Department of Administrative Services
Office of School Construction Grants

HIGH PERFORMANCE SCHOOL CONSTRUCTION BULLETIN

High Performance Building Construction Standards

Public Acts 06-187 Section 70, 07-213 Section 5, 07-242 Section 10, and 07-249 Section 15 require that the Office of Policy and Management develop high performance building regulations for state agency buildings and school buildings. The regulations address the construction of (1) a State agency facility projected to cost five million dollars or more and for which all budgeted bond funds are allocated by the State Bond Commission on or after 1/1/09; (2) renovation of a State agency facility projected to cost two million dollars or more and utilizing two million dollars of state funds approved and funded after 1/1/08; (3) new construction of a facility projected to cost five million or more of which two million dollars or more is state funding and is authorized by the General Assembly pursuant to Chapter 173 ("Public School Building Projects") on or after 1/1/09; and (4) renovation of a public school facility as defined in subdivision (18) of section 10-282 that is projected to cost two million dollars or more of which two million dollars or more is state funding and is authorized by the General Assembly pursuant to chapter 173 on or after 1/1/09 must comply with state regulations.

This law (and associated regulations) was prompted by the State Legislature and is currently under the auspices of the Department of Energy and Environmental Protection (DEEP) and Department of Construction Services (DCS).

It is the responsibility of the municipality and the contracted project team to ensure compliance with the statutes and regulations, including the ***Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings***, as well as other referenced documents. The regulations (16a-38k) and the *Compliance Manual* include information to assist in determining what is required, who has to take a particular action, and when. Thorough research of these resources is required. The Office of School Construction Grants (SCG) does not have the resources to research an issue for any of the project teams and can only direct you to read all of the requirements in order to better understand and implement them or to contact OPM and DCS.

DISCUSSION

- Enough time has elapsed since the High Performance Standards were initially presented to the design/construction industries for all concerned parties to be aware of and prepared for the requirements.
- All new school building projects authorized on or after January 1, 2009 (meeting specified project cost benchmarks) shall be designed to the new High Performance Standards following the required formal process, as indicated in the *regulations of C.G.S. Section 16a-38k (1 through 9) and the* ***Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings***. Additional guidance for the required processes is available in the DCS document; ***"Capital Projects High Performance Buildings Guidelines"*** (addressing the numerous aspects of the processes for: High Performance Buildings, Commissioning, Owner Project Requirements (OPR), Post Occupancy Evaluations (POE), and Owner's Representative's responsibilities. "Owner's Rep" (OR) is used by DCS as synonymous with the Project Manager-Facilitator (PM-F).
- All contracts (as well as the RFQ's for services) are recommended to, at a minimum, include reference to the requirements of the regulations, Compliance Manual, DCS ***"Capital Projects High Performance Buildings Guidelines"***, *Department of Construction Services (DCS) Guidelines* and *Bulletins* as a basis for the "Basic Services Fee".
- Many of the performance strategy points cannot be obtained until after construction is completed, or the building is occupied. Utilizing the DCS/OPM process of the regulations does not require an independent organization certification, and as such the process should be less problematic for tracking/record-keeping.
- The ***Compliance Checklist-Schools*** (at the end of the *Compliance Manual*) shall accompany the second and third reports required by Section 16a-38k-8. The Checklist shall be (at a minimum) expanded to clearly outline the strategy approach, the responsible parties, and the specific documents where the strategy is best exemplified (specification sections and drawing sheet numbers). If LEED or NE-CHPS is pursued as the alternative strategy, the *Compliance Checklist-Schools* shall be accompanied by the appropriate checklists, expanded as previously described. If LEED is utilized as the alternative strategy, BSF recommends the use of *LEED for Schools.*

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High Performance Building Construction Standards (continued)

The following is a summary of the regulations applicable to state-funded school building projects.

16a-38k-1 Definitions (applicable to all sections of the regulations)

16a-38k-2 Applicability (projects authorized on or after January 1, 2009)
- (a) **(applicable to DCS projects only)**
- (b) **(applicable to DCS projects only)**
- (c) New construction - $5 million w/ $2 million state funding
- (d) Renovation (CGS 10-282) - $2 million w/ $2 million state funding

16a-38k-3 Mandatory Building Project Requirements - Twelve (12) mandatory standards
- (a) Commissioning
- (b) Integrated Design Process
- (c) Energy Performance >20% better than Building Code/ASHRAE 90.1-2004
- (d) Energy Star products
- (e) Project Manager-Facilitator (Owner's Rep.) to develop Indoor Air Quality management plan
- (f) Use low-flow fixtures to consume 20% less water than base level calculations
- (g) Recycle area
- (h) Erosion and Sediment control
- (i) No Smoking in building
- (j) Integrated Pest Management Plan
- (k) No CFC-based refrigerants
- (l) Building ventilation to meet ASHRAE 62.1 or Building Code (more stringent)

16a-38k-5 Additional Mandatory Building Project Requirements for Schools - Six (6) additional mandatory requirements
- (a) Acoustical Standards as required per CGS 10-285g
- (b) Outside air intakes at least 25 feet from hazards (chimneys, vents, cooling towers, parking lots, loading docks, etc.)
- (c) Only electronic ignition on gas-fired appliances (no pilot lights)
- (d) Low VOCs certification of materials (adhesives, paints, carpet, ceilings, etc.)
- (e) Perform Phase I environmental site assessment (per ASTM #E1527) and subsequent actions as required.
- (f) HEPA vacuum prior to occupancy

16a-38k-6 Building Standard Strategies - Minimum of 28 of the 59 optional strategies
- (a) Energy Efficiency & Renewable Energy
- (b) Indoor environment
- (c) Water efficiency
- (d) Recycling, Reuse, and Sustainability
- (e) Site Selection and Development
- (f) Operations and Procedures/Innovation

16a-38k-7 Alternative Strategies

Permits *LEED for Schools* silver rating or *NE-CHPS* rating system/certification
But also incorporates the requirements of 16a-38k-3, 16a-38k-5, 16a-38k-8, and 16a-38k-9.

