

STATE OF CONNECTICUT
REGULATION
of

NAME OF AGENCY

DEPARTMENT OF CONSTRUCTION SERVICES

Concerning

SUBJECT MATTER OF REGULATIONS

STATE BUILDING CODE
2005 CONNECTICUT SUPPLEMENT
2011 AMENDMENT TO ADOPT THE
2009 INTERNATIONAL ENERGY
CONSERVATION CODE

DEPARTMENT OF CONSTRUCTION SERVICES

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Section 29-252-1d of the Regulations of Connecticut State Agencies is amended as follows:

(New) (Del) 2006 INTERNATIONAL ENERGY CONSERVATION CODE:
Delete document in its entirety and substitute with the 2009 International Energy Conservation Code as amended herein:

(NEW) AMENDMENTS TO THE 2009 INTERNATIONAL ENERGY CONSERVATION CODE

(NEW) CHAPTER 1 – ADMINISTRATION

(NEW) (Amd) 101.1 Title. These regulations shall be known as the 2009 International Energy Conservation Code portion of the 2005 State Building Code, hereinafter referred to as "the code" or "this code".

(NEW) (Amd) 101.5.2 Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code, shall be exempt from the building thermal envelope provisions of this code:

1. Those with a peak design rate of energy usage less than 3.4 British thermal units per hour per square foot (Btu/h ft²) or 1.0 watts per square foot (watt/ft²) of floor area for space conditioning purposes;
2. Those that do not contain conditioned space; or
3. Buildings and structures for which heating and cooling is supplied solely by utilization of non-purchased renewable energy sources including, but not limited to, on-site wind, on-site water or on-site solar power, or wood-burning heating appliances that do not rely on backup heat from other purchased, non-renewable sources.

(NEW) (Add) 101.5.3 Energy efficiency standards for products. In addition to the requirements of this code, the testing, certification and enforcement of efficiency standards for new products sold, offered for sale or installed in the State of Connecticut shall be in compliance with section 16a-48 of the Connecticut General Statutes and regulations adopted under authority of said statute.

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(NEW) (Add) **101.6 Administrative matters not provided for.** Administrative matters not covered by this code shall be in accordance with the provisions of Chapter 1 of the 2003 International Building Code portion of the 2005 State Building Code.

(NEW) (Amd) **102.1.1 Above code programs.** The State Building Inspector and the Codes and Standards Committee shall be permitted to deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Such energy efficiency program may include, but not be limited to, the Leadership in Energy and Environmental Design Rating system, the Green Globes USA design program, as established by the Green Building Initiative, the National Green Building Standard, as established by the National Association of Home Builders, or an equivalent rating system approved in accordance with section 29-256a of the Connecticut General Statutes.

Buildings approved in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as "mandatory" in Chapters 4 or 5 of this code, as applicable, shall be met.

(NEW) (Amd) **103.1 General.** Two sets of construction documents and other supporting data shall be submitted to the building official at the time of application for the building permit. The construction documents and designs submitted shall be prepared by a registered design professional when required by the provisions of chapters 390 or 391 of the Connecticut General Statutes.

Exception: The building official may waive the submission of construction documents and other supporting data not required to be prepared by a registered design professional if the work proposed is not required by the provisions of this code, or the building official determines that the nature of the work applied for is such that review of the construction documents is not necessary to obtain compliance with this code.

(NEW) (Amd) **103.5 Retention of construction documents.** One set of approved construction documents shall be retained by the building official for a period as set forth in the records or disposition schedule adopted pursuant to chapter 188 of the Connecticut General Statutes.

(NEW) (Amd) **106.1 General.** The codes and standards referenced in this code shall be those listed in Chapter 6, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference. Any reference to the ICC codes shall mean the Regulations of Connecticut State Agencies known as the State Building Code adopted pursuant to section 29-252 of the Connecticut General Statutes.

