

Green Schools Workshop

Leadership Summit

April 30, 2010

William Leahy

CT Green Building Council

CT Clean Energy Fund

CT Energy Efficiency Fund

Institute for Sustainable Energy

Green School Workshop

- Why promote Green Schools?
- Form Local Advocacy at the Chapter Level
- Legislative Initiatives at the State Level
- Develop HP School Regulations
- Outreach to the Industry through GBC Chapter
- School Outreach through Public Benefit Programs
- The role of the “Circuit Rider”
- Tie to National School Advocacy Plan

What is a High Performance Building?

- Productive Learning Environment
- Healthy Work Environment
- Energy Efficient Cost Effective Investment for the Community
- Designed as “Learning Laboratories” for educating students and the public on Energy, the Environment and Sustainable Living

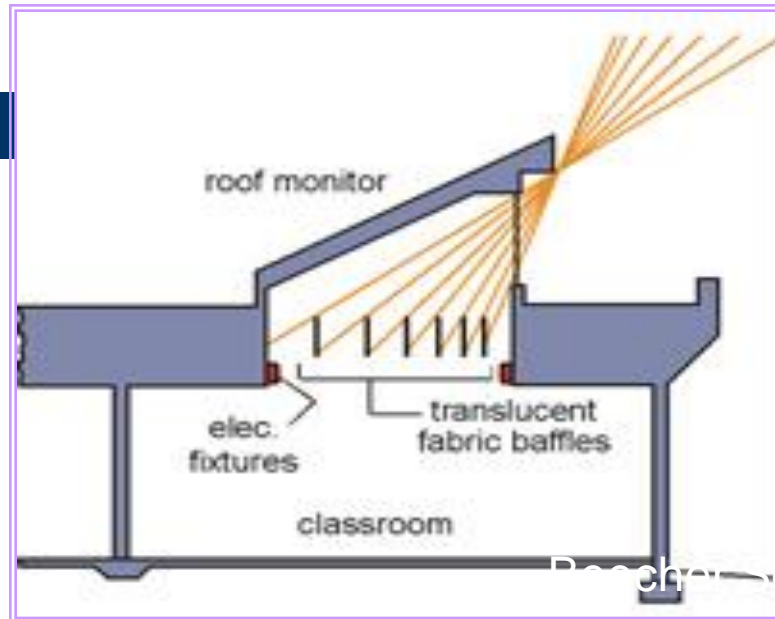
Why do we need HP Schools?

2005 Study of Efficiency in CT School

- 90% over 30 years old
- 70% built between 1950 and 1978
- Predominately single story building
- Minimal insulation and no vapor barriers
- Large glass areas and exposed surfaces
- Inefficient HVAC and control systems
- Inadequate use of natural lighting
- Many experience indoor air quality problems
- Average Energy Star Benchmarking Score **26!!!**

