

# ForumNews

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High LEED ratings *can* be achieved with historic buildings. With its rehabilitation of the President Lincoln's Cottage Visitor Education Center in Washington, D.C., the National Trust initially aimed for a silver rating but is now on track to earn gold. This project will also be used as a pilot to test the Alternate Compliance Path. Photo courtesy of the National Trust.

## HOW CHANGES TO LEED™ WILL BENEFIT EXISTING AND HISTORIC BUILDINGS

By Barbara A. Campagna, AIA, LEED AP

Buildings are the largest contributor to the greenhouse gas emissions that cause global warming—and making buildings more energy efficient is one of the most immediate and measurable ways to address this growing concern. The advantages of “green buildings” are well documented: 30 percent energy savings, 35 percent carbon savings, 30-50 percent water savings, and 50-90 percent waste cost savings.

The U.S. Green Building Council (USGBC)—see [www.usgbc.org](http://www.usgbc.org)—is a nonprofit organi-

zation founded, in the words of its mission statement, “To transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.” A steering committee of the USGBC developed the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ to provide universally understood and accepted tools and performance criteria that encourage and accelerate global adoption of sustainable

green building and development practices. LEED encourages construction practices that meet specified standards, resolving much of the negative impact of buildings on their occupants and on the environment. Green buildings in the United States are certified with this voluntary, consensus-based rating system.

The USGBC was formed in 1993, and in 1998 the LEED 1.0 pilot program was released. By March 2000, 12 buildings had been certified under the pilot program. During the pilot period extensive revisions were made and by March 2000 LEED 2.0 was released to the marketplace.

In just eight years this rating system has truly changed the market and how architects practice. As of May 1, 2008, 3.5+ billion square feet of building projects (10,000+ individual projects) have registered intent to seek LEED certification, with dozens more signing up every day.

LEED certification is increasingly respected in the building industry as a recognition of social responsibility and leadership in an emerging field. Many state and local governments, and some federal agencies such as the U.S. General Services Administration, now recommend or require that construction projects earn a LEED rating. And, in addition to reaping the economic benefits of sustainable design—from improved worker productivity and health to lower operating costs—LEED-certified buildings in a few states and cities can now qualify for financial incentives. The list of available incentives is likely to grow.

### THE LEED RATING SYSTEM

The initial LEED rating systems were for six types of projects: New Construction & Major Renovations, Existing Buildings (which is for maintenance and operations, *not* rehabs of historic/existing buildings), Commercial Interiors, Residential, Core & Shell, and Multiple Buildings. Today there

CONTINUED ON PAGE 2

# BENEFITS OF LEED CHANGES

CONTINUED FROM PAGE 1

are several other rating systems, for Neighborhood Development (which is just coming out of the pilot phase), Schools, Retail, and Healthcare. The one most commonly used is LEED-NC: New Construction & Major Renovations.

There are four levels of LEED recognition—certified, silver, gold, and platinum—which are reached through a point system using a LEED score card. Scores are tallied for different aspects of efficiency and design in six categories:

1. *Sustainable Sites*
2. *Water Efficiency*
3. *Energy & Atmosphere*
4. *Materials & Resources*
5. *Indoor Environmental Quality*
6. *Innovation & Design Process*

## INTEGRATING PRESERVATION VALUES INTO LEED: THE SUSTAINABLE PRESERVATION COALITION

The Sustainable Preservation Coalition has been advising the U.S. Green Building Council on ways to incorporate preservation, social, and cultural values into LEED. And now there's progress to report!

The National Trust for Historic Preservation created the Sustainable Preservation Coalition in 2006 to influence further development of the LEED Building Rating Systems to better recognize historic and existing buildings. The Trust partnered with several national organizations that were developing separate sustainability agendas, including the American Institute of Architects, Association for Preservation Technology International, National Park Service, General Services Administration, and National Conference of State Historic Preservation Officers. All the partners realized we could make a bigger impact on incorporating historic preservation with green building values by working together.

The coalition's first goal was to meet with the U.S. Green Building Council—a nonprofit organization like the National Trust—to start a conversation on how to improve its rating systems to better reflect the importance of existing buildings to sustainable stewardship of our planet and its limited resources.

LEED does much to encourage more sustainable development, and historic buildings can achieve the highest LEED rating. Currently it's been noted that: 1) out of 69 points, about 20 are building-type neutral, meaning any building type—renovation or new construction—can get these points; 2) another 10 points directly support preservation activities; 3) any existing building can basically get a “certified” rating with very little effort; and 4) getting “silver” requires a bit more effort and “gold” is also readily achievable.

But while historic buildings are achieving gold and platinum LEED ratings, the Sustainable Preservation Coalition believed the rating system could be improved, because the current versions of LEED: 1) overlook the impact of projects on cultural value; 2) do not effectively consider the performance, longer service lives, and embodied energy of historic materials and assemblies; and 3) are overly focused on current or future technologies, neglecting the advantages of many traditional building practices.

The coalition's meeting with the president of USGBC (Rick Fedrizzi) and the director of LEED Technical Development (Brendan Owens) in March of 2007 was quite successful, ending with them inviting us to help them prepare preservation metrics (standards of measurement) for the revised versions of LEED, which have been in development over the past year. We developed a white paper that identified eight basic metrics we believed were lacking in LEED and have been advising the LEED staff on the revisions.

