

**STATE OF CONNECTICUT  
DEPARTMENT OF ADMINISTRATIVE SERVICES  
REAL ESTATE AND CONSTRUCTION SERVICES**

**Building Design and Construction  
450 Columbus Boulevard  
Hartford, Connecticut 06103**

**0450 Capital Projects  
High Performance Buildings  
Guidelines**

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**0450 - Capital Projects High Performance Buildings Guidelines**

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## **1.0 Capital Projects High Performance Building Guidelines - General:**

In accordance with Connecticut General Statutes (CGS) § 16a-38k, the CT Office of Policy and Management (CT OPM) and the CT Department of Administrative Services (CT DAS) – Real Estate and Construction Services (RECS) have issued regulations for the Establishment of High Performance Building Construction Standards for State Funded Buildings. They have also developed a guidance document – *Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings* – which provides detailed information regarding the regulation requirements. This guidance document can be found online on the CT Department of Energy and Environmental Protection’s (CT DEEP) website.

The *0450 - Capital Project High Performance Buildings Guidelines* is intended to provide a brief synopsis of these requirements and to make the consultant aware of their responsibilities under these laws.

**1.1** There are four (4) different project types that fall under this statutory requirement:

**1.1.1** New Construction of State Facilities projected to cost \$5,000,000 or more;

**1.1.2** Renovation of State Facilities projected to cost \$2,000,000 or more;

**1.1.3** New Construction of State Funded Public School Buildings projected to cost \$5,000,000 or more;

**1.1.4** Renovation of State Funded Public School Buildings projected to cost \$2,000,000 or more.

### **1.2 The DAS Sustainable Construction Policy**

Executive Order 21-3 took effect immediately upon its signature in December 2021. Section 2.G. of the Executive Order states that: “*DEEP, in consultation with DAS, shall recommend the adoption of the most current edition of the International Green Construction Code as its High Performance Building Standards as the nationally recognized model for sustainable construction codes to be adopted by reference pursuant to section 16a-38k of the Connecticut General Statutes.*”

To align with the intent of the Section 2.G. language, and until such time in which the International Green Construction Code (IgCC) is formalized in the applicable DEEP regulations, the DAS has adopted the provisions of the IgCC as its Sustainable Construction Policy. Note that the DAS Sustainable Construction Policy applies to a wider range of projects as compared to the CT High Performance Building Guidelines. Refer to the DAS Consultant’s Procedure Manual Section 3.4.4 for more information regarding the referenced policy and its respective thresholds and applicability.

#### **1.2.1 DAS Administered Project Compliance with the CT High Performance Building Guidelines:**

When a project administered by the DAS also requires adherence to the CT High Performance Building Guidelines, the adopted technical requirements of the DAS Sustainable Construction Policy represent an equivalent *and more stringent* standard as an alternative compliance path pursuant to CGS § 16a-38k(a). The DAS adoption of the IgCC as its Sustainable Construction Policy further meets the intent of CGS § 16a-38k(b), until such time in which the DEEP provides updated regulations as referenced therein.

The DAS Sustainable Construction Policy supersedes and is to be used as an alternative compliance path to meet the technical requirements of CT High Performance Building Guidelines for all applicable DAS administered projects.

#### **1.2.2 Municipal School Projects not Administered by the DAS:**

The *0450 – Capital Project High Performance Buildings Guidelines* is also intended to make towns and regional school districts submitting applications under the DAS public school building grants program aware of their responsibilities when administering projects whose scope and share of State reimbursement meet the statutorily defined thresholds. These projects are not administered by the DAS, and as such, not required to comport with the DAS Sustainable Construction Policy. However, the DAS recommends these projects consider exceeding the current requirements of the energy code and conforming to the DAS Sustainable Construction Policy.