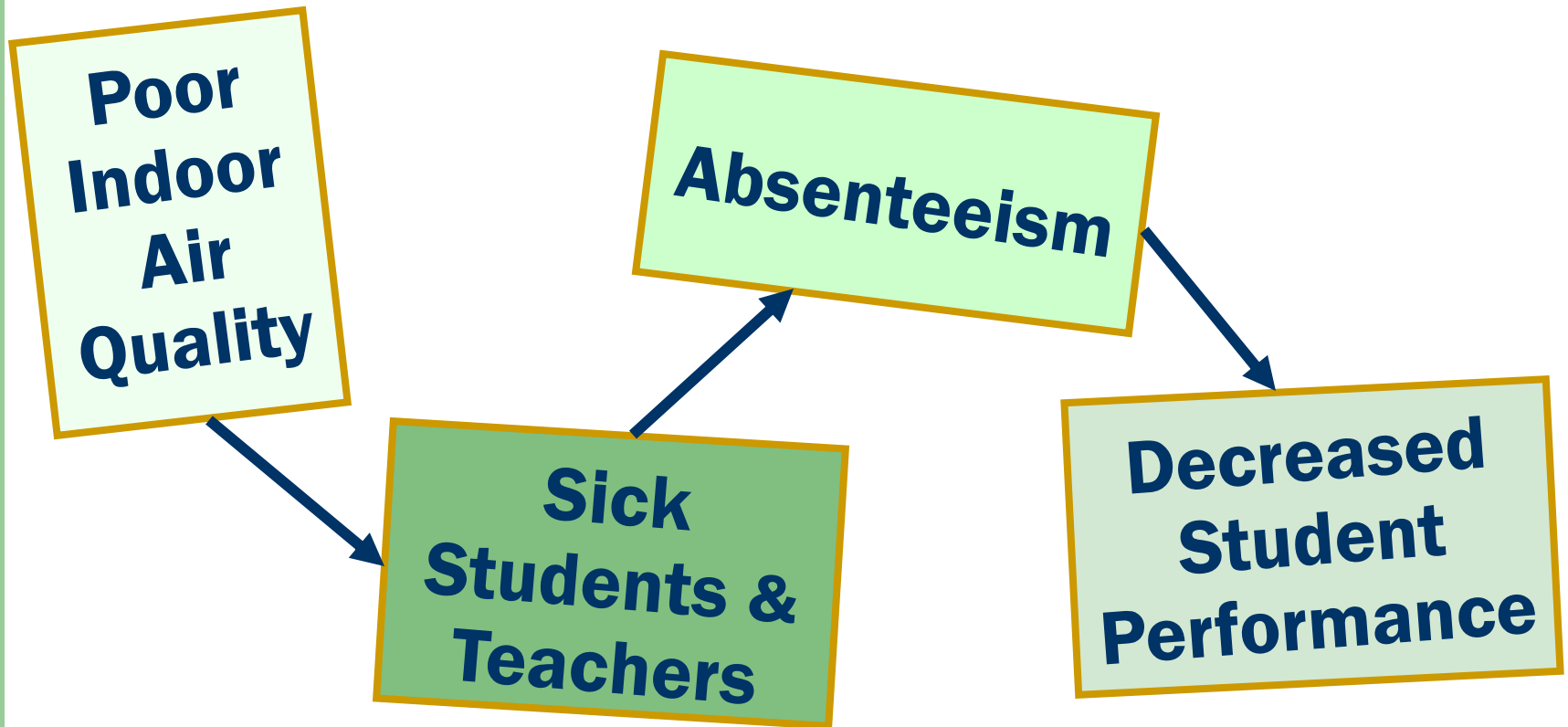
Day Light Study: Capistrano U.S.D

HESCHONG MAHONE GROUP 1999 - 2007 STUDIES



- **The classrooms with day-lighting: Students learn 20% to 26% faster in Math and Reading**
- **The classrooms with the significant window area are associated with 15% to 23% faster rate of improvement**
- **Classrooms with operable windows associated with 7% to 8% faster improvement in three out of four cases.**

Need for High Quality Indoor Air



Do HP Schools Cost More?

NJ and PA studies found High Performance Buildings may cost slightly more to build

- Initially can cost 3% to 5% more
- Ultimately 0% - 2% above code built
- 10% more for Integrated Design
- Use 20% - 40% less energy than code
- The Key is Lower **Life-Cycle Cost**

Financial Benefits

TABLE A

Financial Benefits of Green Schools (\$/ft ²)	
Energy	\$9
Emissions	\$1
Water and Wastewater	\$1
Increased Earnings	\$49
Asthma Reduction	\$3
Cold and Flu Reduction	\$5
Teacher Retention	\$4
Employment Impact	\$2
Total	\$74
Cost of Greening	(\$3)
Net Financial Benefits	\$71

Greening America's Schools costs and benefits

Gregory Kats

Managing Principal

A Capital E Report

www.cap-e.com

October 2006

sponsoring organizations:

American Federation of Teachers

American Institute of Architects

American Lung Association

Federation of American Scientists

U.S. Green Building Council

Rally Available Resources

- Connecticut Clean Energy Fund
- Connecticut Energy Efficiency Fund
- Connecticut Green Building Council
- Department of Education
- Department of Public Utility Control
- Institute for Sustainable Energy
- Others (environmental groups, school groups, efficiency providers, etc...)

Public Act 07 – 242

Connecticut Public School Buildings

- **Modify CT General Statutes: 16a - 38k**
- New school building projects must meet **High Performance Building Standards**
- New school construction over \$5M of which \$2M or more is state funding authorized by General Assembly after January 1, 2009.
- Renovations over \$2M with state funding over \$2M or more is state funding authorized by General Assembly after January 1, 2009.

HP Building Standards

- **Leadership in Energy & Environmental Design, US Green Building Council**
LEED for School or LEED EB, O&M
www.usgbc.org/LEED
- **Collaborative for High Performance Schools**
www.chps.net
- **ENERGY STAR®**
www.energystar.gov/
- **Green Globes - Green Building Initiative**
www.thegbi.com/home/whatweare.asp
- **Sustainable Buildings Industry Council**
www.SBICouncil.org

Connecticut Required Points

1. Required Building Commissioning
2. Integrated Design Process
3. 21% Better than Code
4. Indoor Air Quality Management Plan
5. Water Efficiency - 20% Better than Code
6. Recycling of Materials
7. Erosion / Sedimentation Control
8. Sustainable Site Development
9. No Smoking Policy
10. Integrated Pest Management Plan
11. CFC Refrigerant Ban or Phase-out Plan
12. Metering of Multiple Buildings