## LEED 2009

LEED's rapid success presents its stewards, the USGBC membership, with opportunities to continue to improve the rating systems to ensure that future buildings certified under its criteria are even greener than the stock in the pipeline to date. This year USGBC unveiled its most comprehensive amendments to LEED since 2000: LEED 2009, also referred to as Version 3 (v3).

The U.S. Green Building Council has provided drafts of revised rating systems for five project types: New Construction & Major Renovations, Core & Shell, Commercial Interiors, Schools, and Existing Buildings. The council held two public com-

ment periods (and received a record 5,800 comments during the first one). The final versions should be ready to be voted on by USGBC members later this fall.

Among its many changes, LEED 2009 includes some that will directly favor the preservation and continued use of existing buildings. (We are specifically discussing the changes to LEED-NC: New Construction & Major Renovation since that is the most commonly used rating system for large rehabilitation projects, although LEED-CS: Core & Shell is sometimes used as well.)

CONTINUED ON PAGE 6

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# BENEFITS OF LEED CHANGES

CONTINUED FROM PAGE 2

## WEIGHTED POINT SYSTEM

The biggest complaint about the current LEED rating systems (such as LEED NC 2.2) is that every credit is worth the same one point—and that there is no weighting by impact or priority. But this is all changing. In LEED 2009 points are distributed based on consideration of the relative environmental or human benefit provided by that item.

The credits in the new version are now weighted according to Life Cycle Assessment (LCA) criteria. Life Cycle Assessment is a scientific methodology to calculate the environmental performance of a product over its full life cycle. By applying LCA to the existing credits, the total possible score for a project has been increased from 69 to 100 points, or actually 110 since there are various bonus points.

The six measurement categories remain the same, but the points have been reallocated according to the results of the LCA weighting. *Sustainable Sites* has gone from 14 possible points to 26. *Water Efficiency* has increased from 5 possible points to 10. *Energy & Atmosphere* has increased from 17 possible points to 35. *Materials & Resources* has increased from 13 possible points to 14. *Indoor Environmental Quality* has remained at 15 possible points. *Innovation & Design Process* has increased from 5 possible points to 6. And a new section of *Regional Bonus Credits* with 3 possible points has been added.

Here are some ways that the weighted system will better support preservation and smart growth goals:

We've all heard about the building that's been constructed in the suburban fringe going for LEED platinum. The increase of *Credit 2—Development Density & Community Connectivity*, under the category *Sustainable Sites*, encourages the construction or renovation of buildings within a dense community to help dissuade that kind of activity. This credit has increased from 1 point to 5 points.

Also under *Sustainable Sites*, *Credit 4.1—Alternative Transportation—Public Transportation Access* has been increased from 1 point to 6 points. Again, this encourages

the placement of buildings in dense communities with access to various forms of public transportation.

The category *Innovation & Design Process* will now offer the opportunity to earn *Regional Bonus Credits*. The USGBC Chapters are being given the responsibility to develop 3 additional points to reward projects that address environmental areas of concern in a project's region—for example, having operable windows and shutters in areas with high humidity, or courtyards that allow cross ventilation in tropical regions. This change will benefit many traditional buildings, whose siting and design often demonstrate low-energy solutions to meeting the requirements of their specific climate.

The weighting system has been constructed in a way that if environmental and societal priorities shift, the focus of LEED can also shift by adjusting weightings across the key impact categories—without requiring a complete reconfiguration of LEED.

## ALTERNATE COMPLIANCE PATH FOR EXISTING BUILDINGS

A completely new Alternate Compliance Path is being developed that will benefit existing buildings, entitled "Life Cycle Assessment of Building Assemblies." This will be an optional path to use the *Materials & Resources Credits* based on the durability and embodied energy of existing materials as determined through LCA criteria.

The science behind LCA is young and there are many different approaches to it. USGBC has an LCA working group, made up of the most experienced LCA scientists on the continent, who are developing a special LCA Credit Calculator that quantifies the life cycle impact of various materials and building assemblies.

The Alternate Compliance Path was not ready for review when the rest of the drafts for LEED 2009 were put out for public comment, but it will be available for use with LEED v3 in early 2009. Currently the intent is that any building already registered for LEED will be able to use the Alternate Compliance Path—even if the project is registered under one of the past versions such as NC 2.2.

The Sustainable Preservation Coalition is very supportive of this approach. While new construction can also use this path, we anticipate that existing buildings will rank the highest and achieve the most points.

## WHAT'S NEXT

Should we expect more changes? Yes, and soon. The next revision, targeted for 2010, will actually remove some of the credits and add others.

The Sustainable Preservation Coalition will be working with USGBC to further incorporate more social and cultural metrics into the next LEED revision. These are some of the unquantifiable aspects of buildings. They include social sustainability (recognizing sites of architectural, cultural, and/or social significance); health and comfort (which includes rewarding buildings that enable occupants to, for example, open windows or otherwise manage and control aspects of their comfort and well-being); social capital (recognizing when older buildings contribute to a sense of place within their neighborhoods); and density (optimizing the location of a building to utilize existing infrastructure). We are planning a retreat with USGBC and other partners later this year to flesh this out.

To keep up with developments, check the National Trust's Historic Preservation and Sustainability webpage—[www.preservationnation.org/issues/sustainability](http://www.preservationnation.org/issues/sustainability)—and the "green building" blogs posted at <http://blogs.nationaltrust.org/preservationnation>. ■

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