





TODAY'S AGENDA



- 8:00-9:00am Light Refreshments, Tour, and Exhibitors' Table
- 9:00-9:30am Welcome and Opening Remarks
- 9:30-10:45am Updated NE-CHPS: What's New and Why?
- **10:45-11:00am** Supporting School Construction: National Grid Incentives
- 11:00-11:15am Networking Break
- 11:15-12:15pm Who's Responsibility is it Anyway?
- 12:15-1:00pm Lunch, Networking, and Time with Exhibitors
- 1:00-2:15pm Visioning: What is the Future of Rhode Island Schoolhouses
 - Implementing: How Do We Arrive at the Bright Future Envisioned for Rhode Island Schools?
- 2:45-3:00pm Action Group Report Out
- **2:45-3:00**pm Hi

2:15-2:45pm

High Performance School Tour- Claiborne Pell Elementary



NE-CHPS: What's New and Why?

Presented by Nick Semon of Nick Semon Consulting



About CHPS



- Mission: Making every school an ideal place to learn
- Priorities: 1) Healthy and productive learning environment, 2) Conserve Natural Resources, and 3) Protect the Environment
- Incorporated as 501(c)(3) non-profit in 2002
- Provides a broad array of tools and resources for K-12 schools
- Became national organization in 2008
- CHPS is a membership organization
 - School districts can join for FREE



History of CHPS Criteria

- First version released in California in 2002
- CHPS Criteria versions cover 13 states
- Three versions of CHPS in NE states
 - NE-CHPS
 - MA-CHPS
 - NY-CHPS
- CHPS National Core Criteria developed 2009-2013





About NE-CHPS

- Licensed from CHPS 2006
 - Adapted for unique climate, characteristics, & codes
 - Vetted through regional stakeholders
 - NE-CHPS Version 2.0 completed '09
 - NE-CHPS O&M Guide



CHPS in the Region



12/8/2014



Point Summary

- New Point Structure
 - All criteria, including prerequisites, now have assigned points
 - Helps indicate difficulty and importance
- 250 points total
 - 200 points assigned in Core Criteria
 - 50 points distributed or created by NE
- Direct comparison to '09 criteria not possible

Category	Points	% of Total
Integration and Innovation	21	8.4%
Operations & Metrics	23	9.2%
Indoor Environmental Quality	78	31.2%
Energy	66	26.4%
Water	21	8.4%
Sites	22	8.8%
Materials & Waste	19	7.6%
Total	250	100%



Plan and Spec Sheet Documentation

	Criteria	Pre-requisite	Points Possible	Points Pursued	References for Contractors and Team (Attachments, Construction Docs, etc.)	Other Notes for Contractor Regarding Compliance (Items to track during construction, etc.)
Energy		Subtotal	68	0		
EE 1.0	Energy Performance	Р	6			
EE 1.1	Superior Energy Performance		40			
EE 2.1	Zero Net Energy Capable		3			
EE 3.0	Commissioning	Р	4			
EE 3.1	Additional Commissioning Qualifications		1			
EE 3.2	Building Envelope Commissioning		1			
EE 3.3	Enhanced Commissioning		1			
EE 4.0	Enviornmentally Preferable Refrigerants	Р	1			
EE 5.1	Energy Management System		2			
EE 5.2	Advanced Energy Management System and Submetering		2			
EE 6.1	Natural Ventilation & Energy Conservation Interlocks		2			
EE 7.0	Local Energy Efficiency Incentives and Assistance	Р	2			
EE 8.1	Variable Air Volume Systems		1			
EE 9.0	Renewable Energy Performance Monitoring		1			
EE 10.1	Electric Vehicle Charging		1			

- Two full size plan sheets enable team-wide compliance:
 - Annotated Scorecard
 - Materials Worksheet
- Prereqs and claimed credits reference CDs wherever possible
- Some additional attachments required
 - E.g.: Resolutions, reports



What's New: Integration

- New Section
- Improved Integrated Design Requirements*
 - More robust
 - Additional meetings and documentation required
- District Level Commitment to Sustainability
- Crime Prevention through Environmental Design*
 - Sightlines, accessibility, and safety

*Prerequisites





What's New: O&M

- Policy and Operations has become Operations and Metrics
- Staff and Occupant Training*
 - More robust
 - Immediately after construction and annually
- Post-Occupancy Transition
- Performance Benchmarking
 - Energy Star, ORC, or School Model
- High Performance Operations
- Green Cleaning