## **2.0 New Construction of State Facilities [16a-38k–2(a)]:**

### **2.1 Applicability - New Construction of State Facilities [16a-38k–2(a)]:**

New construction of a state facility that is projected to cost five million dollars or more, and for which all budgeted project bond funds are allocated by the State Bond Commission on or after January 1, 2008.

**IMPORTANT NOTE: Five million dollars or more means the total amount of funds appropriated for the Project.**

**2.2 Twelve (12) Mandatory Requirements [16a-38k-3]:**

The regulations require the Design Team for New Construction projects covered by 16a-38k-2(a) to include all of the following Twelve (12) Mandatory Requirements in the project. These Mandatory Requirements are summarized below.

The italicized text in parenthesis below each requirement provides verification that the DAS Sustainable Construction Policy, in conjunction with DAS Division (Div) 01 Specifications, and the State Building Code, meet all defined Mandatory Requirements.

<b>Twelve (12) Mandatory Requirements [16a-38k-3] Summary:</b>		
<b>Item No.</b>	<b>Regulation</b>	<b>Summary Description</b>
<b>1.</b>	16a-38k-3(a)	<b>Building Commissioning:</b> Building commissioning shall be an integral part of the building project. <i>(This requirement is met by IgCC Chapter 10 under the DAS Sustainable Construction Policy)</i>
<b>2.</b>	16a-38k-3(b)	<b>Integrated Design Process:</b> All building construction projects shall follow an integrated design process to achieve environmental and building performance goals. <i>(This requirement is met by IgCC Appendix F under the DAS Sustainable Construction Policy)</i>
<b>3.</b>	16a-38k-3(c)	<b>Energy Performance:</b> The base minimum energy performance for all building projects shall be twenty-one percent (21%) better than the most current Connecticut State Building Code or ASHRAE 90.1-2004, whichever is more stringent. Base minimum energy performance shall be determined using approved building modeling software that is identified in the <i>Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings (Revised September 2011)</i> . <i>(As of 2022, the <a href="#">DEEP High Performance Building Standards website</a> states that "project compliance with the 2021 International Energy Conservation Code [(IECC)] satisfies the energy performance requirement [of the High Performance Building Standards]." Therefore, this requirement is met by any State project, as the State Building Code adopts the IECC. The IgCC Chapter 7, under the DAS Sustainable Construction Policy, represents an improvement to the IECC requirements.)</i>
<b>4.</b>	16a-38k-3(d)	<b>ENERGY STAR Products:</b> Energy consuming products installed in the building shall be ENERGY STAR compliant if the product category has an ENERGY STAR specification. <i>(This requirement is met by IgCC 601.3.2.2, 601.3.2.5, 701.4.3.1, 701.4.4.1, and 701.4.7.3 under the DAS Sustainable Construction Policy)</i>

