

## LEED Changes to MASTERSPEC

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The U.S. Green Building Council's *LEED-NC: Green Building Rating System for New Construction & Major Renovations*, Version 2.2, has brought about some significant changes. ARCOM has responded by revising more than 500 MASTERSPEC Sections to include requirements for this new version and for *LEED-CI: Green Building Rating System for Commercial Interiors*, Version 2.0. Some of the typical requirements now included in MASTERSPEC for LEED are as follows:

A Division 01 Section is included that contains general and procedural requirements for both LEED-NC and LEED-CI. Requirements for regional materials have been changed for LEED-NC, which now requires them to be regionally extracted, harvested, or recovered, as well as manufactured. Requirements for construction indoor air quality management have been expanded — requirements for building flush out and for air quality testing are now more detailed.

A Division 01 Section is included that specifies construction waste management.

Porous unit pavers Section now reflects the change for LEED-NC that allows open grid pavers to be less than 50% open.

Concrete Sections have provisions for substituting fly ash and other pozzolans for portland cement, where appropriate. According to a credit interpretation ruling dated 1/23/2003, LEED-NC Credit ID 1.1 can be obtained by replacing at least 40% of the portland cement that would otherwise be used with materials that do not add carbon dioxide to the environment.

Sections that contain significant amounts of steel or other materials that typically have a high recycled content include requirements for recycled content. Combined recycled content requirements have been increased to 10 and 20% — twice what they used to be.

Sections that specify wood products have provisions for Forest Stewardship Council (FSC)-certified wood. Note that LEED still requires FSC certification — other certifications are not acceptable.

Roofing Sections have requirements for Solar Reflectance Index (SRI) where appropriate. SRI is now used to measure heat island effect rather than light reflectance and thermal emissivity.

**LEED Designations**

**SS = Sustainable Sites**  
**WE = Water Efficiency**  
**EA = Energy & Atmosphere**  
**MR = Materials & Resources**  
**EQ = Indoor Environmental Quality**  
**ID = Innovation & Design Process**

Sections that include the use of adhesives and sealants have provisions for low-VOC products to comply with the applicable LEED credit. Note that LEED now defines the term *interior* as “inside the weatherproofing system” — products concealed within other construction are now clearly not exempt.

Sections that specify paints and coatings for field application have provisions for low-VOC products to comply with the applicable LEED credit. LEED now includes requirements for all types of

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field-applied paints and coatings including clear wood finishes, stains, and floor coatings.

Sections that specify carpet systems have provisions for low-emitting products to comply with the applicable LEED credit. LEED now requires carpets to comply with the Carpet and Rug Institute's Green Label Plus program. Sections that specify composite wood and agrifiber products have provisions to exclude urea formaldehyde. Note that this requirement applies to adhesives and binders used off-site as well as those used at the Project site.

Some of the changes in LEED-NC, Version 2.2, do not directly affect the Specifications, but may affect the Project's design and decisions that the Owner will need to make. The following are some important changes that architects, engineers, and owners should be aware of:

Credit SS 2 now requires that the site must be previously developed, however the development density requirement can be waived if the site is within 1/2 mile (0.8 km) of a residential zone or neighborhood with an average density of 10 units/acre (24.7 units/hectare) net and within 1/2 mile (0.8 km) of at least 10 basic services and with pedestrian access between the Project and the services.

Credit SS 4.3 requirements can now be met by providing preferred parking for low-emitting and fuel-efficient vehicles (includes hybrid

vehicles) for 5% of the parking capacity. Preferred parking includes parking passes provided at a discount price.

Credit SS 5.1 limits of site disturbance for previously undeveloped sites have been relaxed slightly. Projects on previously developed or graded sites can acquire this credit by providing landscaping with native or adapted vegetation for 50% of the site (excluding building footprint).

**Prerequisite EA 2 and Credit EA 1 now reference ASHRAE/IESNA 90.1, dated 2004.**

Credit SS 6.2 no longer requires the removal of phosphorous from stormwater runoff and only requires that 90% of runoff be treated, although it still requires removing 80% of suspended solids. The reference guide also indicates that runoff that is infiltrated is regarded as 100% treated.

Credit SS 8 now provides an option that allows interior lights be automatically controlled to turn off during non-business hours, with a manual override provided, instead of restricting them from shining out through windows. The reference standards for exterior lighting restrictions have been changed.

Credits WE 1.1 and 1.2 now allow irrigation with recycled, treated wastewater ("water that is treated and conveyed by a public agency specifically for non-potable uses").

