NEW HAMPSHIRE AND NE-CHPS: PARTNERSHIPS TOWARD HEALTHIER SCHOOLS

NE-CHPS Verified Keene Middle School (Keene, NH)
1. Northeast Energy Efficiency Partnership Overview
2. Northeast CHPS Overview
3. Northeast CHPS Criteria
4. Existing New Hampshire Northeast CHPS Verified Schools
5. Three Case Studies
   • Profile School
   • Merrimack Valley High School
   • Keene Middle School
6. Conclusions
7. Next Steps
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.
NORTHEAST COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS (NE-CHPS)

• Points based roadmap toward superior school performance

• Used with new construction or retrofits

• NE-CHPS is a points based roadmap toward healthier, more efficient and more productive schools

• Conveys building and design standards for all schools from pre-K through community colleges.

• Energy efficiency operational savings can quickly offset capital costs associated with air/environmental quality investments
## WHAT ARE THE NE-CHPS CRITERIA?

<table>
<thead>
<tr>
<th>Seven Basic Metrics</th>
<th>Related Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Integrated Design Process</td>
<td>Engineers consult with teachers &amp; students</td>
</tr>
<tr>
<td>2. Indoor Environmental Quality</td>
<td>Walk-off mats keep pollutants outside</td>
</tr>
<tr>
<td>3. Energy Usage</td>
<td>Motion sensor activated lighting</td>
</tr>
<tr>
<td>4. Water Usage</td>
<td>Low-flow toilets &amp; waterless urinals</td>
</tr>
<tr>
<td>5. Site Selection/Development</td>
<td>Facility located near public transportation</td>
</tr>
<tr>
<td>6. Materials &amp; Waste Management</td>
<td>Locally produced materials</td>
</tr>
<tr>
<td>7. Operations &amp; Metrics</td>
<td>Occupant behavior seminars</td>
</tr>
</tbody>
</table>
**INDOOR ENVIRONMENTAL QUALITY**

*NE-CHPS 3.0 (Pages 69-149)*

• NE-CHPS provides a detailed roadmap toward improved environmental health

• Points awarded for:
  • Effectively designed and commissioned Heating, Ventilation and Air Conditioning systems and HEPA filters
  • Paints, sealants, wood, and carpets that contain low volatile organic compound (VOC) counts.
  • Walk off mats that limit heavy metals and pesticides entering the building
  • Dedicated mechanical exhausts in areas of chemical use such as copy or print rooms
  • Many more…

“Asthma accounts for a total of 14 million lost school days each year.”

- American Lung Association
## EXISTING NEW HAMPSHIRE NE-CHPS HIGH PERFORMANCE SCHOOLS

<table>
<thead>
<tr>
<th>School Name</th>
<th>Location</th>
<th>Criteria Used</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keene Middle School</td>
<td>Keene, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Merrimack Valley High School</td>
<td>Penacook, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Profile School</td>
<td>Bethlehem, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Mason Elementary School</td>
<td>Mason, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>TNT Alternative School</td>
<td>Keene, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Idelhurst Elementary School</td>
<td>Somersworth, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Lebanon Middle School</td>
<td>Lebanon, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Portsmouth Middle School</td>
<td>Portsmouth, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Kingswood High School</td>
<td>Wolfeboro, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Abbott-Downing Elementary School</td>
<td>Concord, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Christa McAuliffe Elementary School</td>
<td>Concord, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Mill Brook Primary School</td>
<td>Concord, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
<tr>
<td>Laconia Middle School</td>
<td>Laconia, NH</td>
<td>NE-CHPS Verified</td>
<td>Completed</td>
</tr>
</tbody>
</table>
THREE NEW HAMPSHIRE CASE STUDIES

1. Profile School
   • Penacook, NH (2008)

2. Merrimack Valley High School
   • Bethlehem, NH (2008)

3. Keene Middle School
   • Keene, NH (2011)
High Performance Features:

• 90% of the classrooms do not need air conditioning
• Indoor spaces receive 100% outdoor air ventilation
• Three-part entry mat system stop pollutants at the door
• 60% local construction materials
• Community shared-space policy uses the school as a teaching tool

“The air quality is unbelievably different.”
—Principal Michael Kelley
MERRIMACK VALLEY HIGH SCHOOL
Penacook, NH - NE-CHPS Verified (Renovation)

High Performance Features:
• Air exchange/ventilation system
• Wood chip-fired boiler
• Hydronic heating distribution system
• Building envelope sealing
• Electrical improvement (lighting, pumps, motors, controls, remote sensing etc.)

61% energy cost savings
(prior condition as baseline)
KEENE MIDDLE SCHOOL
Keene, NH - **NE-CHPS Verified** (New Construction)

High Performance features:
- Wood chip heating plant
- 30,000 gallon rainwater harvesting system
- Reflective roof surface
- Extensive daylighting
- Heat recovery ventilation
- Energy management system
- Energy efficient lighting

Keene Middle School
Keene, NH  (2011)

34.5% energy costs savings
(projected from baseline)
CONCLUSIONS:

1. Energy efficiency upgrades, environmental quality improvements, and sustainable building design can lead to healthier, less costly, and more productive New Hampshire schools.

2. Early champions of high performance schools, New Hampshire organizations and state officials contributed valuable input and resources toward Northeast CHPS guidance manuals.

3. New Hampshire’s 3% school reimbursement policy provided needed funds, incentivizing the repair and construction of many schools, which currently serve as beacons of healthy educational environments.

4. Recent fiscal barriers have led to the expiration of the 3% incentive.
NEXT STEPS:

1. New Hampshire Schools can still become NE-CHPS Verified
   • In spite of the incentive expiration, the New Hampshire Department of Education has agreed to continue verifying Northeast CHPS compliant schools.

2. Renewing the 3% financial incentives would provide net benefits
   • Construction incentives provide useful encouragement for schools contemplating healthier, less costly, and more efficient educational spaces

3. For further info:
   • Visit the NEEP’s NE-CHPS website
   • Check out the latest version of NE-CHPS
   • Check out the Public Buildings Operation & Maintenance Guide
   • Contact Brian Buckley at bbuckley@neep.org