2.2 Twelve (12) Mandatory Requirements [16a-38k-3]: (Continued)

Twelve (12) Mandatory Requirements [16a-38k-3] Summary: (Continued)		
Item No.	Regulation	Summary Description
5.	16a-38k-3(e)	<b>Indoor Air Quality Management Plan:</b> An indoor air quality management plan shall be developed for the construction phase of the project. As part of the plan, the following <i>(partially described below)</i> shall be addressed:
		1. Periodic inspections of materials stored on-site to ensure that all installed or stored absorptive materials are protected from moisture and mold damage. <i>(This requirement is met by a combination of the IgCC 1001.4.2 under the DAS Sustainable Construction Policy, as well as DAS Div 01 Specification Sections 01 57 30-3.1 and 01 60 00-1.5A)</i>
		2. Surface grades, drainage systems, and heating, ventilating and air conditioning condensate drainage systems shall be designed so as to prevent accumulation of water under, in, or near the building. <i>(This requirement is met by any State project under IBC 1084.4 and IMC 307.2.1)</i>
		3. Ductwork shall be sealed from outside elements during transport and storage, and interior surfaces shall be wiped down immediately prior to installation. During installation, open ends of ductwork shall be temporarily sealed and ductwork shall be protected with surface wrapping. No installed ductwork shall contain internal porous insulation materials or lining. <i>(This requirement is met by any DAS administered project under DAS Div 01 Specification Sections 01 57 30-3.3 and 01 60 00-1.5A)</i>
		4. Heating, ventilation, and air conditioning (HVAC) equipment shall be covered and protected from moisture during transportation and onsite storage. <i>(This requirement is met by any DAS administered project under DAS Div 01 Specification Section 01 60 00-1.5A)</i>
		5. Materials that off-gas toxic, or potentially toxic, fumes shall be preconditioned for at least seventy-two hours prior to installation within the building. <i>(This requirement is met by any DAS administered project under DAS Div 01 Specification Section 01 57 40-3.1B)</i>
6.	16a-38k-3(f)	6. In the event that any portion of the building is occupied during construction or renovation activities, the Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) <i>Indoor Air Quality Guidelines for Occupied Buildings Under Construction</i> shall be followed. <i>(This requirement is met by any DAS administered project under DAS Div 01 Specification Section 01 57 40-3.1A)</i>
		<b>Water Usage:</b> Use low-flow fixtures to consume twenty percent less water in aggregate as compared to base levels calculated by meeting the Federal Energy Policy Act of 1992 fixture performance requirements. <i>(This requirement is met by IgCC 601.3.2 under the DAS Sustainable Construction Policy)</i>
		<b>Recycling of Materials:</b> The building or building site shall contain convenient areas to serve as collection points for recyclable materials and shall include an area for the sorting and storage of such materials for pick-up by recyclers. <i>(This requirement is met by IgCC 901.3.4 under the DAS Sustainable Construction Policy)</i>
		<b>Erosion and Sedimentation Control:</b> All construction shall include a plan for erosion and sedimentation control, as required by CGS § 22a-325 through CGS § 22a-329. <i>(This requirement is met by the referenced State statutes)</i>
		<b>No Smoking Policy:</b> No smoking shall be permitted in any building or portion of a building owned and operated or leased and operated by the state or any political subdivision thereof as mandated by CGS § 19-342. <i>(This requirement is met by the referenced State statute)</i>
		<b>Integrated Pest Management Plan:</b> An Integrated Pest Management Plan, as defined in CGS § 22a-47, shall be established as required under CGS § 22a-66/
7.	16a-38k-3(g)	
8.	16a-38k-3(h)	
9.	16a-38k-3(i)	
10.	16a-38k-3(j)	

		for general pest and rodent control in state buildings. Schools shall comply with CGS § 10-231 and CGS § 22a-66l. <i>(This requirement is met by the referenced State statutes)</i>
<b>11.</b>	16a-38k-3(k)	<b>Chlorofluorocarbon (CFC)-Based Refrigerants:</b> Chlorofluorocarbon (CFC)-based refrigerants shall not be utilized for energy systems in new construction. For renovation projects where existing HVAC equipment is reused, a CFC phase-out conversion shall be undertaken. <i>(This requirement is met by the CFC phase-out accomplished globally under the Montreal Protocol and associated EPA bans. If CFCs refrigerants are used in a renovation project, a phase-out plan will need to be implemented.)</i>
<b>12.</b>	16a-38k-3(l)	<b>Minimum Ventilation Requirement:</b> Buildings shall be designed to meet the minimum ventilation requirements of the current ASHRAE Standard 62.1 using the Ventilation Rate Procedure for mechanical systems. If the current Connecticut State Building Code contains more stringent requirements, it shall be used to meet minimum ventilation requirements. <i>(This requirement is met by IgCC 801.3.1.1 under the DAS Sustainable Construction Policy).</i>

**2.3 Building Standard Options for State Facilities [16a-38k-4]:**

The regulations require the Design Team for New Construction projects covered by 16a-38k-2(a) to include a minimum of twenty-six (26) of the sixty (60) Building Standard Optional Strategies into the project. These Building Standard Optional Strategies are listed in 16a-38k-4 and are described in detail in the Guideline.

