THE ROAD TO ZNE: WHY HIGH PERFORMANCE SCHOOLS ARE MORE IMPORTANT THAN EVER

NASEO Webinar

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Presenter:

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Executive Director

Collaborative for High Performance Schools (CHPS)
Make Every School an Ideal Place to Learn
“C” is for Collaborative
“C” is for Collaborative
“HP” is for High Performance

1) Healthy & Productive

2) Conserve Resources

3) Protect Environment
“S” is for Schools

All Schools Can Be High Performance Schools

• Public, Charter & Private
• New Construction
• Renovations & Modernizations
• Prefabricated Classrooms
• Existing Schools
The Core Values of CHPS

• Schools are unique environments
• State-based decision-making and national collaboration are powerful tools for change
• High performance schools bring real benefits
• High performance schools must take a comprehensive approach
• Working collaboratively produces the best results for our schools and students
The Core Values of CHPS

• Schools are unique environments
  • Asthma accounts for an estimated 14 million lost school days for American schoolchildren
  • Schools are an opportunity to both reduce greenhouse gas emissions and educate future decision-makers on its importance
The Core Values of CHPS

• Schools are unique environments

• State-based decision-making and national collaboration are powerful tools for change
  – Gives states control over priorities and creates better buy-in and dovetails with school construction programs
  – Share post-occupancy research and evaluation
  – Collaboration, innovation on strategies and technologies
  – Leverage resources to develop tools
The Core Values of CHPS

• All schools can be high performance
• Schools are unique environments
• State-based decision-making and national collaboration are powerful tools for change

• High performance schools bring real benefits
  • Heightened student performance
  • Reduced operating costs
  • Better occupant health
  • Increased ADA
  • Improved teacher retention
  • Reduced liability exposure
  • Reduced environmental impact
  • Eligible for financial incentives
The Core Values of CHPS

• All schools can be high performance
• Schools are unique environments
• State-based decision-making and national collaboration are powerful tools for change
• High performance schools bring real benefits
• High performance schools must take a comprehensive approach

ENVIRONMENT + HEALTH + STUDENT PERFORMANCE
The Core Values of CHPS

- All schools can be high performance
- Schools are unique environments
- State-based decision-making and national collaboration are powerful tools for change
- High performance schools bring real benefits
- High performance schools must take a comprehensive approach

- Working collaboratively produces the best results for our schools and students
CHPS Best Practices Manual

• Our most popular and long-standing resource
• Five volumes for a variety of stakeholders
Connecting Conditions to Outcomes

**School Design**
- Site
- Orientation
- Envelope
- HVAC
- Acoustics
- Lighting

**Building Performance Characteristics**
- Indoor Air Quality
- Ventilation
- Noise
- Lighting
- Thermal Comfort
- Moisture

**Modifying Factors**
- Seasons
- Time
- Operations
- Maintenance
- Cleaning
- Occupant Behavior
- Budget

**Outcomes**
- Student Learning
- Student Health
- Teacher Health
- Teacher Satisfaction

Courtesy of National Clearinghouse for Educational Facilities and National Academy Press
WEIGHTING USING PRIORITIES

Core Criteria

% Pts

- Integration
- IEQ
- Energy
- Water
- Site
- Materials
- O&M

Local Adaptations

Pts

- Core
- State
## CHPS WEIGHTING COMPARISON

<table>
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<th>Category</th>
<th>Core/US-Criteria</th>
<th>2014 CA-CHPS</th>
<th>NE-CHPS V 3.0</th>
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Criteria Set-up
Example: 2014 US-CHPS Criteria

Seven High Performance Categories

• Integration (II)
• Indoor Environmental Quality (EQ)
• Energy (EE)
• Water Efficiency (WE)
• Sites (SS)
• Materials & Waste Management (MW)
• Operations & Metrics (OM)
Design Toward Zero Net Energy (ZNE)

• Energy Prerequisite
• Superior Energy Performance
• ZNE Bonus
  – ZNE Capable
  – ZNE (Innovation)

East Bay Met, Newport, RI

La Escualita Ed Ctr, Oakland, CA
DESIGN TOWARD ZNE

zEPI Scale

Moving down the scale can be achieved by:

– Code compliance
– More efficient
  • Windows
  • HVAC
  • Lighting
– Integrated design
  • Daylighting
  • Natural ventilation
– Plug load reductions
– Renewables

ASHRAE 90.1-1999
Title 24 2001
Title 24 2005
ASHRAE 90.1-2007
Title 24 2008
ASHRAE 90.1-2010
Title 24 2013
ASHRAE 90.1-2013

NREL Maximum Technical Potential (with no renewables). Includes plug load savings.
CHPS RECOGNITION

**PROJECT TYPE**

- **New School Construction**
  - Design and Construction Criteria
  - CHPS Verified
  - CHPS Designed

- **Existing Schools**
  - Performance Benchmarking / Report Card
  - High Performance
  - High Improvement

- **Prefabricated Classrooms**
  - High Performance PreFAB Classrooms Criteria
  - CHPS PreFAB
CHPS Verified

• Technical Assistance, 3rd-party documentation review

CHPS Designed

• Voluntary self-certification system
Create healthy and productive learning environments

Indoor Air Quality

Thermal Comfort

Acoustics

Visual Quality

Energy Efficiency

Water Efficiency

Waste Reduction

Conserve natural resources and save money
Now What?

• Subscribe to the CHPS E-bulletin (monthly newsletter): www.chps.net/connect
• Attend a free CHPS webinar: www.chps.net/events
• Become a CHPS member
• Get involved with a CHPS Committee
• Bring CHPS to your state
• Find us on social media
  🎥/twitter/LinkedIn
QUESTIONS?
NOW’S THE TIME!

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