(NEW) (Amd) **107.2 Schedule of permit fees.** As prescribed by law, each municipality shall establish a schedule of fees for each construction document review, building permit, certificate of approval and certificate of occupancy. A schedule of adopted fees shall be posted for public view.

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(NEW) (Del) **108.4 Failure to comply.** Delete in its entirety and replace with the following:

(NEW) (Amd) **108.4 Unlawful continuance.** Any person who continues any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for penalties in accordance with section 29-254a of the Connecticut General Statutes.

(NEW) (Del) **SECTION 109 BOARD OF APPEALS.** Delete this section in its entirety and replace with the following:

(NEW) (Add) **109.1 Means of appeal.** Means of appeal shall be in accordance with Section 112 of the 2003 International Building Code portion of the 2005 State Building Code.

(NEW) **CHAPTER 2 – DEFINITIONS**

(NEW) (Amd) **201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in other codes adopted as portions of the 2005 State Building Code, such terms shall have the meanings ascribed to them as in those codes.

(NEW) (Add) **SECTION 202.1 DEFINITIONS.** Add the following definitions:

(NEW) (Add) **BUILDING OFFICIAL.** The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. The building official may also be known as the local building official or code official.

(NEW) (Amd) **CODE OFFICIAL.** See building official.

(NEW) (Add) **FULL CUTOFF LUMINAIRE.** A luminaire that allows no direct light emissions above a horizontal plane through the luminaire's lowest light-emitting part.

(NEW) (Add) **GREENHOUSE.** A one-story structure, enclosing a nonhabitable space, with glazing in excess of 50 per cent of the gross area of the exterior walls and roof.

(NEW) (Amd) **RESIDENTIAL BUILDING.** For this code, includes detached one and two-family dwellings and townhouses, as well as Group R-2, R-3 and R-4 buildings three stories or less in height.

(NEW) (Amd) **SUNROOM.** A one-story structure, enclosing a habitable space, with glazing in excess of 40 per cent of the gross area of the exterior walls and roof, and with the area of windows and doors operable to the exterior equal to a minimum of 20 per cent of the area of the sunroom floor.

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(NEW) CHAPTER 4 – RESIDENTIAL ENERGY EFFICIENCY

(NEW) (Del) **402.2.11 Thermally isolated sunroom insulation.** Delete in its entirety and replace with the following:

(NEW) (Amd) **402.2.11 Prescriptive requirements for residential greenhouses and sunrooms.** Unconditioned greenhouses and sunrooms that are freestanding or thermally isolated from the conditioned space are exempt from the requirements of this code. As an alternative to demonstrating compliance with other requirements of this code, conditioned greenhouses and sunrooms shall meet the prescriptive envelope criteria in Table 402.2.11. R-values refer to installed insulation only, not to assembly values. For installed components with different R- or U- values, area-weighted averages shall be used to determine compliance with Table 402.2.11.

Greenhouses that are freestanding or that are attached to the outside of the building envelope capable of being closed off from the dwelling through the use of opaque walls and fixed or operable doors and windows shall be 400 square feet or less in area and shall have a maximum area-weighted fenestration U-value of 0.60.

Sunrooms that are freestanding or that are attached to the outside of the building envelope capable of being closed off from the dwelling through the use of opaque walls and fixed or operable doors and windows shall be 500 square feet or less in area and shall have a maximum area-weighted fenestration U-value of 0.50. Sunrooms that are connected with a conditioned space via a permanent opening shall be 350 square feet or less in area and shall have a maximum area-weighted fenestration U-value of 0.45.

(NEW) (Add) **Table 402.2.11 Prescriptive envelope component criteria for residential greenhouses and sunrooms.**

BUILDING COMPONENT	MINIMUM R-VALUE
Opaque ceiling	R-19
Floor over unheated space	R-19
Opaque wall	R-11
Slab-on-grade perimeter insulation	R-5 ^a

a. Two feet minimum depth slab-on-grade perimeter insulation.