**2.4 Alternative Options to Building Standard Options [16a-38k-7]:**

As an alternative to meeting the requirements of Building Standard Options for State Facilities [16a-38k-4], the regulations allow the Design Team to meet the requirements by receiving certification from a recognized rating system.

As described in Section 1.2 above, DAS administered projects are to demonstrate adherence with the DAS Sustainable Construction Policy as an alternative to the Building Standard Options. Such projects shall follow the reporting requirements below to evidence compliance with the CT High Performance Building Guidelines.

**IMPORTANT NOTE:**

*If it is the intent to formally register a project with the United States Green Building Council (USGBC) for certification as a Leadership in Energy and Environmental Design (LEED) project, then the direct costs, i.e. the registration fees paid to the USGBC, will be considered additional services in the design contact.*

**2.5 Reporting Requirements [16a-38k-8]:**

In accordance with the requirements of this regulation the following six (6) types of Reports are required to be produced:

- Award of the Design Contract Letter;
- Design Development Phase Completion Report;
- Construction Document Phase Completion Report;
- Construction Substitution Reports
- Pre-Occupancy Commissioning (Cx) Report;
- Post-Occupancy Commissioning (Cx) Report;

**2.5.1 Award of Design Contract Letter:**

The Design Team shall provide a letter to the RECS PM to be submitted to both the Secretary of CT OPM and the CT DAS Commissioner. This letter shall include:

**2.5.1.1** The project timeline;

**2.5.1.2** Members of the design team;

**2.5.1.3** Affirmation that the Design Team understands the requirements of these regulations and will design the project in accordance with them.

**2.5.2 Design Development Phase Completion Report:**

The Design Team shall submit a report to the RECS PM to be submitted to both the Secretary of CT OPM and the CT DAS Commissioner on behalf of, and signed off by, the agency that will be responsible for the ongoing care, operation, and maintenance of the building. This submittal shall include details of how the project will comply with the mandatory measures under the regulations, and include a listing of twenty-six (minimum) of the sixty measure options planned for implementation.

#### **2.5.2.1 Alternative Compliance Paths**

For projects seeking the LEED Silver alternative compliance option; the report shall document how the Design Team will meet this path of compliance including a completed copy LEED Project Checklist for New Construction and Renovation. An example of the latest LEED Project Checklist is available on the USGBC website.

For projects conforming to the DAS Sustainable Construction Policy as described in Section 1.2 above; the report shall document how the Design Team will meet this path of compliance including all applicable IgCC compliance forms and calculators, as developed by the International Code Council (ICC), completed to the level appropriate for the current phase of design development. These resources are available from the ICC website.

#### **2.5.3 Construction Document Phase Completion Report:**

The Design Team shall submit a report to the RECS PM to be submitted to the Secretary of CT OPM and the CT DAS Commissioner which will include energy modeling for the current Connecticut State Building Code requirements versus the proposed building project and cost differentials and operational savings for the project.

##### **NOTE:**

*This report and its associated energy modeling is intended to demonstrate compliance with mandatory requirement 16a-38k-3(c); "minimum energy performance shall be twenty-one percent (21%) better than the most current Connecticut State Building Code".*

*As of 2022, the [DEEP High Performance Building Standards website](#) states that "project compliance with the 2021 International Energy Conservation Code [(IECC)] satisfies the energy performance requirement [of the High Performance Building Standards]."*

*As the International Energy Conservation Code is adopted by the Connecticut State Building Code, the proposed building project need not provide for any incremental improvement to meet 16a-38k-3(c) when following the standard compliance path. The Design Team report should provide this explanation.*

*For projects seeking energy improvement credits for the standard compliance path or projects following any alternative compliance path that requires such calculation, the Design Team report should summarize any project cost and operational savings as compared to the minimum Connecticut State Building Code.*

#### **2.5.4 Construction Substitution Report(s):**

The Design Team shall submit a report to the RECS PM for substitution for any of the stated measure options. The RECS PM will submit these reports to the Secretary of CT OPM and the CT DAS Commissioner.

