

# The Green Engineer, LLP

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## Sustainable Design Consulting

### **MSBA Sustainable Requirements**

The MSBA website states:

*"The MSBA has established several sustainable green programs for all MSBA-funded projects, with an increased emphasis on reducing energy and water consumption. These programs include updated standards for new and major renovation/addition projects as well as improved sustainable requirements for repair projects. The MSBA also requires and pays for the entire cost of building commissioning for all MSBA-funded projects to ensure that these buildings operate efficiently and as designed.*

*The MSBA's Green Schools Program provides incentives to a district to increase the energy efficiency and sustainability for new construction and major renovation/addition projects, using either the US Green Building Council's LEED for Schools or the Massachusetts Collaborative for High Performance Schools criteria."*

*"The MSBA's green programs aim to encourage a high standard of sustainability for all MSBA-funded projects, providing financial incentive in the form of additional reimbursement of up to 2% of eligible project costs for new and major renovation/addition projects."*

### **Minimum Sustainable Requirements\*:**

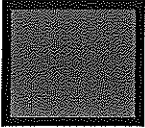
1. Regulation revisions to 963 CMR, 2.04 to clarify design requirements for interior classrooms, daylighting and views as part of the standard design (done as part of recent regs revision)
2. MA-CHPS Verified level – 40 points for new construction/35 points for renovation

OR

3. LEED Schools Certified level – 40 points (minimum of 5 points in EA credit 1 "Optimize Energy Performance" with minimum energy cost savings of 20% for new buildings and 16% for existing building renovations).

### **Additional Reimbursement Points\*:**

- MA-CHPS 2009 Leader:
  - 50 points new construction – 2%



- 45 points renovation – 2%

OR

- LEED Schools Silver level - (minimum of 5 points in EA credit 1) – 2%

\*per MSBA 3/31/10 memo

## **LEED = Leadership in Energy & Environmental Design**

LEED is an internationally-recognized green building certification system. Developed by the U.S. Green Building Council (USGBC) in March 2000, LEED *"provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions."*

LEED for Schools is broken down into five Sustainable Categories of concern including:

- Sustainable Site Design
- Water Efficiency
- Energy Use and Atmospheric Protection
- Materials and Resources
- Indoor Environmental Quality
- As well as Innovation & Regional Priority

Each category has a number of credits and prerequisites. LEED projects must achieve all the prerequisites and can choose which credits are appropriate to pursue.

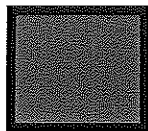
### **4 Levels of LEED Certification**

- LEED Certified           40 - 49 points
- Silver Level             50 - 59 points
- Gold Level               60 - 79 points
- Platinum Level         80 + points

## **MA-CHPS = Massachusetts Collaborative for High Performance Schools**

MA-CHPS 2009 Edition is a green building rating system designed specifically for Bay State schools. Participation in MA-CHPS *"will ensure that a school project has the required high performance features to realize the benefits associated with a high performance school including improved health, productivity and student performance, decreased operating costs and increased energy savings."*

- Based on California's Collaborative for High Performance Schools (CHPS) guidelines
- Tailored for MA code requirements, the New England climate and regional environmental priorities
- Developed by The Collaborative for High Performance Schools, Inc. and The Massachusetts Technology Collaborative in 2005
- Has more prerequisites than LEED
- Focuses more on operation and maintenance than LEED for Schools

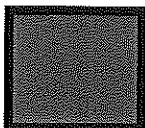


MACHPS is broken down into 7 Sustainable Categories of concern including:

- Integration & Innovation
- Indoor Environmental Quality
- Energy
- Water
- Site
- Materials and Waste Management
- Operation & Maintenance

### **MA-CHPS vs LEED Schedule & Process**

<b>Stages</b>	<b>MA-CHPS</b>	<b>LEED-Schools v3</b>
Project Registration	Register online with National CHPS.	Register online at GBCI website.
Documentation	Excel based application template.	Web based LEED online PDFs.
Design Review	After 100% CDs & completion of full application, team will submit to CHPS for review (~45 days). Reviewers will inform MSBA on point status after review. Provisional Verification is awarded.	After 100% CDs & completion of DESIGN PHASE credits/prereqs team will submit to GBCI for review (~25 days). 8 prereqs & 35 credits are possible of the 52 credits (110 points).
Construction Review	Construction Review ensures prerequisites & credits addressed during CA were completed as claimed.	At end of CA team will document compliance with CONSTRUCTION PHASE credits/prereqs and submit to GBCI for review. 2 prereqs & 21 credits (worth 29 points).
Final Verification	After CA & possible audits, project verification is awarded.	After CA review & clarification review, project is awarded certification.
Appeal	Team has 30 days to appeal credits.	Team can appeal any credits.



### MA-CHPS vs LEED Fees^

Fees	MA-CHPS	LEED-School v3
Registration Fee	\$900	\$900
Review	\$4200	\$5120 Design/ \$1280 CA
Fee based on	128,000sf building & 50 points	\$0.04/sf Design and \$0.01/sf CA (assumes 128,000sf)
Appeals (if required)	\$500	\$500
<b>TOTAL</b>	<b>\$5,100</b>	<b>\$ 7,300</b>

^Reimbursed by MSBA

### Benefits of Green Schools

- **A productive learning environment:**

- Proper daylight design improves performance
- Proper acoustics increase learning potential
- Experiential learning highlighting sustainable features

- **Financial savings:**

- Reduced operations & maintenance costs
- Reduced energy & water use
- Improved teacher retention
- Reduced absenteeism
- Increase longevity of use

- **A healthy learning environment:**

- Good indoor air quality improves health and reduces absenteeism
- Lessens severity of asthma
- Reduced use of toxic materials decreases eye, nose and throat irritation
- Comfortable indoor temperatures increase occupant satisfaction