CT Clean Energy Fund

High Performance Schools Program

- Provides a “Circuit Rider” for Early Intervention
- Assist in Design and Specifications
- Encourage Integrated Renewable Systems
- Incentive for PV to meet 1 point on LEED
- Encourage 2nd Point for Curriculum Integration
- PV Incentives \$1000 to \$3500 per kw

* Verify prior to purchase with CCEF

CT Clean Energy Fund

www.ctcleanenergy.com



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HOME BASICS OF CLEAN ENERGY CLEAN ENERGY INCENTIVES YOUR HOME YOUR BUSINESS OR INSTITUTION YOUR COMMUNITY EDUCATIONAL PROGRAMS

CT CLEAN ENERGY COMMUNITIES

COMMUNITY INNOVATION

GRANTS

HIGH PERFORMANCE SCHOOLS

High Performance Schools Program

Through a portfolio of initiatives, the Connecticut Clean Energy Fund seeks to accelerate the design, construction and operation of high performance schools in Connecticut.

A high performance school improves the learning environment while saving energy, resources and money. The key attributes of a high performance school are healthy indoor air quality; thermal, visual and acoustic comfort and efficient use of energy, materials and water, which can include the installation of clean energy systems. Creating a school with these features is not difficult but requires an integrated, holistic approach to the design phase. An optimal facility will enhance learning and teaching, reduce operating expenses and protect the environment.



Highlights of the CCEF's program include:

- Assistance at the earliest stages of a municipality's consideration of a major renovation or new school construction p
The CCEF has retained [The Institute of Sustainable Energy \(ISE\)](#) at Eastern Connecticut State University to provide ir
about the benefits of high performance schools and financial incentives that may be available. If you are planning to
renovate a school in your city, town or regional district, please contact: Bill Leahy, Chief Executive Director of ISE at (0252 or leahyw@easternct.edu.

CT Energy Efficiency Fund

Energy Conscious Blueprint

- New Construction and Renovations
- Support for Integrated Design Process
- Support Modeling with DOE 2
- \$ for High Efficiency Electric Equipment
- Commissioning the Completed Building



www.CTSavesEnergy.org



CT Green Building Council

www.ctgbc.org



The Connecticut Green Building Council

Promoting intelligently designed and constructed high-performance energy efficient buildings

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Wednesday January 14, 2009 | [What is Green Building?](#) | [Annual Awards](#) | [Green Schools Toolbox](#) | [High Performance Schools](#) | [Green Newsfeed](#)



The Connecticut Green Building Council First Annual Awards!

In recognition of the efforts by designers to promote green buildings in Connecticut, the CT Green Building Council (CTGBC) gave out six awards in early June. [More Info and Photos](#)

[2009 Message from CTGBC President Todd Renz](#)

Join CTGBC or renew your membership now using our [online membership system](#).



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The Connecticut Green Building Council is a chapter of the United States

CT Energy Information

www.ctenergyinfo.com



It's Your Energy. Use it wisely.
1-877-WISE-USE

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Residential Resources

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Energy Assistance

Ways to Save

Renewable Energy

Green Buildings

MY ENERGY POLICY:

Efficiency is good for my bottom line.

Good news for commercial, industrial, governmental, institutional and agricultural businesses.

[Learn More »](#)



Energy News

[See All »](#)

[Home Energy Audits and a Clean, Tune and Test of Your Oil or Propane Heating System Can Lower Energy Consumption](#)

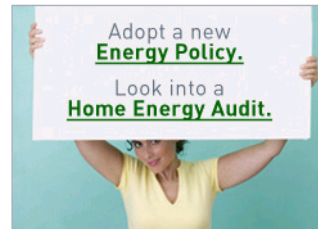
Homeowners who heat with oil or propane can participate in this program that offers a clean, tune and test of your heating system as well as professional home weatherization services.

Participation is limited based on available funding.

[CTCleanEnergyOptions reaches milestone - 20,000 enrolled.](#)

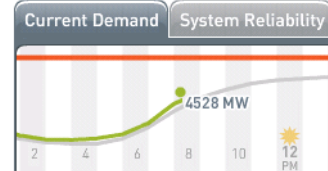
The CTCleanEnergyOptions program allows Connecticut residential and business customers to support the production of electricity generated from clean sources.

Feature



CT Power Update

[24-Hour Graph »](#)



■ Past Seasonal Peak Demand - 5500 MW
■ Today's Forecasted Demand
■ Actual Demand

Next Steps

- States report on local progress
- Discussion of “Best Practices”
- Discussion of Barriers and Obstacles
- Brainstorm Solutions
- Action Items?

Thanks for your interest

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