#### **2.5.5 Pre-Occupancy Commissioning (Cx) Report:**

The Commissioning Agent (CxA) shall submit a report to the RECS PM to be submitted to the Secretary of CT OPM and the CT DAS Commissioner that demonstrates that the project has met all of the requirements of the regulations or of any alternative compliance path. This report will be signed by the CxA engineer.

#### **2.5.6 Post-Occupancy Commissioning (Cx) Report:**

The Commissioning Agent (CxA) shall prepare a Post-Occupancy Commissioning (Cx) Report to be submitted to the RECS PM for review. The report will be transmitted by the RECS PM to the State Agency that is responsible for the ongoing care, operation, and maintenance of the building for submission to the Secretary of CT OPM and the CT DAS Commissioner within one hundred eighty (180) days after one year of occupancy (*Date of DAS Acceptance of the Work*). The Report shall include results of any post-occupancy survey of building occupants, a description of any adjustments made to equipment or building operation and the reasons for which the changes were made, and one year of all energy usage by source and water usage.

## 2.6 Exemptions Requests for New Construction of State Agencies Facilities

### 2.6.1 CT High Performance Building Guidelines:

Any exemption request shall be submitted to the Commissioner of Energy and Environmental Protection with the signature of the owning State agency commissioner or other official that is responsible for the ongoing care, operation, and maintenance of the building. The CT DEEP Commissioner, in consultation with the CT DAS Commissioner and the Institute of Sustainable Energy may exempt a facility from complying with these regulations if the CT DEEP Commissioner, in consultation with the CT DAS Commissioner, and the CT OPM Secretary finds, in a written analysis, that the cost of such compliance significantly outweighs its benefits. Requests for exemptions are described in the *Connecticut Compliance Manual for High Performance Buildings* and shall be submitted to the RECS PM with cost/benefit calculations and other supporting documentation.

### 2.6.2 The DAS Sustainable Construction Policy:

As the DAS Sustainable Construction Policy is intended to provide a more stringent alternative compliance path until such time in which the IgCC is formalized in the DEEP regulations, exemption requests for DAS administered projects that also require adherence to the CT High Performance Building Guidelines shall follow the exemption process detailed in the above section.

For DAS administered projects requiring adherence to the DAS Sustainable Construction Policy, but not to the CT High Performance Building Guidelines, requests for exemptions shall be submitted only to the DAS Chief Architect and Director of Project Management, providing the same analysis and supporting documentation.

### 2.6.3 Exemptions from Individual Provisions of the DAS Sustainable Construction Policy:

For DAS administered projects that comply with the majority of applicable IgCC provisions of the DAS Sustainable Construction Policy, exemptions from specific provisions must be clearly requested and explained on the associated IgCC Compliance Form. The RECS PM and the project's Consultant team are encouraged to collaborate with RECS Technical Services throughout the pre-construction phase to ensure a shared understanding and alignment with Department goals.

## 3.0 Renovation of State Facilities [16a-38k-2(b)]:

### 3.1 Applicability - Renovations of State Facilities [16a-38k-2(b)]:

State facility renovation that is projected to cost two million dollars or more of which two million dollars or more is state funding, and is approved and funded on or after January 1, 2008.

**IMPORTANT NOTE: Two million dollars or more means the total amount of funds appropriated by the State Legislature for the Project.**

**3.1.1 State Facility Renovation Definition:** As defined by CT OPM & RECS a "State facility renovation means an undertaking whereby the designer manipulates the building envelope, electrical systems, mechanical systems, and efficiency of equipment for modification of performance, when costs are two million dollars or more. This includes entire buildings as well as isolated portions of the building. A renovation should include energy efficiency as a priority item even if [the State Agency is] only looking at renovating one or two of the "building systems".

