RHODE ISLAND
STATE BUILDING CODE

SBC-8 State Energy Conservation Code

Effective January 1, 2009
Replaces Regulation SBC-8
Dated August 1, 2008

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
BUILDING CODE STANDARDS COMMITTEE
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10th EDITION

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Regulation SBC-8
State Energy Conservation Code
January 1, 2009

The Building Code Standards Committee, in accordance with the rule making authority of Title 23, Chapter 23-27.3, Section 109.1, paragraphs a through c inclusive, has formally adopted and promulgated as the Rhode Island State Building Code, the provisions of the International Energy Conservation Code, 2006 edition, as published by the International Code Council, Inc. (I.C.C.), together with amendments thereto hereinafter set forth to the articles and sections of this code:

The provisions of Title 23, Chapter 27.3 of the General Laws of Rhode Island establishing administration and enforcement are hereby incorporated by reference. Regulatory Administration Chapter 1 immediately follows and is supplemental to the General Laws.

Editorial Note: Code users please note:
When purchasing or using the State Energy Conservation Code 2006 code, please take note of the particular printing edition. Errata to that printing edition is available on-line directly at no charge at www.iccsafe.org/cs/codes/errata.html or call the office of the State Building Code Commissioner at 401-222-3033 for further information.

Printed copies of the administrative and enforcement provisions of Title 23, Chapter 27.3 are available at the Office of the State Building Code Commission or on-line at www.rilim.state.ri.us/statutes/title23/23 27.3/index.htm.

The State Energy Conservation Code, 2006 Edition, is protected by the copyright that has been issued to the ICC. As a result, the State Building Code is not available in complete form to the public in an electronic format. The State Energy Conservation Code 2006 edition that is referred to within is contained in a printed volume and is also in an electronic format that have been published by the ICC under an exclusive license.

The Office of the State Building Code Commissioner has purchased volumes of these codes and they shall be distributed to Rhode Island cities and towns during the month of June 2008 so that local officials will have access to the code prior to the implementation of these rules on January 1, 2009.

In order to assure public access to this code the Office of the State Building Code Commissioner shall provide a copy of this code to the Rhode Island State Library, which is located on the second floor of the State House. In addition, all codes may be viewed during business hours at the Department of Administration's Library which is located on the fourth floor of the William E. Powers Building, One Capitol Hill, Providence.

The Legislative Regulation Committee approved adoption of this code on June 19, 2008.

By:
John P. Leyden
Executive Secretary
Rhode Island Building Code Standards Committee

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STATE BUILDING CODE REGULATIONS – 2007

The following list includes all regulations promulgated by the State Building Code Standards Committee. All regulations are available for a fee at the State Building Commission.

1.	Building Code	SBC-1-2007
2..	One and Two Family Dwelling Code	SBC-2-2007
3.	Plumbing Code	SBC-3-2007
4.	Mechanical Code	SBC-4-2007
5.	Electrical Code	SBC-5-2008
6.	Reserved	
7.	Reserved	
8.	Energy Conservation Code	SBC-8-2008
9	Enforcement and Implementation Procedures for Projects Under the Jurisdiction of The State of Rhode Island	SBC-9
10.	Code Interpretations	SBC-10
11.	Certification of Building Officials, Building, Electrical, Plumbing and Mechanical Inspectors	SBC-11-2002
12.	New Materials and Methods of Construction	SBC-12
13.	State Building Code for Existing Schools	SBC-13
14.	Reserved	
15.	Reserved	
16.	Reserved	
17.	Public Buildings Accessibility Meeting Standards	SBC-17
18.	Native Lumber	SBC-18
19.	Fuel Gas Code	SBC-19-2007

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Format: These code changes follow numbering sequence and topics of the INTERNATIONAL ENERGY CONSERVATION CODE 2006 (first printing). All Provisions of IECC 2006 are retained unless indicated as deleted or revised. Published errata is available from the ICC website dependent on the printing issue number and date.

