



NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

Innovations in New England: O & M, NE-CHPS, and more

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PRESENTATION SUMMARY



1. About NEEP
2. NEEP's Schools and Public Buildings O&M Guide
 - IAQ Examples
 - Energy Efficiency Examples
3. Northeast Collaborative for High Performance Schools
4. Resources



1. ABOUT NEEP

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

“Accelerating Energy Efficiency”

MISSION

Accelerate the efficient use of energy in the Northeast and Mid-Atlantic Regions

APPROACH

Overcome barriers to efficiency through
Collaboration, Education & Advocacy

VISION

Transform the way we think about
and use energy in the world around us.

One of six Regional Energy Efficiency Organizations (REEOs) designated by U.S. Dept. of Energy to work collaboratively with them in linking regions to DOE guidance, products





2. NEEP'S SCHOOL AND PUBLIC BUILDING OPERATION AND MAINTENANCE GUIDE

(**FREE @ NEEP.ORG/PUBLICBUILDINGS**)

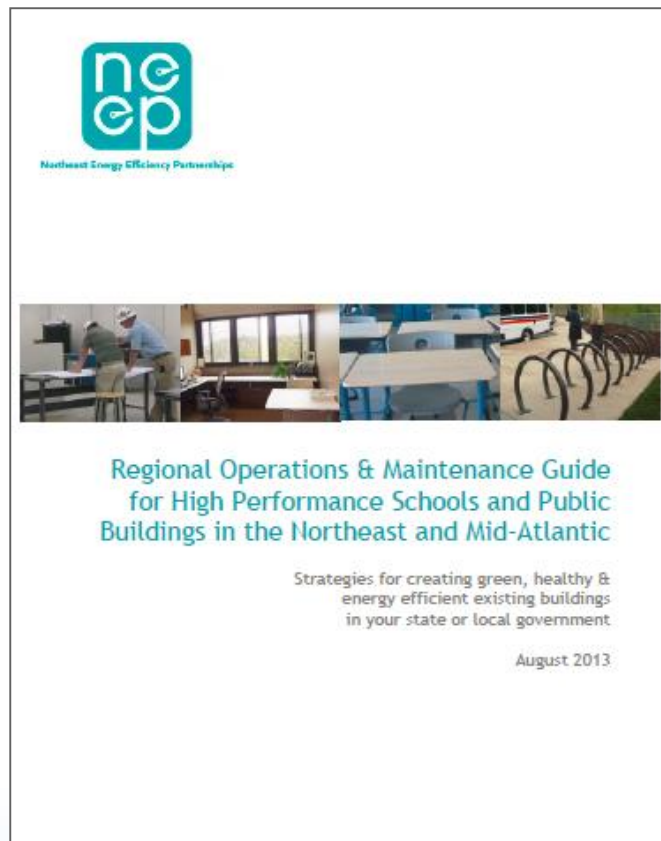
REGIONAL OPERATIONS & MAINTENANCE GUIDE

Strategies for creating green, healthy & energy efficient *existing buildings* in your school or municipal building



WHAT IS IT?

- A pathway for existing Schools and Public Building to adopt high performance operation and maintenance strategies
- Many low cost ideas
- Regionally developed
- 15 sections
 - Indoor Environmental Quality
 - Renewable Energy
 - Commissioning/Retro-Commissioning
 - Financing
 - Recycling
 - Etc.



REGIONAL OPERATIONS & MAINTENANCE GUIDE

Organizes Indoor Environmental Quality Best Practices



For Example:

- No Irrigation System-Building Overspray
- Walk-off Mat Systems
- Energy recovery ventilation maintenance and commissioning
- Replacing Pilot Lights with Electric Ignition
- Eliminating Use of Fossil Fuel Powered Machinery within the building
- Minimizing mercury exposure
- Integrated Pest Management



Walk off system at New Hampshire school

See it in Action:

“Stomp Day” at Lamprey Elementary School (Raymond, NH)

Being one of the very first schools in the state to receive the [Healthy Schools grant](#) by New Hampshire Partners for Healthy Schools, [Lamprey River Elementary School](#) aims to implement strategies to improve indoor air quality (IAQ) in its school environment. One of the approaches that school officials have taken is the purchase of additional walk-off mats for building areas with higher foot traffic. Particular on “Stomp Days” the students are asked to stomp their feet from the buses until the end of the walk-off mats.