### 3.2 Technical Requirements for Renovations to State Facilities:

The technical requirements for renovations of State facilities are the same as the requirements for new construction – Sections 2.2 through 2.6.

### 3.3 Pre-Design High Performance Building or Sustainable Construction Policy Feasibility Study:

Where it appears that compliance with High Performance Building Standards or the DAS Sustainable Construction Policy may significantly outweigh its benefits for a renovation project, **the RECS PM will request** the Design Team to produce a written Pre-Design High Performance / Sustainable Building Feasibility Study, prior to the beginning of the Schematic Design Phase or as soon as practicable. This study will be submitted to the RECS PM. This Feasibility Study shall include the following:

**3.3.1** Detailed description of a project scope and budget which meets the High Performance Building Regulations (i.e. includes the 12 Mandatory Requirements and achieves LEED Silver) or the DAS Sustainable Construction Policy, as applicable.

- 3.3.2 Detailed description of a suggested project scope and budget that meets the project objectives, but does not meet the High Performance Building Regulations. This scope should incorporate as many high performance and sustainable measures as logical for the project.
- 3.3.3 A cost/benefit analysis of the differences between these scenarios.
- 3.3.4 If the Pre-Design High Performance / Sustainable Building Feasibility Study demonstrates that compliance with the High Performance Building Regulations or the DAS Sustainable Construction Policy, as applicable, **significantly outweighs the benefits to the Project** then the RECS PM shall request the Design Team to prepare an **Exemption Request** for the Project in accordance with regulation 16a-38k-9(a) (See 2.6 above).
- 3.3.5 If the Pre-Design High Performance Building Feasibility Study demonstrates that compliance with the High Performance Building Regulations or the DAS Sustainable Construction Policy **does not significantly outweigh the benefits to the Project** then the RECS PM shall direct the Design Team to proceed with the design in accordance with the High Performance Building Regulations or the DAS Sustainable Construction Policy, as applicable to the specific project.

#### 4.0 New Construction of State Funded Public School Buildings [16a-38k-2(c)] and School Renovations [16a-38k-2(d)]:

##### 4.1 Applicability—New Construction of Public School Buildings [16a-38k-2(c)] & School Renovations [16a-38k-2(d)]:

New construction of public school buildings costing five million dollars or more; or public school renovations costing two (2) million dollars or more, of which **two million dollars or more** is state funding, and authorized by the General Assembly pursuant to chapter 173 on or after January 1, 2009. Regional Technical High Schools and magnet high schools located on Community College campuses funded by the CT Department of Education are considered State Facilities for purposes of these regulations. However the Six (6) "Additional Mandatory Building Project Requirements for Schools" defined in 16a-38k-5 are required for all RECS administered K-12 school projects.

**IMPORTANT NOTE: Two million dollars or more means the total amount of funds appropriated by the State Legislature for the Project.**

**4.1.1 State Funded Public School Renovation Definition:** As defined by CT OPM & RECS a "State [Funded Public School] renovation means an undertaking whereby the designer manipulates the building envelope, electrical systems, mechanical systems, and efficiency of equipment for modification of performance, when costs are two million dollars or more. This includes entire buildings as well as isolated portions of the building. A renovation should include energy efficiency as a priority item even if [the CT Department of Higher Education is] only looking at renovating one or two of the "building systems".

##### 4.2 Technical Requirements for New Construction or Renovation of Public School Buildings:

The technical requirements for new construction or renovation of public school buildings are the same as the requirements for new construction of State facilities – Sections 2.2 through 2.6. In addition to these requirements, the regulations add the following requirements for schools.

