

# Creating Demand for Above Code Design

---

2005 National Workshop on State Building  
Energy Codes

June 29, 2005

*Presented by: Don Fudge  
Program Manager  
High Performance Schools  
Exchange*

# The High Performance Schools Exchange

---

- a regional information and education resource managed by the Northeast Energy Efficiency Partnerships, Inc. (NEEP)
- to support the promotion of and application of high performance design in K-12 schools.

# My Unique Position

---

- **NEEP history and people**
  - Policy
  - Standards
  - Commercial buildings
  - EnergyStar
- **Northeast Codes Project**
  - Technical assistance
  - Training
- **Building Operators training course (BOC)**
  - energy efficiency techniques
  - Codes module

High Performance

Schools Exchange

Northeast Energy Efficiency Partnerships

# The Mission of the Exchange: Market Transformation

---

By 2010, the majority of new and renovated K-12 schools in the Northeast will be built using High Performance School principles of design and construction

# High Performance Schools Offer Better Learning Environments

---

- Healthy and Productive
- Educationally Effective
- Sustainable
- Community Centered
- Less costly to Operate

# By Using *above code* design

---

- Energy: at least 20% above IECC or ASHRAE 90.1
- Thermal Comfort: ASHRAE 55
- Acoustic Comfort: ANSI
- Visual Comfort: ASHRAE
- Indoor Air Quality: ASHRAE 62

# ...and Ensuring Building Performance

---

- Building Commissioning
- Re-commissioning
- Operations and Maintenance Plans
- Indoor Air Quality Plans
- Project or District Innovations or Policies

# Tools: Rating Systems and Design Guides

---

- **LEED-NC and EB** – the first commercial building Design Rating System
  - NBI *E-Benchmark*, ASHRAE 90.1 - 1999
- **CHPS** – *California* – Voluntary
  - Schools only
  - Best Practices
  - Performance and Prescriptions
  - O&M and Commissioning volumes
  - Minimum Energy design at CA code
- **DOE EnergySmart Schools**

High Performance

Schools Exchange

Northeast Energy Efficiency Partnerships

# Rating Systems and Design Guides

---

- **NBI *Benchmark*** – adopted by *Maine*
  - Performance-based
  - Highly prescriptive
  - Energy and IAQ only
  - In Maine: 20% energy use reduction *mandatory*
- **Washington Sustainable Schools Protocol–Mandatory**
  - CHPS, LEED, Benchmark
  - Energy: 10% reduction from Non-Residential Energy Code (NREC)

# Rating Systems and Design Guides

---

- **MA-CHPS** – *Massachusetts*
  - CHPS, LEED, *Benchmark*
  - Energy: exceed the MA energy code (ASHRAE 90.1-1999 and IECC 2000) by 20%
- ***New Jersey High Performance Schools*** – mandatory
  - LEED-based
  - Energy: NBI Benchmark + 20%, ASHRAE 90.1 - 1999
- ***New Haven, CT*** – LEED Silver
  - Gilbane, Inc.
- ***Boston, MA*** – Energy usage in public buildings reduced 20%

# SO...

---

Why aren't all schools built to high performance standards?

# Barriers to Choosing High Performance Design

---

- State school construction regulations and funding guidelines
- Design professionals wary of “above code”
- Primary decision-makers (School Building Committees) are amateurs in building
- Communities do not want to pay for change
- Lack of substantive performance data

# And...

---

- Increase in first cost, perceived or real
- Fear of Change
- Lack of Trust
- Inertia

# Overcoming Barriers: the Exchange model

---

- **Top-down: Policy changes – state by state**
  - Form Partnerships with Key Players
  - Facilitate and Support working groups in each state
  - Educate the decision-makers

# Overcoming Barriers: the Exchange model

---

- **Bottom-up: *Create Demand – school by school***
  - Partner with Associations
  - Work with school districts directly
  - Educate through Rebuild America workshop model
  - Be an Information resource

High Performance

Schools Exchange Northeast Energy Efficiency Partnerships

# Exchange Partners: Top Down Effort

---

- Boston Office DOE
- Legislators
- State Education Dept. Facilities Administrators
- State Health Agency Administrators
- State Energy Officials
- State Building Code officials
- Utilities representatives
- SBC Program administrators

High Performance

Schools Exchange Northeast Energy Efficiency Partnerships

# Partners: Bottom-Up or Grassroots Effort

---

- Regional Associations of Educators
- State Associations of School Boards
- State Associations of Superintendents
- Associations of Municipalities
- Design Professionals
- Builders
- School Building  
Committees

# Exchange is developing a Regional Guide or Protocol

---

- Baseline design above code and at standards, regulations
- prescriptive measures – do this and you will be...
- Adapted to state culture, climate and geography
- Written in *code-like* language
- Commissioning, re-commissioning and Training required
- Review process based on code review calendar

# 2005 Exchange Goals

---

- ***HPS Guidelines*** in place
- ***School funding agencies*** actively participate in the development of regional technical guidelines
- At least 12 ***school boards commit*** to the use of HPS design to exceed energy code requirements by 15-20 percent.
- An increasing pool of ***architectural firms committed*** to and qualified in HPS design
- Exchange ***funded and broadly supported*** by utilities, program administrators, businesses, foundations

# Exchange Sponsors

---

- Henry A. Kendall Foundation
- Connecticut Light & Power
- Efficiency Maine
- Efficiency Vermont
- Keyspan Energy Delivery (MA)
- Long Island Power Authority (NY)
- Unitil/Fitchburg (MA,NH)
- United Illuminating (CT)
- Western Massachusetts Electric

# High Performance Schools Exchange

---

- Contact:
- Don Fudge
- Phone: (781)-860-9177 ext 20
- Email: [dfudge@neep.org](mailto:dfudge@neep.org)
- Website: [www.neep.org](http://www.neep.org)