



for the document titled:

## LEED for Schools Reference Guide First Edition 2007

*Notes:*

- Updates to this document are posted on the LEED for Schools Rating System page and the Reference Guide electronic access Web page (via [www.usgbc.org/myUSGBC](http://www.usgbc.org/myUSGBC)).

Errata posted March 7, 2008

EAc1	194	<p>Beneath option 2, please insert the text below.</p> <p>“OPTION 3 – ADVANCED ENERGY DESIGN GUIDE FOR K-12 SCHOOL BUILDINGS (4 Points)</p> <p>Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for K-12 School Buildings. The following restrictions apply:</p> <ul style="list-style-type: none"> <li>• K-12 school building must be under 100,000 square feet.</li> <li>• The school building uses one of the HVAC systems specified in Chapter 3 climate zone tables and follow recommendations contained in Chapter 5 (HV1-32), as appropriate for the climate zone in which the building is located.</li> <li>• The scope of the Advanced Energy Design Guide applies to K-12 buildings with administrative and office areas, classrooms, hallways, restrooms, gymnasiums, assembly spaces, food preparation spaces, and dedicated spaces such as media centers and science labs. Schools that include any of the following specialty spaces cannot use the Advanced Energy Design Guide: indoor pools, wet labs (e.g., chemistry), “dirty” dry labs (e.g., wood-working or auto shop) or other unique spaces with extraordinary heat or pollution generation.”</li> </ul>
EAc1	198	<p>Above the heading “Approach and Implementation” insert the following text: “OPTION 3 – ASHRAE Advanced Energy Design Guide for K-12 Schools Buildings</p> <p>For school buildings less than 100,000 square feet and which meet the scope restrictions outlined in the Introduction, the ASHRAE Advanced Energy Design Guide for K-12 Schools provides an effective means of limiting building energy usage, and documenting improved building energy performance without the need for a building energy model. The climate-specific recommendations listed in the ASHRAE Advanced Energy Design Guide should be incorporated into the project early in the building design in order to optimize building performance with minimal impact on capital costs.</p> <p>To comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide, the project team must first identify the climate zone where the building is located. Chapter 3 contains a United States map defining the eight climate zones by county borders.</p> <p>The project team can then find the appropriate Climate Zone Recommendation table identifying all of the prescriptive criteria required for their project. These criteria include recommendations for roofs, walls, floors, slabs, doors, vertical glazing, skylights, interior lighting, HVAC components, and service water heating. To achieve EA Credit 1, project teams must fully comply with all recommendations established in the Advanced Energy Design Guide for the climate zone in which the building is located.</p>

EAc1	201	At the end of the paragraph that starts with "Process energy cost shall be equal to at least 25%...", insert the following sentence:  "If the process energy cost is more than 25% of the baseline energy cost, the actual percentage must be used."
EQc6.1	372	Left hand column, last paragraph, end of first sentence, change "...EAc1.2." to "...EAc1."  There is no EAc1.2

Errata posted October 26, 2007

EAc9	405	In the first sentence under the title, "Requirements" delete the words "and Impact Insulation Class (IIC)". This standard does not apply to this credit.  The sentence should then read:  "Design classrooms and other core learning spaces to meet the Reverberation Time (RT) requirements of ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools.
------	-----	---