##### 4.3 Six (6) Additional Mandatory Building Project Requirements for Schools [16a-38k-5] Summary:

In addition to complying with the requirements set forth in Sections 2.2 through 2.6, all K through 12 schools must also meet the standards for all of following six (6) Additional Mandatory requirements as summarized below.

Should a public school building project elect to follow the DAS Sustainable Construction Policy, the italicized text in parenthesis in the table below provides verification that certain mandatory requirements will be met.

<b>Six (6) <u>Additional</u> Mandatory Building Project Requirements for Schools [16a-38k-5] Summary:</b>																
Item No.	Regulation	Summary Description														
1.	16a-38k-5(a)	<p><b>Acoustical Standards:</b> All classrooms, including art rooms, music rooms, science rooms, computer rooms, and special needs, remedial and library space shall meet the acoustical standards as required under CGS § 10-285g. <i>(This statute was repealed 7/1/2022 and its intent is met under the IBC Section 1207)</i></p>														
2.	16a-38k-5(b)	<p><b>Properly Locate Outside Air Intakes:</b> Outside air intakes shall be located a minimum of twenty-five feet from any hazard or noxious contaminants such as vents, chimneys, plumbing vents, exhaust fans, cooling towers, street alleys, parking lots, loading docks, dumpster areas, bus loops, or any area where vehicle idling occurs. If locating an air intake within twenty-five feet of a contaminant source is unavoidable, the intake must be located a minimum of ten feet horizontal distance and two feet lower than the contaminant source.</p>														
3.	16a-38k-5(c)	<p><b>Install Gas Equipment with Electronic Ignition:</b> Only electronic ignitions shall be specified for gas-fired water heaters, boilers, furnaces, air handling units, and stovetops/ovens.</p>														
4.	16a-38k-5(d)	<p><b>Use Low VOC Materials:</b> The following materials shall be certified for low emissions of volatile organic compounds (VOCs) using specifications or certification programs listed in the <i>Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings</i>: <i>(IgCC 801.4.2 compliance achieves the below seven requirements)</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">1.</td> <td>50% of adhesives and sealants used in the interior of the building;</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Acoustic ceiling tiles and wall panels;</td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Interior paints;</td> </tr> <tr> <td style="text-align: center;">4.</td> <td>Wall coverings;</td> </tr> <tr> <td style="text-align: center;">5.</td> <td>Carpet systems and associated adhesives;</td> </tr> <tr> <td style="text-align: center;">6.</td> <td>Composite and solid wood flooring;</td> </tr> <tr> <td style="text-align: center;">7.</td> <td>Resilient flooring and associated adhesives.</td> </tr> </table>	1.	50% of adhesives and sealants used in the interior of the building;	2.	Acoustic ceiling tiles and wall panels;	3.	Interior paints;	4.	Wall coverings;	5.	Carpet systems and associated adhesives;	6.	Composite and solid wood flooring;	7.	Resilient flooring and associated adhesives.
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6.	Composite and solid wood flooring;															
7.	Resilient flooring and associated adhesives.															
5.	16a-38k-5(e)	<p><b>Environmental Assessment of Building Site:</b> The town or regional board of education and the building committee of such town or district, shall provide for a Phase I environmental site assessment in accordance with the American Society for Testing and Materials Standard #1527, Standard Practice for Environmental Site Assessments: Phase I Site Assessment Process, or similar subsequent standards, as required pursuant to CGS § 10-291. If a town, regional board of education or the building committee of such town or district suspect contamination, a Phase II Environmental Site Assessment shall be undertaken as described in American Society for Testing and Materials Standard E1903-97 or similar subsequent standards. Any contamination found shall be remedied. <i>(This requirement is met by the referenced State statute)</i></p>														
6.	16a-38k-5(f)	<p><b>HEPA Vacuuming:</b> Prior to substantial completion of the building, vacuum all carpeted and soft surfaces with a high-efficiency particulate arrester (HEPA) vacuum. For phased or occupied renovations, HEPA vacuum the carpet daily in occupied areas.</p>														

## **5.0 Building Commissioning Process for High Performance Buildings:**

Both the DAS Sustainable Construction Policy and the High Performance Building Guidelines include mandatory building commissioning requirements.