*Prerequisites





What's New: IEQ

- MERV 11* and MERV 13 filter requirements
- Dedicated outdoor air systems credit
- Low Radon credit
- Individual temperature controls in all classrooms
- LED lighting performance standards
- Improved acoustics requirements*

 Stricter STC ratings, higher testing requirements
- Low-EMF best practices

*Prerequisites





What's New: Energy

- Move towards holistic approach:
 - Points awarded based on improved performance over ASHRAE 90.1 or IECC 2012
 - Renewable energy production included in overall performance level
 - EUI requirement of 40 kbtu/sf before > 18 energy credits awarded
 - Emphasize efficient design before energy production
 - zEPI scale available as energy credit option
 - Provides constant scale as energy codes change
- Building envelope commissioning credits



What's New: Water

- Improved indoor water fixture requirements to match EPA WaterSense[®]*
- Create irrigation and outdoor water budget for credit

*Prerequisite

12/8/2014



What's New: Sites

- EPA School Siting Guidelines for site selection*
- Open space availability and minimal parking
- Centrally located schools
 - More robust: Proximity to basic services
- New, novel forms of human powered transportation in addition to bikes/skateboards
 - Skis, etc.
- School gardens
- Locally native plants in landscaping more robust

*Prerequisite





What's New: Materials and Waste

- Organic materials
- Environmental Product Declarations (EPD) for multi-attribute product claims
- Health Product Declarations (HPD)
 - Credit for selecting products with HPD
 - No performance requirements





What's Out

- Mercury Reduction
 - Technology advances and common practices have made the criteria redundant
- Rapidly Renewable Materials Approach
 - Changed from 0.5% of total materials cost to 50% of a major finish
- Certified Wood
 - Only FSC now accepted for most wood, or NWFA's Responsible Procurement Program for flooring
- Alternative Fuel Credits
 - Now available as innovation credits rather than standalone credits





RI Addendum – Additional Prereqs

- II 2.1: District Level Commitment

 Commit to CHPS Verified or the ORC
- II 3.1: Facilities Master Plan
 - 10 to 15 year plan
- II 4.1: High Performance Transition Plan
 For phased renovations to achieve recognition
- II 6.1: Educational Integration

- Curriculum, leadership, planning



RI Addendum – Additional Prereqs

- OM 12.1: Computerized Maintenance Management System
- EQ 8.1: Radon
 - Radon assessment required by state law





RI Addendum – Energy Credits

- CHPS references IECC 2012, but RI code uses IECC 2009
 - Points anchored to current RI code so that future code changes have minimal impact on points

Additional	Reduction from RI Code	Reduction from NE-CHPS
Reimbursement Funds	(Anchored to IECC 2009)	(Based upon IECC 2012)
2%	30%	14% (5 points)
3%	40%	26% (16 points)
4%	50%	38% (21 points)

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12/8/2014



RI Addendum – Energy Credits

Points	NE-CHPS Reduction Requirement (IECC 2012)	zEPI Equivalent	Reduction from RI Code (Anchored to IECC 2009)
Prereq	10% minimum reduction	51	27%
12 points	20% minimum reduction	46	35%
18 points	30% minimum reduction	40	43%
22 points	40% minimum reduction	34	51%
25 points	50% minimum reduction	29	59%
28 points	60% minimum reduction	23	67%
31 points	70% minimum reduction	17	76%
34 points	80% minimum reduction	11	84%
37 points	90% minimum reduction	6	92%
40 points	100% minimum reduction (zero net-energy school)	0	100%





Questions?







Supporting School Construction: National Grid Incentives

Presented by Tracey Beckstrom of National Grid





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New Construction Services for Non-Residential Buildings in RI



NEEP December 5, 2014

Presenter:



Tracey A. Beckstrom Lead Commercial Sales New Construction nationalgrid 280 Melrose Street Providence, RI 02907 (c) 401-474-1640 Tracey.Beckstrom@nationalgrid.com



Design efficiency into your next project

HERE WITH YOU. HERE FOR YOU.