Chapter 1

ADMINISTRATION

Revise IECC section 101.1, Title, to read as follows:

101.1 Title: These regulations shall be known as the State Energy Conservation Code Regulation SBC-8 - 2007 hereafter referred to as " this code".

Add the following new section 101.1.1 referenced codes.

101.1.1 Referenced Codes. The other codes listed in Sections 101.4.1 through 101.4.7 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

1. **Electrical.** The provisions of Rhode Island State Electrical Code SBC-5-2008 shall apply wherever referenced in this code as the ICC Electrical Code, and shall apply to the installation of electrical systems, including alterations, repairs, replacement, equipment, appliances, fixtures, fittings, and appurtenances thereto.

2. **Gas.** The provisions of the Rhode Island State Fuel Gas Code SBC-19-2007 shall apply wherever referenced in this code as the International Fuel Gas Code, and shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

3. **Mechanical.** The provisions of the Rhode Island State Mechanical Code SBC-4-2007 shall apply wherever referenced in this code as the International Mechanical Code and shall apply to the installation, alterations, repairs and replacement of the mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

4. **Plumbing.** The provisions of Rhode Island State Plumbing Code SBC-3-2007 shall apply wherever referenced in this code as the International Plumbing Code, and shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system.

5. **Property Maintenance.** Refer to state or local codes.

6. **Fire Prevention Code.** Wherever and whenever provisions of the Internatinal Fire Code 2003 editions are referenced, the appropriate Rhode Island Fire Safety Code requirements shall apply.

7. **Building Code.** The provisions of the Rhode Island State Building Code SBC-1-2007 shall apply wherever referenced in this code as the International Building Code, and shall apply to all matters governing the design and construction of buildings.

8. **Existing Building Code.** The provisions of the State Building Codes SBC-1-2007 in conjunction with the State Rehabilitation Code SRC-1 and the Rhode Island Fire Safety Code shall apply wherever referenced in this code as the International Existing Building Code.

Any and all such references to the various International Code Council family of code shall be substituted for the appropriate state code as indicated above.

Chapter 3

Climate Zones

Delete section 301 in its entirety and substitute the following.
Section 301
Climate Zones

301.1 General Rhode Island shall be considered as climate zone 5A with the following design conditions.

Add the following Table		
Table 301.1 Exterior Design Conditions.	Value	Value
Climate zone	Providence County	All others
Winter, design dry-bulb (degree F)	0	5
Summer, design dry-bulb	87	89
Summer design wet-bulb	71	73
Degree days heating	6831	5950
Degree days cooling	371	811

