair, USGBC Charlotte Region Chapter**

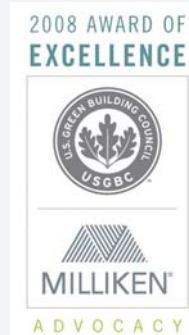
The USGBC Charlotte Region Chapter was founded in 2005 by an interest group of 50 citizens. In four years, it has grown to become one of the strongest USGBC chapters with 470 members. At the 2007 Greenbuild Conference in Chicago, the chapter won two out of four awards in the small chapter category. In 2008 at Greenbuild in Boston, the chapter won three out of four awards. These were for advocacy, community and education, with an honorable mention for organizational excellence. These awards would not have been possible without the dedication of a 100-percent volunteer board of directors and committee leaders. In November of 2008 we were fortunate to be able to add a part-time staff person. In June of 2009 we were notified by USGBC National that we were awarded a matching challenge grant to hire a full-time executive director.

The Charlotte Region Chapter is now the foremost leader in the community in providing the highest quality educational programs to advance green building and sustainable development practices.

To date, we have provided

- More than 75 programs with in excess of 3,000 in attendance;
- Hosted more than 30 USGBC National workshops with more than 1,000 in attendance;
- Made more than 50 presentations to all market segments.

In 2009, we have made a concerted effort to expand our outreach and educational programs. We have formed relationships with NC Sustainable Energy Association, Carolinas Clean Air Coalition, Habitat for Humanity, Central



The chapter has repeatedly been honored with USGBC awards like this one in 2008 for its advocacy efforts.

Piedmont Community College's Center for Sustainability and many others. These alliances will allow us to reach a greater population to advance our mission: "To promote and advocate for sustainable buildings, sites, practices, products, and lifestyles, through the education of professionals within the building and related industries, academia, public and private organizations, and the greater Charlotte, N.C., community."

Our advocacy committee and its schools and residential subcommittees are very active in the community. In the first six months of 2009, they made more than 15 presentations to local municipalities, real estate brokers, developers, school boards and home builder associations.

Though the economy is experiencing a slump, the demand for green building education is on the upswing and the Charlotte Region Chapter is positioning itself to deliver.

I would like to extend a heartfelt thank you for all the hard work of the board members, committee leaders and volunteers, and also extend this to our chapter sponsors and all the support we have received from the community.

Hold onto your seats! Greater things are getting ready to happen in the Charlotte Region.

Please visit us online at [www.usgbcsc.org](http://www.usgbcsc.org) to learn more.

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