(NEW) (Add) **402.2.12 Urea-formaldehyde insulation.** Pursuant to section 29-277 of the Connecticut General Statutes, urea-formaldehyde foamed-in-place insulation shall not be installed in any building or structure on or after June 1, 1981.

(NEW) (Del) **402.3.5 Thermally isolated sunroom U-factor.** Delete without substitution.

(NEW) (Add) **402.6 Moisture control.** Class I or II vapor retarders shall be provided on the interior side of the frame walls in Zone 5A.

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Exceptions:

1. Basement walls;
2. Below-grade portions of any wall; or
3. Construction where moisture or its freezing will not damage the materials.

(NEW) (Add) **402.6.1 Class III vapor retarders.** Class III vapor retarders shall be permitted where any one of the conditions in Table 402.6.1 is met.

(NEW) (Add) **TABLE 402.6.1
CLASS III VAPOR RETARDERS**

ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR: ^a
5A	Vented cladding over OSB Vented cladding over plywood Vented cladding over fiberboard Vented cladding over gypsum Insulated sheathing with R-value \geq R5 over 2x4 wall Insulated sheathing with R-value \geq R7.5 over 2x6 wall

For SI: 1 pound per cubic foot = 16 kg/m³.

a. Spray foam with a minimum density of 2 lbs/ft³ applied to the interior cavity side of OSB, plywood, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing requirement where the spray foam R-value meets or exceeds the specified insulating sheathing R-value.

(NEW) (Add) **402.6.2 Material vapor retarder class.** The vapor retarder class shall be based on the manufacturer's certified testing or a tested assembly. The following shall be deemed to meet the class specified:

- Class I: Sheet polyethylene, non-perforated aluminum foil;
- Class II: Kraft-faced fiberglass or batts or paint with a perm rating greater than 0.1 and less than or equal to 1.0; or
- Class III: Latex or enamel paint.

(NEW) (Add) **403.2.1.1 Duct insulation values.** Minimum duct insulation values stated in Section 403.2.1 shall be installed R-values.

(NEW) (Amd) **403.2.3 Building cavities (Mandatory).** Building framing cavities shall not be used as supply or return ducts.

(NEW) (Add) **403.4.1 Pipe insulation.** All service hot water piping within 10 feet of service water heating equipment shall be insulated to at least R-2. Systems with distribution manifolds shall be insulated between service water heating equipment and the distribution manifold or 10 feet, whichever is less. In addition, the first 5 feet of cold water pipes from the water heating tanks shall be insulated to at least R-2.

(NEW) (Amd) **403.6 Equipment sizing (Mandatory).** Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building

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loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

(NEW) (Amd) **403.9.1 Pool heaters.** All pool heaters shall be equipped with a readily accessible on-off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas or liquefied petroleum gas (propane) shall not have continuously burning pilot lights.

(NEW) CHAPTER 5 – COMMERCIAL ENERGY EFFICIENCY

(NEW) (Del) **502.4.4 Hot gas bypass limitation.** Delete in its entirety.

(NEW) (Del) **TABLE 502.4.4 MAXIMUM HOT GAS BYPASS CAPACITY.** Delete Table in its entirety.

(NEW) (Add) **503.2.7.2 Duct insulation values.** Minimum duct insulation values stated in Section 503.2.7 shall be installed R-values.

(NEW) (Add) **503.4.7 Hot gas bypass limitation.** Cooling systems shall not use hot gas bypass or other evaporator pressure control systems unless the system is designed with multiple steps of unloading or continuous capacity modulation. The capacity of the hot gas bypass shall be limited as indicated in Table 503.4.7.

Exception: Unitary packaged systems with cooling capacities not greater than 90,000 Btu/h (26 379 W).