Add the Following Figure
301.1

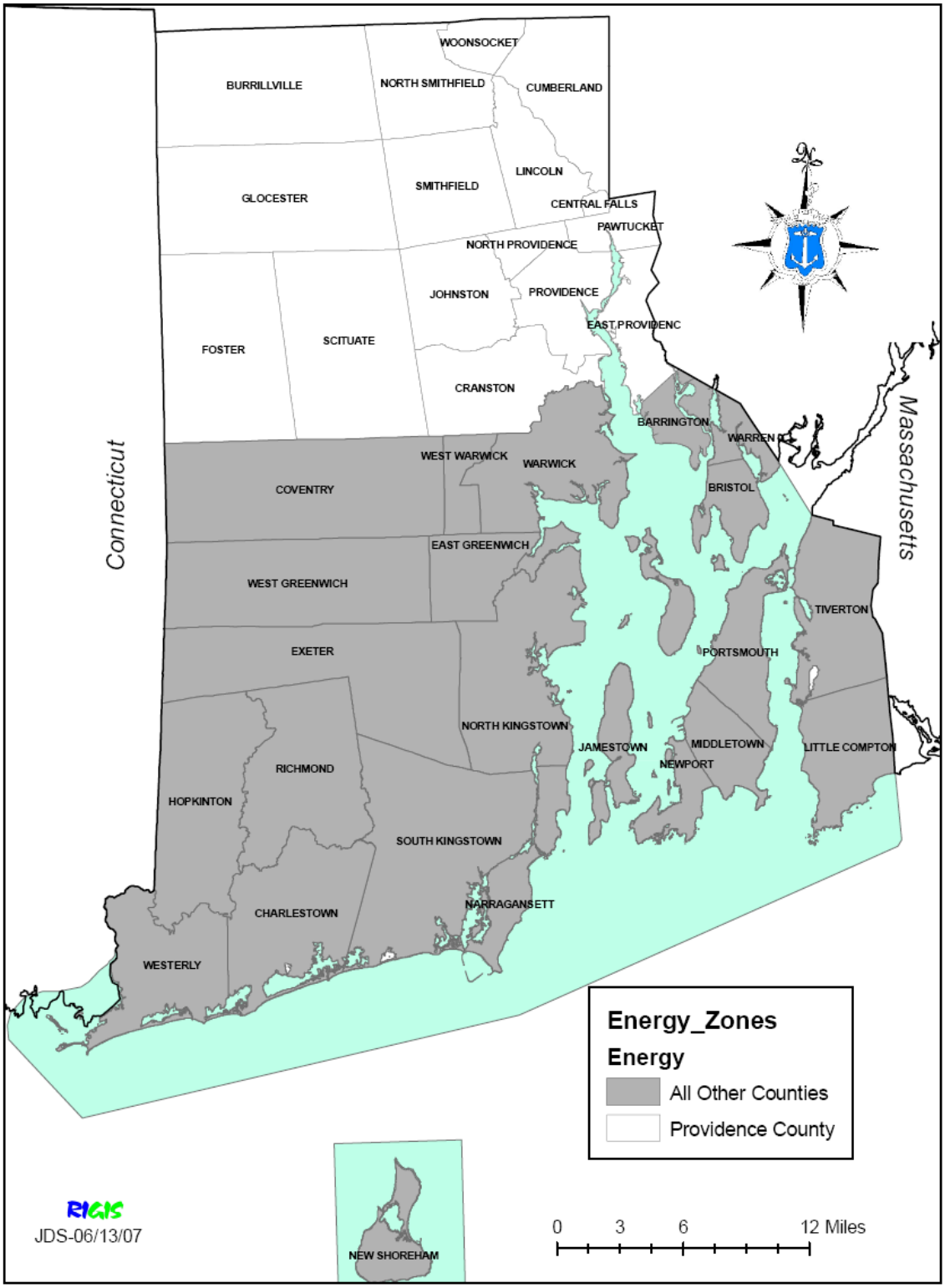

Figure 301

Chapter 4

401.2 Delete and substitute the following:

401.2 Compliance shall be demonstrated by either;

1. Meeting the requirements of this chapter using the criteria for climate zone 5 from figure 301.1 or.
2. Meeting the following prescriptive requirements listed as table 402.1.1 or
3. Compliance submission of Res-Check for Zone5 and Chapter4

401.3 Certificate: Add the following

A certificate similar to this shall be attached to or near the electrical panel board.

ENERGY CERTIFICATE

STREET ADDRESS: _____

CITY/TOWN: _____

PREDOMINANT VALUES:

R VALUE CEILING/ROOF _____
R VALUE WALLS _____
R VALUE FOUNDATION _____
R VALUE DUCTS _____
U FACTOR FENESTRATION _____
U FACTOR SKYLIGHT _____
AFUE VALUE BOILER/FURNACE _____

CERTIFICATE COMPLETED BY BUILDER/REGISTERED DESIGN PROFESSIONAL

_____
SIGNATURE

Delete Table 402.1.1 and substitute the following

TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT

Window[d] Area Percentage of Exterior Wall Area	Fenestration U-Factor	Skylight U-Factor	Ceiling R-Value	Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Crawl Space R-Value
0> 17.5	0..35	0.60	R-38	R-15 or R13 +5[a]	R-13	R-19/30 [b]	R-10	R10/13 [c]
17.51>25	0.35	0.60	R-38	R-19 or R13 +5[a]	R-13	R-30	R-13	R10/13 [c]