Prerequisite EA 1 now allows

the Commissioning Authority to be an employee of the Project's design or construction management firm, and for projects less than 50,000 sq. ft. (4600 sq. m) may be a member of the design or construction team. This change does not apply to Credit EA 3.

Prerequisite EA 2 and Credit EA 1 now refer to the 2004 version (without amendments) of ASHRAE/IESNA 90.1. Prescriptive requirements have been included that can be used instead of the performance requirements.

Credit MR 6 now requires that only 2.5% of building materials be rapidly renewable materials — half of what it used to require.

Credit EQ 6.1 no longer requires operable windows. Instead it requires individual lighting controls for 90% of the building occupants and controllability for shared spaces.

Credit EQ 7.2 no longer requires a permanent HVAC monitoring system. Instead it requires a thermal-comfort survey of building occupants.

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*SpecPress* is issued quarterly to ARCOM clients.

The editor welcomes ideas, comments, and questions.

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Credit EQ 8.1 now has three different methods that can be used to verify the amount of daylighting provided. Methods include a fairly simple calculation method, called *glazing factor calculation*, and in-place measurement in the completed building.

Besides the changes to pre-requisites and credits, significant procedural changes have also been made. Submissions to USGBC are now done with online forms; Credit Interpretation Rulings will also be made online. Applications can now be submitted in two phases resulting in a design phase review and a construction phase review. The two-phase review procedure should allow most of the uncertainties to be clarified at the design phase review, resulting in fewer problems at closeout.

### Upcoming Tradeshows

Come visit ARCOM at an upcoming 2006 tradeshow to find out more about our products and to get one of our famous chocolate truffles. We will be at the following:

ASLA  
Minneapolis, Minnesota  
October 6 – 9, 2006  
Booth #1425

ASPE  
Tampa, Florida  
October 23 – 24, 2006  
Booth #1135

Free VIP passes may be available; call ARCOM at (800) 424-5080.

### Octagon Museum and the AIA Display Photographs by Victoria Cooper

The Octagon (the Museum of the American Architectural Foundation) and the AIA team up to exhibit photographs by local artist Victoria Cooper on May 8, 2006 – July 28, 2006. Admission is free, and the photographs are on display at the AIA Headquarters Gallery. The show features more than 45 images, highlighting the beauty of two of the East Coast's most beloved city parks: Central Park in New York and Rock Creek Park in Washington, DC.

A native New Yorker, Cooper began photographing Central Park because she spent so much time there growing up. As a girl, the park represented the countryside and it wasn't until Cooper became an adult that she learned that the park was designed by Frederick Law Olmsted, known as the father of American landscape architecture, and was entirely man-made.

Geographically Central Park and Rock Creek Park could not be more different, but there exists a continuum of design influence

from Frederick Law Olmsted, the father to his son Frederick Law Olmsted Jr. who was responsible for the design and development of DC's regional park system.

Besides the framed prints, a large-scale installation titled *Cathedral of Trees* will be composed of six large-scale panels of images printed on silk and will evoke the sensation of being under the canopy of trees that line the famous Promenade in Central Park.

Cooper received a BFA from New York University School of the Arts and is an award-winning professional photographer. Her award-winning work as an architectural and interiors photographer is nationally recognized, and has appeared in many articles and publications.

For more information about this and other upcoming exhibits, see [www.archfoundation.org](http://www.archfoundation.org).

## Energy Considerations for Fenestration

by Robert Tarasovich, AIA, CSI  
ARCOM Architectural Specification Writer

Energy-conservation codes and good design practice demand careful consideration of the various energy performance characteristics of fenestration. The 2003 International Energy Conservation Code (IECC) and ASHRAE/IESNA 90.1, *Energy Standard for Buildings except Low-Rise Residential Buildings*, require that fenestration be labeled and certified by the manufacturer for energy performance, based on ratings established by the National Fenestration Rating Council (NFRC). It is the Architect's responsibility to determine the required energy performance of the fenestration and confirm with manufacturers under consideration that they can meet it.

According to the 2003 IECC, the term *fenestration products* includes windows, doors, and skylights.

According to the ASHRAE/IESNA 90.1, the term *fenestration* includes all areas (including the frames) in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, glass doors that are more than one-half glass, and glass block walls.

Primary energy performance requirements usually include thermal transmittance (U-factor), solar heat gain coefficient (SHGC) and air infiltration.