Errata posted October 15, 2007

Credit	Page	Erratum
EAp2	181	In the first and second requirement bullets, strike references of "(without amendments)" that follow "ASHRAE/IESNA Standard 90.1-2004". Project teams may use amendments to this standard, per the USGBC memo published April 26, 2007: <a href="http://www.usgbc.org/ShowFile.aspx?DocumentID=2664">http://www.usgbc.org/ShowFile.aspx?DocumentID=2664</a>
EAc1	193	Under "Option 1 – Whole Building Energy Simulation," in the first and third requirement bullets, strike references of "(without amendments)" that follow "ASHRAE/IESNA Standard 90.1-2004". Project teams may use amendments to this standard, per the USGBC memo published April 26, 2007: <a href="http://www.usgbc.org/ShowFile.aspx?DocumentID=2664">http://www.usgbc.org/ShowFile.aspx?DocumentID=2664</a>
MRC2.1-2.2	269	In the first sentence of the intent, strike "land-clearing" so the intent reads as follows: Divert construction, <u>and</u> demolition <del>and land-clearing</del> debris from disposal in landfills and incinerators. As stated in the requirements section, land-clearing debris does not contribute to the MRc2 series.
MRc6	294	Under "Approach and Implementation," starting in the third sentence in the first paragraph, replace the following figures: For example, if the project has a \$10 million budget, the materials cost (and subsequently <del>5%</del> <u>2.5%</u> of that cost) can be estimated using the 45% default rate. The team would calculate that the project would need to use at least <del>\$225,000</del> <u>\$112,500</u> of materials meeting the requirements of this credit ( <del>\$225,000</del> <u>\$112,500</u> is <del>5%</del> <u>2.5%</u> of \$4.5 million, which is 45% of the \$10 million project cost).  Under "Exemplary Performance," in the last sentence, replace the following figure: For rapidly renewable materials, the percentage must be <del>10%</del> <u>5%</u> or greater.

Errata posted October 25, 2007

EAc1	194	Replace the title and paragraph  "OPTION 2—ADVANCED BUILDINGS™ CORE PERFORMANCE™"  This option is not yet available at the printing of the first edition of the LEED for Schools Reference Guide,
------	-----	---

		<p>but is expected to be an option in the future. Please check the CIR page on the USGBC Web site for updates.“</p> <p>With</p> <p><b>OPTION 2 — PRESCRIPTIVE COMPLIANCE PATH: Advanced Buildings™ Core Performance™ Guide (2-5 Points)</b></p> <p>Comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute. The following restrictions apply:</p> <ul style="list-style-type: none"> <li>• The projects must be a school under 100,000 square feet.</li> <li>• Project teams must fully comply with Sections One, <i>Design Process Strategies</i>, and Two, <i>Core Performance Requirements</i>.</li> </ul> <p>Minimum points achieved under Option 3 (2-3 points):</p> <ul style="list-style-type: none"> <li>• Three (3) points are available for all school projects under 100,000 square feet that comply with Sections One and Two of the Core Performance Guide.</li> <li>• Two (2) points are available for all other project types under 100,000 square feet (except health care, warehouse, or laboratory projects) that implement the basic requirements of the Core Performance Guide</li> </ul> <p>Additional points available under Option 3 (up to 2 additional points):</p> <ul style="list-style-type: none"> <li>• Up to two (2) additional points are available to projects that implement performance strategies listed in Section Three, <i>Enhanced Performance</i>. For every three strategies implemented from this section, one point is available.</li> <li>• Any strategies applicable to the project may be implemented except: <ul style="list-style-type: none"> <li>3.1-Cool Roofs</li> <li>3.8-Night Venting</li> <li>3.13-Additional Commissioning</li> </ul> <p>These strategies are addressed by different aspects of the LEED program and are not eligible for additional points under EA Credit 1.</p> </li> </ul>
EAcl	198	<p>At the bottom of the left hand column, under the title “<b>Option 2- Prescriptive Compliance Path</b>” replace the paragraph</p> <p>“This option is not yet available at the printing of the first edition of the LEED for Schools Reference Guide but is expected to be an option in the future. Advanced Buildings™ Core Performance™ provides a prescriptive means of improving building energy performance. Please check the CIR page on the USGBC Web site for updates.”</p> <p>With</p> <p>“The Core Performance Guide describes the requirements of the program. The Guide is divided into five basic sections, describing different elements of the program requirements. In the Core Performance program, specific program requirements are referred to as criteria.</p>

## **Introduction**

The introduction section includes a brief overview of the Core Performance program, including the analysis protocols used to develop the program. The introduction also includes a Quick Start Guide that provides a program overview, and a table that correlates the program criteria (requirements) to other LEED credits.