Footnote:

a. "13 +5" means R-13 cavity insulation plus R-5 insulated sheathing.
b. R-19 / 30 means R-19 at floors above occupiable (unheated basements) areas; and R-30 above open crawl space and garage areas.
c. R 10 / 13 means R-10 continuous or R-13 at cavity
d. Window area is calculated using rough opening

Notes:
1. If window area exceeds 25% of gross exterior conditioned space wall area, the provisions of Chapter 4 prevail.
2. R-Value 10.0 insulation shall be installed for unheated slab on grade structures from grade to 2' (two feet) below grade and shall be protected against physical damage in accordance with Section R403.3.2. of Residential Code SBC-2
3. Sliding glass doors and fully glazed patio doors shall be considered windows for the purpose of this table
4. Roof/ceiling assemblies in which the finished interior surface is the underside of the roof sheathing, or where the finished ceiling surface is attached to the underside of the roof framing member (i.e. cathedral ceilings), shall have a minimum R-value of 30. Additionally insulation provided the exterior walls of the structure or portion containing such conditions shall have an accompanying wall insulation value of R-19 or better, and a glass U-factor with a maximum of 0.35.
5. Mass walls shall meet the R-value requirements of Section 402.2.3
6. Skylights and roof windows shall have a maximum U factor of 0.60.

401.3 Add the following 401.3.1 Certificate:
A certificate similar to this shall be attached to or near the electrical panel board.

402.1.4 Delete and substitute the following:

402.1.4 Total UA Alternative.
If the total building thermal envelope UA (sum of U-factor times the assembly area) is less than or equal to the total UA resulting from using the U-factors in table 402.1.3 (multiplied by the same assembly area as in the proposed building) the building shall be considered in compliance with the Table 402.1.1. The UA calculations shall be done using an approved methodology.

Add the following section:

403.7 Minimum equipment performance. Heating and cooling equipment shall have minimum equipment performance as indicated in Table 403.1.

TABLE 403.1
MINIMUM EQUIPMENT PERFORMANCE

EQUIPMENT CATEGORY	SUBCATEGORY	REFERENCED STANDARD	MINIMUM PERFORMANCE
Air-cooled heat pumps, Heating mode<65,000 Btu/h cooling capacity	Split systems Single package	ARI 210/240	8 HSPF[a,b] 7.6 HSPF[a,b]
Gas-fired or oil-fired furnace <225,000 Btu/h	_____	DOE 10 CFR Part 430, Subpart B, Appendix N	AFUE 85%[b]
Gas-fired or oil fired steam and hot-water boilers <300,000 Btu/h	____	DOE 10 CFR Part 430, Subpart B, Appendix N	AFUE 80%[b, c]
Air-cooled air conditioners and heat pumps, Cooling mode <65,000 Btu/h cooling capacity	Split systems Single package	ARI 210/240	13.0 SEER[b] 12.0 SEER[b]

For SI: 1 British thermal unit per hour = 0.2931 W.

a. For multi-capacity equipment, the minimum performance shall apply to each capacity step provided. Multi-capacity refers to manufacturer-published ratings for more than one capacity mode allowed by the product's controls.
b. This is used to be consistent with the National Appliance Energy Conservation Act (NAECA) of 1987 (Public Law 100-12).
c. Except for gas-fired steam boilers for which the minimum AFUE shall be 75 percent.
d. Seasonal rating.

Delete **footnotes e and f of Table 404.5.2(1)** and substitute the following

e. Tested envelope leakage shall be determined and documented by an independent party approved by the code official.

f. The combined air exchange rate for infiltration and mechanical ventilation shall be determined and documented by an independent party approved by the code official.

Add the following sections.

405 Pools. All pools shall be provided with energy conserving measures in accordance with sections 405.1 through 405.3

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 fire by natural gas shall not have continuously burning pilot lights.

Time Switches. Time switches that can automatically turn off and on heaters and pumps according to a preset schedule shall be installed on swimming pool heaters and pumps.

Exception:

1. Where pumps are required to operate solar-and waste-heat- recovery pool heating systems.

Pool covers. Heated pools shall be equipped with a vapor retardant pool covers on or at water surface. Pools heated more than 90F (32C) shall have a pool cover with a minimum insulation value of R-12.