Thermal transmittance (U-factor) is the primary measure of heat loss and is essential to characterizing the building-envelope heating loads. The lower the U-factor, the more energy efficient the fenestration. The 2003 IECC and ASHRAE/IESNA 90.1 require that fenestration be certified and labeled according to NFRC 100, *Procedure for Determining Fenestration Product U-Factors*. The 2003 IECC designates default U-factor values for use when the manufacturer has not determined values for non-labeled fenestration products.

SHGC measures how well a product blocks heat caused by sunlight. SHGC is the primary determinant of building cooling loads. The lower the SHGC value, the more energy efficient the fenestration. Low SHGC values can be achieved, but mostly at the expense of visible light

transmittance. The 2003 IECC and ASHRAE/IESNA 90.1 require that fenestration be certified and labeled according to NFRC 200, *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*.

Air infiltration of the fenestration can have a significant effect on overall building performance, especially for heat loss and heat gain. The 2003 IECC requires air infiltration testing according to ASTM E 283, *Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences across the Specimen*. ASHRAE/IESNA 90.1 states that fenestration and doors must be certified and labeled according to NFRC 400, *Procedure for Determining Fenestration Product Air Leakage*, except where site assembled. NFRC 400 is intended to establish certification of a manufacturer's standard window product line and is intended for use on windows, doors, and skylights; it is not applicable to an overall building-enclosure system.

Related and additional energy performance considerations include condensation resistance (CR) and visible light transmittance (VT).

CR is a measure of a product's ability to resist the formation of condensation on interior surfaces at a specific set of environmental conditions. Condensation forms when the surface temperature is at or below the dew point temperature of the surrounding air. The surface temperatures of each component of the assembly, coupled with overall building and HVAC operations characteristics, contribute to the likelihood or potential for condensation to occur. The CR is determined from the lowest rating for the frame, edge of glazing, and center of glazing. ASHRAE/IESNA 90.1 states that fenestration and doors must be certified and labeled according to NFRC 500, *Procedure for Determining Fenestration Product Condensation Resistance Values*. AAMA 1503, *Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections*, uses a condensation-resistance factor (CRF) that does not correlate with NFRC's rating system.

The VT of the fenestration can have a significant effect on overall building performance, especially with regard to daylighting. VT measures how much light comes through a product. When daylighting and high visibility are desired, select assemblies with high VT values.

ASHRAE/IESNA 90.1 states that fenestration and doors must be certified and labeled according to the NFRC 200.

The NFRC is currently developing a new program for component-based fenestration product certification. This new program is intended to replace the existing non-residential energy performance rating system for site-assembled products.

### **The Green House**

**The National Building Museum in Washington, DC, shows *The Green House: New Direction in Sustainable Architecture and Design*. Photographs, drawings, and a life-size replica of an ecologically friendly home are on exhibit. “Green” building materials such as recycled rubber flooring, countertops made from recycled paper, and energy-smart technology are emphasized.**

**For more information, call (202) 272-2448 or visit [www.nbm.org](http://www.nbm.org). The show runs from May 20, 2006, through the summer of 2007.**

We at ARCOM are proud of the assistance provided to the MASTERSPEC Licensed Users by our customer service staff. Tiffany Neilson and Emily Barlow in the Salt Lake City, UT, office represent ARCOM well. The following recent praise for the two was received by Angie Matinkhah in the Salt Lake City office:

I just wanted to send you an e-mail to tell you that I am so extremely pleased with Tiffany Neilson and Emily Barlow, the customer service that they have provided [our firm] with today. They have helped me in ordering and planning the logistics of software that is greatly needed in one of our projects in Abu Dhabi, United Arab Emirates. I just thought that you should know what excellent employees you have and that they have provided excellent customer service from the initiation of the procurement to the delivery. It was a pleasure doing business with Arcom.

PRODUCT  
MASTERSPEC™

PRODUCT MASTERSPEC can help you get your specifying job done easier and faster. Custom-edited MASTERSPEC documents are provided to you by participating manufacturers. They are available free on your regular quarterly update CD-ROM and, as a licensed user, on ARCOM's Web site at [www.masterspec.com](http://www.masterspec.com) or [www.arcomnet.com](http://www.arcomnet.com)

Watch for changes to this list in future issues of *SpecPress*. New manufacturers are being added all the time. Some manufacturers currently participating in PRODUCT MASTERSPEC include these leading companies:

3M  
All-Lite Louvers  
Ameron Performance Coatings & Finishes Group  
Arcadia, Inc.  
Architectural Louvers  
Associated/ACC International - LG  
BPB America, Inc.  
Cendrex, Inc.  
Citadel Architectural Products, Inc.  
Color Wheel Paints and Coatings  
Coronado Paint  
Cross Aluminum Products  
Dietrich Industries  
GE Consumer and Industrial  
Grace Construction Products  
Guardian Industries Corp.  
Keene Building Products  
Heatcraft Commercial Coils  
Iowa Paint Manufacturing Company, Inc.  
IPEX, Inc.  
Lafarge North America, Inc.-Gypsum  
MarinoWARE  
Mitsubishi Chemical (Alpolic)  
National Gypsum Company  
The New England Slate Company  
NIBCO Inc.  
NUCONSTEEL Commercial Corp.