## **Section 1**

### **Design Process Requirements—REQUIRED by LEED**

This section describes a series of requirements that encourage the development of a more integrated building design by addressing the design process. Most of the criteria in this section are typically implemented by LEED project teams and can help the team to track building performance issues more effectively through the design and construction process. *LEED projects following this prescriptive path for points under EA credit 1 must implement all of the criteria listed in this section of the Core Performance Guide.*

The specific criteria in this section of Core Performance are:

- 1.1 Identify Design Intent
- 1.2 Communicating Design Intent
- 1.3 Building Configuration
- 1.4 Mechanical System Design
- 1.5 Acceptance Testing
- 1.6 Operator Training
- 1.7 Performance Data Review

## **Section 2**

### **Core Performance Requirements—REQUIRED by LEED**

This section includes the specific energy performance measures that form the basis of achievement of energy savings under the Core Performance program, compared to ASHRAE 90.1-2004. *LEED projects following this prescriptive path for points under EA credit 1 must implement all of the criteria listed in this section of the Core Performance Guide.* (Note that under some specific conditions, certain criteria in Core Performance may not be applicable to specific projects. For example, projects without server rooms need not implement the Dedicated Mechanical Systems criteria.)

The specific criteria in this section of Core Performance are:

- 2.1 Energy Code Compliance
- 2.2 Air Barrier Performance
- 2.3 Indoor Air Quality
- 2.4 Below Grade Insulation
- 2.5 Envelope Performance
- 2.6 Fenestration
- 2.7 Lighting Controls
- 2.8 Lighting Power Density
- 2.9 Mechanical Efficiency
- 2.10 Dedicated Mechanical Systems

- 2.11 Demand Control Ventilation
- 2.12 Hot Water System Efficiency
- 2.13 Fundamental Economizer Performance

**Section 3**

**Enhanced Performance Strategies—OPTIONAL for additional points**

*The criteria identified in this section are not required when using the Core Performance program as a prescriptive path in LEED.* These strategies can be used to increase the number of LEED points achieved using the Core Performance program. For each **three** additional Enhanced Performance Strategies implemented by a project, an additional **one** point can be achieved. (A maximum of two additional points can be achieved in addition to the points achieved from the required measures above.)

Several of the criteria in the Enhanced Performance section of Core Performance do not qualify for additional points under EAc1. These strategies are addressed by different aspects of the LEED program. The list below identifies all of the Enhanced Strategy Criteria which MAY be used to achieve additional LEED EA credit 1 points:

- 3.1 (not applicable)
- 3.2 Daylighting and Controls
- 3.3 Additional Lighting Power Reductions
- 3.4 Plug Loads/Appliance Efficiency
- 3.5 Supply Air Temperature Reset (VAV)
- 3.6 Indirect Evaporative Cooling
- 3.7 Heat Recovery
- 3.8 (not applicable)
- 3.9 Premium Economizer Control
- 3.10 Variable Speed Drives
- 3.11 Demand Responsive Buildings
- 3.12 Renewable Energy
- 3.13 (not applicable)
- 3.14 Fault Detection Diagnostics

Not all of the criteria listed in the Enhanced Strategy section can be applied effectively to all projects. The design team must evaluate the measures described to decide on applicability on a project by project basis.

**Section 4**

**Energy Modeling—NOT APPLICABLE for LEED prescriptive path Option 3**

The Core Performance program is designed as a prescriptive path for energy performance. Energy modeling is included as an option in Core Performance for projects that wish to demonstrate comparable performance under some state and utility programs. *This is not a part of the LEED prescriptive path option.* Projects which undertake energy modeling for LEED credit must comply with the energy performance requirements described in LEED using ASHRAE 90.1-Appendix G as a baseline.

The Core Performance program is designed as a prescriptive measure program, and as such is calibrated to the *prescriptive requirements* of ASHRAE 90.1-2004. Projects which use Appendix G as a baseline may be required to utilize a different mechanical system baseline and therefore may not be able to demonstrate the same level of relative energy savings as suggested by the Core Performance program. The relative

		performance of the baseline does not affect the predicted energy use of the proposed building, but does affect the performance of the project relative to LEED.”
--	--	--

Errata posted September 14, 2007

Credit	Page	Erratum
SS	22	<p>Replace Table 1 with the table in this document listing SS credits:  <a href="http://www.usgbc.org/ShowFile.aspx?DocumentID=3168">http://www.usgbc.org/ShowFile.aspx?DocumentID=3168</a> (PDF)</p> <p>Under “Overview of LEED Prerequisites and Credits (continued),” replace “EQ Credit 9” with “SS Credit 9,” and replace “EQ Credit 10” with “SS Credit 10.”</p>