Exception:

Pools deriving over 60 percent of the energy for heating from site-recovered energy or solar energy source.

Chapter 5

501.2 Delete and substitute.

501.2 Applications. There are two independent methods of satisfying the requirements of this Chapter. If the Prescriptive Method in Section 501.2.1 is being used, the requirements of the Total Building Performance Method in Section 501.2.2 do not apply. If the Performance Method in Section 501.2.2 is being used, the requirements of the Prescriptive Method in Section 501.2.1 do not apply.

501.2.1 (Prescriptive Method) The requirements in sections 502 (Building envelope), 503 (Building mechanical systems), 504 (Service water heating), and 505 (Lighting) shall each be satisfied.

OR

501.2.2 (Total Building Performance Method) The requirements in accordance with Section 506 and Section 502.6 shall be satisfied.

Table 502.2 (1) Revise as shown.

Below Grade Wall	R-5 Continuous R-7.5 Noncontinuous
Unheated Slabs	R-3 Thermal break at wall to floor joint R-7.5 for 24 inches below

502.4.6 Revise the following exception.

2. Doors not intended to be used as building entrance doors.

Add the following exception:

7. Doors other than main entrance doors in building four stories or less.

502.6 Air Barrier

502.6.1 Air Barriers: The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, and out of the conditioned space. An air barrier shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions. The air barrier shall have the following characteristics:

1. It must be continuous, with all joints made air-tight.
2. It shall have an air permeability not to exceed 0.004 cfm/ft^2 under a pressure differential of 0.3 in. water.
3. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressure on the envelope without damage or displacement and shall transfer the load to the structure. It shall not displace adjacent materials under full load.

4. The air barrier shall be joined in an air-tight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:

a. Foundation and walls.
b. Walls and windows or doors.
c. Different wall systems
d. Wall and roof.
e. Wall and roof over unconditioned space.
f. Walls, floor and roof across construction, control and expansion joints.
g. Walls, floors and roof to utility, pipe and duct penetrations.

502.6.2 Air barrier penetrations: All penetrations of the air barrier and paths of air infiltration/exfiltration shall be made air-tight.

503.2.1 Delete and substitute

503.2.1 Calculation of heating loads. Documented design load calculations shall be provided by the design professional upon request of the A.H.J. Heating and cooling loads shall be adjusted to account for load reductions that are achieved when energy recovery systems are utilized in the HVAC system. Design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in chapter 3. Acceptable methods include energy modeling software, spreadsheet calculations, or hand written calculations certified by the design professional.

503.2.4.2 Add the following exception .

Exception: A building equipped with a DDC system may follow manufacturers installation instructions.

503.2.4.4 Delete and substitute the following exceptions.

1. Gravity exhaust dampers shall be permitted in buildings less than three stories in height.
2. Gravity dampers shall be permitted for exhaust airflows of 300 CFM (.14 m3/s) when serving a single space.

503.2.7 Duct and plenum insulation and sealing.

Delete /and substitute.

….. a minimum of R-8 insulation when located in unconditioned spaces and with a minimum of R-12 when located outside of the building. Exterior installations shall be protected from the weather…….

503.2.9 Delete and substitute the following

503.2.9 HVAC System completion.

Prior to the issuance of a certificate of occupancy upon the request of the AHJ evidence of system completion in accordance with sections 503.2.9.1 through 503.2.9.3 shall be provided.

Delete Table 503.3.1(1) and substitute the following table:

Table 503.3.1(1)

Climate Zone 5-A	Economizers on all individual cooling units ≥ 54,000 Btu/h
Climate Zone 5-A	On 75% of all Cooling systems when the Total Building Load is ≥ 12 million Btu/h Except Use Group R

506 Delete and Substitute.

Section 506 Total Building Performance

506.1 General The proposed design complies with this section provided that the design is in compliance with section 11 Energy Cost Budget of ASHRE 90.1 including meeting the prescriptive requirements of Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4 as referenced in Chapter 11.