The practice helps to reduce the cleaning time and cost of hallway and school entrance and significantly reduces the amount of dust, dirt, and other pollutants coming off the shoes of 600-plus people entering the building each day. According to an industry [report](#), it costs about \$500 per pound to remove dirt tracked into a building; thus, capturing more dirt and contaminants by walk-off mats further reduces facility cleaning costs.

REGIONAL OPERATIONS & MAINTENANCE GUIDE

Organizes Indoor Environmental Quality Best Practices



For example, HVAC Maintenance and Optimization:

- Replacing Filters
- Keeping hoods and intakes free of debris/ice/snow
- Ensuring condensate drainage
- Heat exchange core cleaning
- Ductwork cleaning
- Automatic Damper Operation
- Monitoring CO₂ Levels to Ensure Airflow

See it in Action:

**Keefe Regional Technical School
(Framingham, MA) - HVAC filter
upgrade**

Looking to improve indoor air quality (IAQ) for its students, teachers, and staff, Keefe Technical School worked with [National Air Filtration Association \(NAFA\)](#) to upgrade its HVAC filter. The school also wanted to upgrade the filtration efficiency to meet or exceed the filter efficiency required by [ASHRAE Standard 62.1](#). The decision to upgrade the filter to 4-inch MERV 11 pleated filter from the 8-inch cartridge type MERV 6 helps school officials to realize the cost savings associated with reduced and labor and disposal costs. The higher efficiency filters also keep the ductwork clean and optimize HVAC system operating efficiency and ultimately improve IAQ.



Energy Efficiency issues covered:

- Benchmarking
- Lighting Retrofits
- Energy Management Systems
- Boilers
- Building Envelope Improvements
- Renewables

Heads Up - PCBs in Lighting Ballasts:
PCBs are suspected carcinogens and may still be in older schools

Congress banned the manufacture of a potentially harmful chemical, polychlorinated biphenyl (PCBs) in the United States in 1977. However, recent EPA inspections in New York City public schools found that many light ballasts in these schools contained PCBs and had also failed, causing the PCBs to leak.

The EPA presents a [detailed explanation for PCBs in schools](#), as well as [inspection results](#) from NYC schools on its website. According to the EPA, any building built before 1979 likely has PCB-containing ballasts that should be removed in order to avoid potential degradation and exposure to PCBs from these older fixtures. Guidance from the EPA, along with several frequently asked questions concerning retrofitting PCB containing ballasts, can be found [here](#). By taking advantage of these resources, school districts may overcome the lack of awareness concerning the associated risks and mishandling of PCB materials, ensuring responsible action is being taken to avoid exposing students and staff to a potentially hazardous pollutant.

ENERGY STAR® Statement of Energy Performance

86
 ENERGY STAR® Score¹

Sample Property
 Primary Property Function: Office
 Gross Floor Area (ft²): 200,000
 Built: 1980
 For Year Ending: April 30, 2013
 Date Generated: June 28, 2013

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and building activity.

Property & Contact Information

Property Address Sample Property 123 Main Street Arlington, Virginia 22030	Property Owner Wellington Commercial Property Managers 1 Washington Blvd Arlington, VA 22030	Primary Contact Jane Smith 1 Washington Blvd Arlington, VA 22030 () () () jsmith@wcp.com
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Property ID: 5000023

Energy Consumption and Energy Use Intensity (EUI)

Site EUI	Annual Energy by Fuel	National Median Comparison
75 kBtu/ft ²	Electric - Grid: 13,202,160 (88%) Natural Gas: 1,853,000 (12%)	National Median Site EUI (kBtu/ft ²): 122 National Median Source EUI (kBtu/ft ²): 352 % Diff from National Median Source EUI: -38%
Source EUI 217 kBtu/ft ²		Annual Emissions Greenhouse Gas Emissions (MtCO ₂ e/year): 1,927

Signature & Stamp of Verifying Professional

I, _____ (Name) verify that the above information is true and correct in the best of my knowledge.