Pella Corporation  
Plymouth Foam, Inc.  
Pottorff Louvers  
PPG Industries, Inc. (Coatings)  
PPG Architectural Finishes  
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Sandell Manufacturing Co., Inc.  
Select Products Limited  
Sloan Valve Company  
SquareD-Schneider Electric  
Tate Access Floors  
The Steel Network, Inc.  
Thyssen Krupp Elevator  
TREMCO  
TrusJoist, A Weyerhaeuser Business  
Vetrotech Saint-Gobain  
Watts Regulator  
W.R. Meadows, Inc.

For more information on PRODUCT MASTERSPEC or to recommend manufacturers you would like to see participating, please contact:

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## Survey of *MasterFormat 2004* Use

ARCOM is interested in knowing how quickly MASTERSPEC Licensed Users are switching to the new *MasterFormat 2004*. Please respond to the following questions:

### 1. Use of *MasterFormat 2004* (select one):

- a. My firm is already using *MasterFormat 2004* for all projects
- b. My firm is already using *MasterFormat 2004* for some projects
- c. My firm is not using *MasterFormat 2004* for any projects
- d. My firm is planning to use *MasterFormat 2004* on all projects in 2006
- e. My firm is planning to use *MasterFormat 2004* on some projects in 2006
- d. My firm is not planning to use *MasterFormat 2004* on any projects in 2006
- f. My firm is not planning to use *MasterFormat 2004* at all

### 2. MASTERSPEC should continue to be available in the *MasterFormat 1995* version (select one):

- |                          |                          |                          |                            |                          |
|--------------------------|--------------------------|--------------------------|----------------------------|--------------------------|
| 6 months<br>(Dec. 2006)  | 9 months<br>(Mar. 2007)  | 1 year<br>(June 2007)    | 1.25 years<br>(Sept. 2007) | 1.5 years<br>(Dec. 2007) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> |

### 3. Please provide any other comments you would like to make about the implementation of *MasterFormat 2004* in MASTERSPEC:

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For statistical purposes, please provide the following information (answers will be kept confidential):

### 4. Type of Firm (select one):

- |                         |                          |                                    |                          |
|-------------------------|--------------------------|------------------------------------|--------------------------|
| a. Architects           | <input type="checkbox"/> | i. Structural engineers            | <input type="checkbox"/> |
| b. Architects/Engineers | <input type="checkbox"/> | j. Civil engineers                 | <input type="checkbox"/> |
| c. Engineers/Architects | <input type="checkbox"/> | k. Structural/civil engineers      | <input type="checkbox"/> |
| d. Landscape architects | <input type="checkbox"/> | l. Mechanical engineers            | <input type="checkbox"/> |
| e. Interior designers   | <input type="checkbox"/> | m. Electrical engineers            | <input type="checkbox"/> |
| f. Roofing consultants  | <input type="checkbox"/> | n. Mechanical/electrical engineers | <input type="checkbox"/> |
| g. Security consultants | <input type="checkbox"/> | o. Building Owner/manager          | <input type="checkbox"/> |
| h. Contractor           | <input type="checkbox"/> | p. Construction manager            | <input type="checkbox"/> |
|                         |                          | q. Other _____                     |                          |

### 5. Size of Firm (select one):

- a. 1 to 5 employees
- b. 6 to 10 employees
- c. 11 to 25 employees
- d. 26 to 100 employees
- e. 101 to 250 employees
- f. 251 to 500 employees
- g. More than 500 employees

Please fax your responses to ARCOM at (888) 776-9997 no later than September 1, 2006. The toll-free phone number was incorrect in the previous issue of *SpecPress*; we apologize for any inconvenience.

Note: ARCOM currently sends two CDs to MASTERSPEC Licensed Users — one with MASTERSPEC in *MasterFormat 2004* and one with MASTERSPEC in *MasterFormat 1995*.

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company Web site.**

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