- National Grid's New Construction Program helps design teams and owners develop high performing commercial buildings
- Energy-efficient buildings have lower operating costs, higher property values, and lower emissions
- New Construction Services provide technical and design support
- Financial incentives available for building design teams and property owners
- Building Energy Code Training for the latest IECC 2012 energy code

National Grid's New Construction Services

- Promote and support highperformance building design, equipment selection, and building operation
- Lower operating and maintenance costs throughout the lifecycle
- Increase comfort, health, and productivity for building occupants
- Promote increased sustainability



New Construction Services support three project areas

- 1. Ground-up new construction
- 2. Major renovations
- 3. New equipment



The Reality of Energy Codes



Choose from multiple pathways

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For new construction or major renovations, National Grid offers two approaches:

1. Systems Approach

2. Whole Building Approach (our focus today)

- Whole Building Approach is designed for customers who plan to construct a new building or facility from the ground up, typically >10,000 square feet
- Or build a major renovation that triggers code compliance in many areas
- Best outcomes require early intervention, communication, coordination and expertise
- We can assist in providing critical support throughout design and construction, maximizing energy savings



Two Pathways under Whole Bldg Approach nationalgrid

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Advanced Buildings Path

Menu based items to get to 15%>code

Fixed incentives/size: \$2.00sf

1 time Design Team \$3,000 charette incentive Integrated Design Path

At least 15% above energy code

Fixed Incentives/savings \$0.35/kWh, \$1.70/therm

1 time Design Team \$3,000 charette incentive

Additional Design Team incentives

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Integrated Design Path

- Integrated Design Path is most applicable for buildings that are greater than 100,000 s/f or buildings smaller than this size that are not a good fit for the Advanced Buildings Path
- Goal: working collaboratively with the design team during the course of the conceptual and schematic design phase
- Approach generates detailed analyses / recommendations that allow informed decisions regarding energy-efficiency features
- Requires involvement / collaboration of all parties, from conceptual through project completion
- Integrated Design Approach generally results in substantially higher levels of energy savings
- Provides higher levels of incentives as a result of increased energy savings



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Advanced Buildings Path

- Advanced Buildings[®] is a comprehensive set of prescriptive criteria for commercial new construction built around New Building Institute's (NBI) Advanced Buildings (AB) Program
- NBI's New Construction Guide (The "Guide") applies proven and available energy-efficient technology and building science to the design of commercial and institutional buildings in 10,000 to 100,000 s/f range
- Designed for a range of building types including office, schools, retail, and public assembly
- No Modeling required
- At no cost to the customer- National Grid pays for the review

Whole Building Pathways and Incentives

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Summary of Whole Building Pathways and Incentives

Integrated Design	Electric Incentive	Gas Incentive
Building Owner	0.35 \$/kWh	1.70 \$/therm
Design Team	0.07 \$/kWh \$3,000 for participation i	0.34 \$/therm
Design ream		in energy eniciency chanette
Advanced Buildings	Base Criteria Incentive	Enhanced Criteria Incentive
Buildina Owner	\$2.00/square feet	\$0.25/saft per criteria*

Design Team \$3,000 for participation in energy efficiency charrette *a maximum of three criteria and \$2.75/square feet

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Systems Approach

- System Approach utilizes necessary New Construction prescriptive application for each measure for which prescriptive application exists
- Or complete a National Grid custom application for non-prescriptive, energy-efficiency measures which will result in energy savings



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Performance Lighting



- A tiered lighting energy saving program targeting new construction projects.
- **Tier one** is an incentive for lighting designs that exceed the code required lighting power lighting power density of a project by **15% \$0.60 per watt saved**
- Tier two is for projects that exceed lighting power density of a project by 25%.
 \$1.20 per watt saved
- These generous incentives challenge the design team to achieve energy savings while using their creativity to address the lighting needs of their client.

New Construction Services Agreement and Technical Assistance (TA) Studies

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- TA Studies are generally cost-shared (typically 50%) with the customer
- Terms are presented in the New Construction Services Agreement
- Study proposals assigned to and performed by TA consultants pre-qualified by the Program Administrators