Signature: _____ Date: _____

Licensed Professional

Donald Brown
 1 Washington Blvd
 Arlington, VA 22030
 202-333-4444
 donaldbrown@wcp.com

Professional Engineer Stamp
 (if applicable)

3. NORTHEAST COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS (NE-CHPS)





NE-CHPS 3.0



Why NE-CHPS?

- ✓ Developed with Regional Stakeholder Input
- ✓ Indoor Environmental Quality Focus
- ✓ Operations & Maintenance Emphasis

Developed to Meet the Northeast's:

- ✓ Building Codes
- ✓ Climate
- ✓ Educational Priorities

Criteria	Prerequisite Points	Total Points Possible
Integration and Innovation	6	21
Operations and Metrics	11	23
Indoor Environmental Quality	25	76
Energy	13	68
Water	6	21
Sites	4	22
Materials & Waste Management	4	19

INDOOR AIR QUALITY



Walk Off Mats:

- Improving Indoor Air Quality AND Limiting Operational Costs by Keeping Out:
 - Dirt
 - Heavy Metals
 - Pesticides



High Efficiency Particulate Air (HEPA) Filters:

- HEPA filter with Minimum efficiency reporting value (MERV) of 11 required
- HEPA filter with MERV value of 13 satisfies enhanced filtration requirement

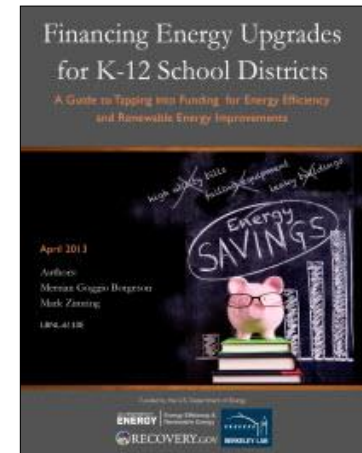
US DEPARTMENT OF ENERGY RESOURCES



- Recent Energy-Focused [TedEd](#)
 - Joshua Sneideman’s “A Guide to the Energy of the Earth”

- [Financing Energy Upgrades for K-12 School Districts](#) Guide

- Tax Exempt Lease Purchasing
- Energy Performance Contracting
- On-Bill Financing
- Power Purchase Agreements
- Grants/Internal Cash
- Bonding