ASHRAE Guideline 0, the recognized industry standard, provides a high-level framework and process for commissioning. RECS has adopted this guideline as policy. Guideline 0 should be followed on all applicable DAS RECS projects and must be implemented when compliance with the High Performance Building Guidelines is required.

Additionally, ASHRAE Standard 202 outlines specific, prescriptive minimum requirements for a structured commissioning process. The IgCC mandates adherence to this standard for building projects with greater than 10,000 ft<sup>2</sup> of gross floor area, which is common for DAS-administered projects that must comply with the DAS Sustainable Construction Policy.

For more information on commissioning, including term definitions, process flow charts, and documentation matrices, refer to the latest publications of ASHRAE Guideline 0, Standard 202, and the IgCC.

## **6.0 Integrated Design Process for High Performance Buildings:**

The integrated design process is a collaborative approach where design, construction, and commissioning teams work together to review and make recommendations to ensure cohesive design of building systems. The process recognizes that each discipline's recommendations impact other aspects of the project. Successful design integration reduces redundancy and conflicts between interacting systems and disciplines. It also optimizes both building performance and cost, allowing professionals to leverage efficiencies that are not apparent when working in isolation.

### **6.1 Requirements for the Integrated Design Process:**

The High Performance Building Guidelines require an integrated design process. The process is closely aligned with the commissioning process outlined in ASHRAE Guideline 0. While both regulations and LEED require a minimum of two (2) meetings, Guideline 0 recommends multiple meetings to ensure a coordinated and fully integrated design.

The IgCC, as adopted by the DAS Sustainable Construction Policy, includes similar integrated design guidance in Appendix F: Integrated Design, which includes the development of a design charrette matrix to guide system selection.

For more information on the integrated design process, including examples of owner's project requirements criteria, basis of design tables, and design charrette matrices, refer to the latest publications of Guideline 0 and the IgCC.

### **6.2 Project Stakeholders:**

To achieve a successful high-performance building, all project's stakeholders must participate in the integrated design process throughout the project duration. Stakeholders may include, but are not limited to the following:

#### **6.2.1 Owner Team:**

- 6.2.1.1** RECS Project Manager (PM);
- 6.2.1.2** State Agency Representative(s), including site operations personnel;
- 6.2.1.3** Commissioning Agent (CxA);
- 6.2.1.4** Construction Administrator (CA).

#### **6.2.2 Design Team:**

- 6.2.2.1** Architect (including any specialty consultants);
- 6.2.2.2** Mechanical Engineer;
- 6.2.2.3** Electrical Engineer;
- 6.2.2.4** Civil Engineer;
- 6.2.2.5** LEED AP.

#### **6.2.3 Construction Team (once hired):**

- 6.2.3.1** Construction Manager At Risk (CMR Project Delivery Method);
- 6.2.3.2** General Contractor;

6.2.3.3 All subcontractors (specifically mechanical, electrical, and controls contractors, etc.).

**6.3 Integrated Design Scope:**

The integrated design process includes the following minimum requirements per regulation 16a-38-3(b):

**6.3.1** At least one collaborative session of the Design and Owner Teams prior before design begins, to set environmental and building performance goals. This meeting shall include development and discussion of the Owner's Project Requirements, the Basis of Design, the commissioning plan and post commissioning requirements.

**6.3.2** At least one collaborative session of the Design, Owner and Construction Teams before construction begins, to ensure knowledge of design intent, required approval processes, and commissioning procedures.

For more detailed information, refer to the *Connecticut Building Standard Guidelines Compliance Manual for High Performance Buildings (Revised September 2011)*, available for download on the CT DEEP website.

***END - 0450 - Capital Projects High Performance Building Guidelines***