New Construction nationalgrid Whole Building Approach: Integrated Design Path
The Integrated Design Path ("Program") is offered by National Grid as a comprehensive new construction offering for buildings over 100, 000 sf (+-) is to reduce building electrical and thermal energy demand and consumption by implementing cost effective design alternatives early in the design process when changes are feasible. National Grid offers incentives to Owners of buildings to work with Design Teams to achieve high performance building designs. Owners are eligible for a performance incentive based on energy savings performance. Design Teams are eligible for incentives for early involvement in the design process and for incorporating the Program's comprehensive measures into the construction documents for the project.
Participation in the Program requires the Owner, Design Team and National Grid to work together. National Grid's TA will evaluate options and enhancements to the proposed building design in order to identify electrical and thermal savings and improved system operating enfloateds. The Program offres Owners the opportunity to maximize electrical and thermal energy efficiency and plan for reduced operating costs in their new construction project.
This document outlines the roles and responsibilities of each party in order to set transparent expectations for all parties participating in Program identified below.
National Grid understands that the following National Grid customer
("the Owner"):
has undertaken the following new construction or major renovation project at the following address:
("Premises")
This project is being designed by the following design professionals (collectively, the "Design Team"):
("Architect")
("Electrical / Engineer")
("Mechanical Engineer")
Regularments for Datticipation in the Decaramy
Engage National Grid during the schematic design (or earlier) phase of the project.
 Target a combined gas and electric savings 15% better than referenced code.
 Participate in an energy endency character. Include National Grid in all meetings where the identified energy conservation measures ("ECMs")
are being considered for value engineering.
National Grid will: • Meet with the Owner and Design Team to identify the best way to maximize energy savings and incentives for the protect.
 Hire one of its preferred TA's and pay a portion of the design reviewimodeling and report back on the progress towards meeting the savings threabholds. An Owner can use their preferred technical assistance vendor if the Owner's vendor is capable of meeting the National Grid's technical requirements.
 Pay the Architect \$3,000.00 for participation in an energy efficiency character to determine potential energy savings measures for the new construction project (requirements described in the Tasks being)
Date 1 of 3

New Construction Handbook

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All of this information, and more, can be found in our New Construction Services Participants' Guide which is available in hard copy or as a pdf at our website:



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Case Studies

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Large Business Program

YMCA MacColl

YMCA MacColl

The YMCA MacColl exercise center is located in Lincoin, Phode Island. The space provides exercise facilities for all ages. The project is acclaimed for its highly successful implementation of the Advanced Buildings program.

In the early 1980s MacCol again expanded into the communities of Lincoln, Cumberland, Smithfield and N. Providence and established childcare for working parents and swimming lessons at the nearby high school and community college.

Energy Efficiency Solutions

- Demand control ventilation
- Domestic hot water system efficiency
- Lighting controls





CASE STUDY: Paul W. Crowley East Bay Met Center

Location	٠	Newport, RI
Туре		Career + Technical Center
Size		16,000 ft ²
Owner		RIDE/Met Center
Certification		NE-CHPS

The East Bay Met Center is designed as a statle of the art educational facility intended to house innovative educational practices, particularly in the field of sustainability and green building technologies. The net-zero ready building exemptifies the Advance Building mission to expand the design of building stock to include high performance, energy efficient spaces.

SAVINGS SUMMARY

Estimated Annual Energy Savings Predicted Energy Use: 35 kBt//ft-/year > Electricity Savings: 52,971 kWh Gas Savings: 1,385 therms

Cost Savings & Payback

- Upgrade Cost: \$75,539
 Total Incentives: \$24,000
 Incentives: \$1,50/fb1
- » Annual Energy Savings: \$7,892
- Payback: 9.6 years
 Payback with Incentives: 6.5 years

Note that the above values represent anticipated performance and do not guarantee actual savings

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PROJECT TEAM

Robinson Green Beretta + Project Management Robinson Green Beretta + Architect

- Stanteo + Mechanical Engineers Stanteo + Electrical Engineers
- Gibane Construction Manager
- SMMA + Advanced Buildings Reviewer
- National Grid a Electric Utility National Grid a Gas Utility



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Thank you!

Questions?

To learn more, contact:

Tracey Beckstrom 401-474-1640 Tracey.Beckstrom@nationalgrid.com



Who's Responsibility is it Anyway?

Moderator, Manuel Cordero from the Rhode Island Department of Education will lead a discussion between Practitioners:

- Edward R. Frenette AIA- Symmes, Maini, & Mckee (Architect)
- Carlos DeSousa PE- Garcia, Galuska, DeSousa, Inc. (Engineer)
- Bill Bryan- Gilbane (Owner's Project Manager)
- Christopher Armstrong- Stephen Turner Associates (Commissioning)
- David Fontes- Burillville School District (Facilities Director)





Visioning: What is the Future of Rhode Island School Houses?

Participants will gather in action groups and use their own experience and knowledge to envision the future of educational facility design in two categories: (1) educational programing; and (2) sustainability.





Implementing: How Do We Arrive at the Bright Future Envisioned for Rhode Island Schools

Following the visioning exercise, attendants will propose ideas, strategies, policies, and plans to make their proposals for Rhode Island school facilities a reality.





Action Group Report Out

Action Groups will report out regarding the visioning ideas and implementation strategies





High Performance School Tour: Pell Elementary School; Newport, RI