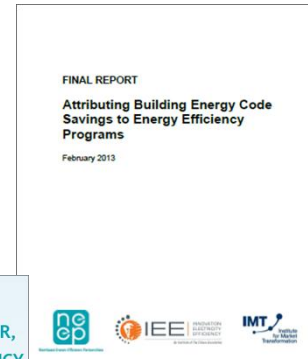
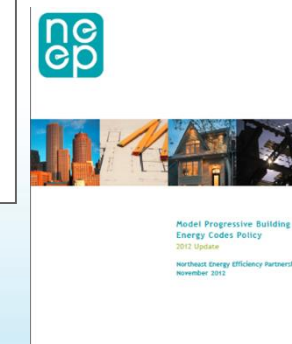
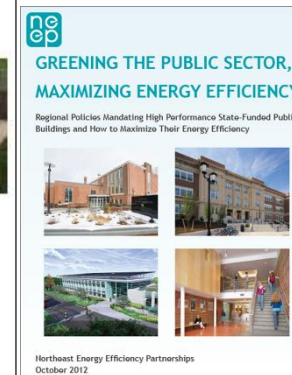
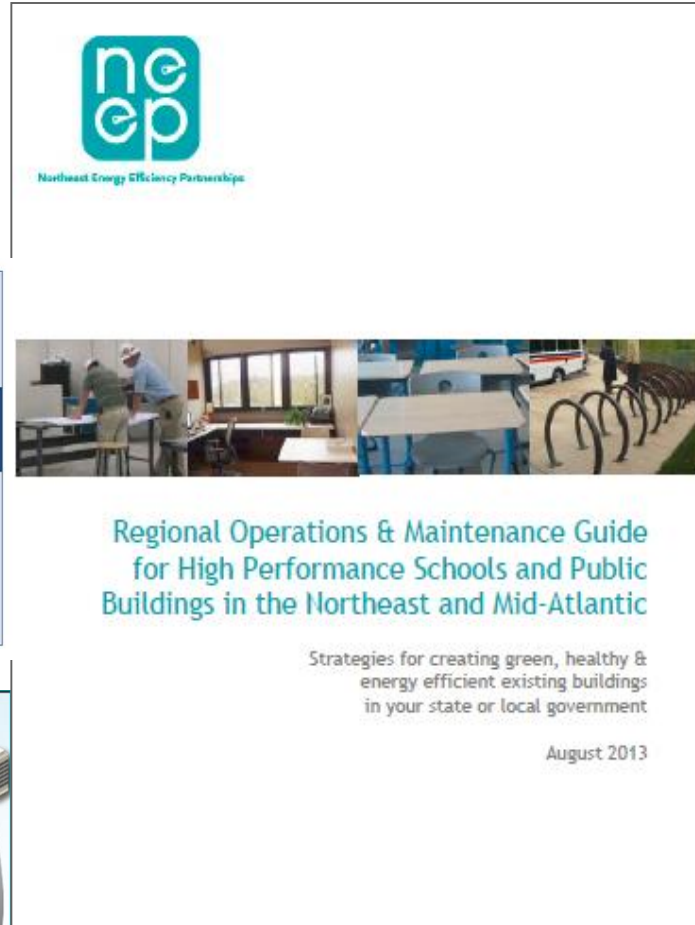
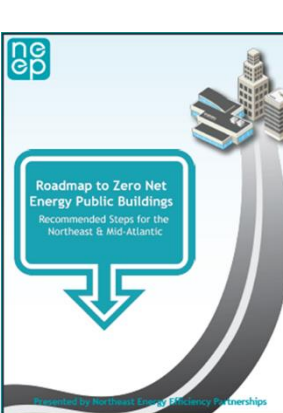
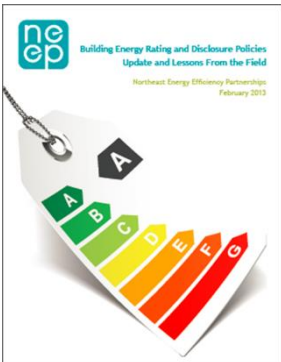
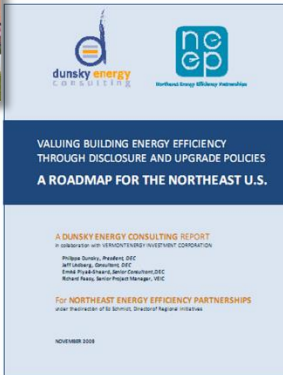
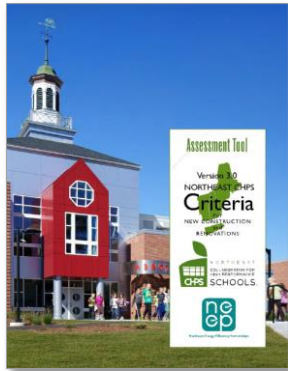


- Better Buildings Challenge

- Education [Partners](#)
 - Ex. NY’s Indian River Central School District
- Summit May 27-29, 2015
 - K-12 Track



NEEP RESOURCES AVAILABLE AT WWW.NEEP.ORG





THANK YOU

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