(NEW) (Add) **TABLE 503.4.7
MAXIMUM HOT GAS BYPASS CAPACITY**

RATED CAPACITY	MAXIMUM HOT GAS BYPASS CAPACITY (% of total capacity)
≤240,000 Btu/h	50%
>240,000 Btu/h	25%

For SI: 1Btu/h = 0.29 watts

(NEW) (Add) **505.6.3 Light pollution controls.** When the power for exterior lighting is supplied through the energy service to the building, luminaires used for exterior lighting shall be full cutoff luminaires.

Exceptions:

1. Luminaires with an output of 150 watts incandescent or less, or the equivalent light output;
2. Luminaires intended to illuminate the façade of buildings or to illuminate other objects including, but not limited to, flagpoles, landscape and water features, statuary and works of art;
3. Luminaires for historic lighting on the premises of an historic building as defined in the 2003 International Existing Building Code or within a designated historic district;
4. Outdoor sports facility lighting of the participant sport area;

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- 5. Emergency exit discharge lighting;
- 6. Low voltage landscape lighting;
- 7. Sign illumination;
- 8. Festoon lighting as defined in the 2005 NFPA 70 National Electrical Code; or
- 9. Temporary lighting for emergency, repair, construction, special events or similar activities.

(NEW) CHAPTER 6 – REFERENCED STANDARDS

Add the following standard:

(NEW) (Add) **ACCA** Air Conditioning Contractors of America
2800 Shirlington Road, Suite 300
Arlington, VA 22206

Standard reference number	Title	Referenced in code section number
Manual J-02	Residential Load Calculation-Eighth Edition	.....403.6
Manual S-04	Residential Equipment Selection	.....403.6

(NEW) (Amd) **ICC** International Code Council, Inc.
500 New Jersey Avenue, NW
6th Floor
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
IBC-03	International Building Code®	.....303.2, 201.3
IFC-09	International Fire Code®	.....201.3
IFGC-09	International Fuel Gas Code®	.....201.3
IMC-03	International Mechanical Code®	.....503.2.5, 503.2.6, 503.2.7.1, 503.2.7.1.1, 503.2.7.1.2, 503.2.9.1,
IPC-03	International Plumbing Code®	503.4.5
IRC-09	International Residential Code®	.....201.3 201.3, 403.2.2, 403.6, 405.6.1, Table 405.5.2 (1)

(NEW) (Amd) **ASHRAE** American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
1791 Tullie Circle, NE
Atlanta, GA 30329-2305

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Standard reference number	Title	Referenced in code section number
119-88 (RA 2004)	Air Leakage Performance for Detached Single-family Residential BuildingsTable 405.5.2(1)
140-2007	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	.....506.6.1
146-1998	Testing and Rating Pool Heaters	.....Table 504.2
ANSI/ASHRAE/ACCA Standard 183-2007	Peak Cooling and Heating Load Calculations in Buildings Except Low-rise Residential Buildings	.....503.2.1
13256-1(2005)	Water-source Heat Pumps-Testing and Rating for Performance-Part 1:Water-to-air and Brine-to-air Heat Pumps (ANSI/ASHRAE/IESNA 90.1-2004)	.....Table 503.2.3(2)
90.1-2007	Energy Standard for Buildings Except for Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1-2007 with ASHRAE Addenda 2008 Supplement	501.1, 501.2, 502.1.1, Table 502.2(2)
ASHRAE-2001, 2005	ASHRAE Handbook of Fundamentals402.1.4, Table 405.5.2(1)
ASHRAE-2004	ASHRAE HVAC Systems and Equipment Handbook - 2004503.2.1

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STATEMENT OF PURPOSE: This change is technical. The regulation replaces the 2006 International Energy Conservation Code (IECC) with the 2009 IECC. The 2009 IECC was not available at the time of the last amendment to the 2005 State Building Code. This newer version of the IECC is intended to meet the energy conservation requirements of P.A. 09-192 and to qualify the state for energy grant funding pursuant to the American Recovery and Reinvestment Act of 2009. Structures built to this standard are expected to realize energy savings.

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