16a-38k-8(b) Reporting Requirements (to DCS and OPM)

1. Report after award of design contract (prior to SCG PREP meeting) from design team to DCS Commissioner
    a. Project time-lines
    b. Project Design Team List (names, addresses, phone, fax, e-mail)
        (at minimum architect, mechanical engineer, electrical engineer, civil engineer, commissioning agent, the project manager-facilitator (owner's rep.), and representatives of the municipality)
    c. Letter of Understanding of the requirements of the regulations
2. Report upon completion of design development from project-manager facilitator (A.K.A. Owner's Rep.), signed by municipality (Building Committee Chairperson) to DCS Commissioner [prior to SCG Plan Completion Test (PCT) meeting]
    a. Details of compliance with section 16a-38k-3 and 16a-38k-5 of the regulations
    b. Document which of the 28 strategies are planned for implementation **or** the Alternative Strategy utilized pursuant to section 16a-38k-7
    c. Document how team intends to meet the alternative paths to compliance
3. Report at completion of the construction documents (no later than SCG PCT meeting) prepared by design team, provided to project-manager facilitator to submit to DCS Commissioner
    a. Include energy modeling (**summary** of data input and data output and resulting performance)
    b. Cost differentials and operational savings
        The *Compliance Checklist-Schools* **shall be expanded** to (at a minimum) clearly outline the strategy approach, the responsible parties, and the specific documents where the strategy is best exemplified (specification sections and drawing sheet numbers) as a way to more clearly demonstrate compliance
4. Substitutions of any strategy (during construction process) requires written notification from project-manager facilitator to DCS Commissioner
    a. Detail how substitution(s) will be in conformance to the project manual (efficiency goal)
5. Pre-Occupancy Commissioning report (for all projects) by commissioning agent and sealed by the professional engineer
    a. Must indicate "this report certifies that the material contained herein is true and correct"
6. Report at Post-occupancy submitted within 180 days after one year occupancy (actual building performance report)

16a-38k-9 Exemptions

Any exemption to a previously approved performance strategy must be requested in writing to OPM, DCS, and DCS Commissioner. Similar to the requirements of 16a-38k-8(b) 3, regarding substitutions, written notification shall be from the project-manager facilitator to DCS Commissioner requires a letter submitted to the Secretary of the Office of Policy and Management (OPM) from the chief operating officer of the owner/municipality.

HIGH PERFORMANCE SCHOOL CONSTRUCTION

High Performance Building Construction Standards (continued)

Report Preparation Guidance:

When preparing and submitting the various reports (pursuant to 16a-38k-8) to the DCS Commisioner:

1. Send **to** the **Commissioner of Construction Services**, Department of Construction Services, **Bureau of School Facilities**, 165 Capitol Ave, Room 258, Hartford, CT 06106.
2. The **Cover letters** shall be authored by the appropriate parties, and include the project title and Bureau of School Facilities Project Number.
3. **Reports** should be brief and identify what stage of the process the report corresponds to.
4. Submit only a **summary** of the **energy modeling**, with the anticipated performance level (>20% more efficient than the Building Code or ASHRAE).
5. Submit a completed **Compliance Checklist-Schools** (found at end of the *Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings*).

The following Web site links may provide assistance in locating the necessary information.

Office of Policy and Management (OPM)
http://www.ct.gov/opm/site/default.asp
Energy Management & Product Efficiency Standards
http://www.ct.gov/deep/cwp/view.asp?a=4120&Q=481600
High Performance Building Standards Regulations
http://www.ct.gov/opm/lib/opm/pdpd_energy/final_regulation_16a-38k-1_to9.pdf
Compliance Manual
www.ct.gov/deep/lib/deep/energy/buildingstandards/compliancemanualhighperformancebuildings.pdf

Department of Construction Services (DCS)
http://www.ct.gov/dcs/site/default.asp
Life Cycle Cost Analysis
http://www.ct.gov/dcs/cwp/view.asp?a=4224&q=491240
Sustainable Design
http://www.ct.gov/dcs/cwp/view.asp?a=4224&q=491264
Capital Projects High Performance Buildings Guidelines
http://www.ct.gov/dcs/lib/dcs/bdc/pubs/0450_capital_projects_high_performance_buildings_guidelines.pdf

Northeast Collaborative for High Performance Schools Protocols (NE-CHPS)
http://www.ride.ri.gov/Finance/Funding/construction/Documents/Housing%20Aid%202010/2008_08_NE_CHPS.pdf

Department of Construction Services/Bureau of School Facilities (DCS/SCG)
http://www.ct.gov/dcs/cwp/view.asp?a=4217&q=507514&dcsNav=|