

**RHODE ISLAND
STATE BUILDING CODE**

SBC-5 STATE ELECTRICAL CODE



Effective August 1, 2014

Replaces Regulation SBC-5-2011

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

**Department of Administration
BUILDING CODE STANDARDS COMMITTEE
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Regulation SBC-5 - 2014

July 1, 2014

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 hereby adopts the provisions of the National Electrical Code, 2014 edition, as published by the National Fire Protection Association, as the Rhode Island State Electrical Code, together with the amendments thereto hereinafter set forth to the chapters and sections of said code:

**State Electrical Code
Regulation SBC-5-2014
July 1, 2014**

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 Electrical Code, the provisions of the National Electrical Code, 2014 edition, as published by the National Fire Protection Association (NFPA) 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 NEC 2014 code, please take note of the particular printing edition. Errata to that printing edition is available on-line directly at no charge at www.necdirect.org or the office of the State Building Code Commissioner or call 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 National Electrical Code, 2014 Edition, is protected by the copyright that has been issued to NFPA. As a result, the State Electrical Code is not available in complete form to the public in an electronic format. The National Electrical Code 2014 edition that is referred to within is contained in a printed volume and is also in an electronic format that have been published by NFPA 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 2014 so that local officials will have access to the code prior to the implementation of these rules on August 1, 2014.

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 August 1, 2014.

By:

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

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STATE BUILDING CODE REGULATIONS

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.

| | | |
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| 1. | Building Code | SBC-1-2013 |
| 2.. | One and Two Family Dwelling Code | SBC-2-2013 |
| 3. | Plumbing Code | SBC-3-2013 |
| 4. | Mechanical Code | SBC-4-2013 |
| 5. | Electrical Code | SBC-5-2014 |
| 6. | Reserved | |
| 7. | Reserved | |
| 8. | Energy Conservation Code | SBC-8-2013 |
| 9 | Enforcement and Implementation Procedures for Projects Under the Jurisdiction of The State of Rhode Island | SBC-9-2010 |
| 10. | Code Interpretations | SBC-10 |
| 11. | Certification of Building Officials, Building, Electrical, Plumbing and Mechanical Inspectors | SBC-11-2010 |
| 12. | New Materials and Methods of Construction | SBC-12 |
| 13. | State Building Code for Existing Schools | SBC-13 |
| 14. | <u>Property Maintenance Code</u> | SBC-14 |
| 15. | Reserved | |
| 16. | Reserved | |
| 17. | Public Buildings Accessibility Meeting Standards | SBC-17 |
| 18. | Native Lumber | SBC-18 |
| 19. | Fuel Gas Code | SBC-19-2013 |

GENERAL

Delete all references to IEC and substitute Rhode Island Electrical Code SBC-5-2014.

Delete all reference to any other International Code (IBC, IRC, IMC, etc.) and refer to appropriate SBC regulations. (See Amendment 2701.6 of SBC-1-2013)

NFPA 70-14 may also be referenced as NEC 14 and are one and the same document.

ARTICLE 90

90.1 Add the following to 90.1.

- E) The installation of all work shall be accomplished by persons licensed by the State of Rhode Island, Department of Labor and Training, Division of Professional Regulation of Electricians, Title 5, Chapter 6, and Telecommunications Chapter 5-70 of the General Laws of the State of Rhode Island.

90.4 Delete 90.4 and substitute the following:

90.4 Enforcement. This Code is intended to be suitable for mandatory application by governmental bodies that exercise legal jurisdiction over electrical installations and for use by insurance inspectors. The Committee shall have the responsibility for deciding upon the approval of New Materials and Methods of Construction in accordance with SBC-12. The Commissioner shall have the responsibility to issue official interpretations in accordance with SBC-10. The authority having jurisdiction will have the responsibility for granting special permission contemplated in a number of the rules.

The authority having jurisdiction may waive specific requirements in this Code or permit alternate methods where it is assured that equivalent objectives can be achieved by establishing and maintaining effective safety.

This Code may require new products, constructions, or materials that may not yet be available at the time the Code is adopted. In such event, the authority having jurisdiction may permit the use of the products, constructions, or materials that comply with the most recent previous edition of this Code adopted by the jurisdiction.

90.6 Delete 90.6 and substitute the following:

90.6 Formal Interpretations. To promote uniformity of interpretation and application of the provisions of this Code, formal interpretation procedures have been established and are found in the NFPA Regulations Governing Committee Projects.

Formal interpretations issued by the NFPA are advisory in nature and are not binding on the local authority having jurisdiction unless reissued as a formal opinion by the State Building Code Commissioner.

90.10 Add the following new Article 90.10:

90.10 Other Provisions. The provisions of Chapter 27 of SBC-1-2013 are herein incorporated by reference and are considered part of this code. See SBC-1-2013 for any future amendments.

110.2 Add the following new paragraph after the Informational Note:

Except as modified by the authority enforcing this Code, plans, specifications, schedules and calculations in sufficient detail shall be filed with the authority enforcing this Code, showing the location, and capacity of all lighting facilities, and all electrically operated equipment including power circuits required for all electrical service equipment of the building or structure. Details shall include available fault current at each protective device. Details shall include showing all raceways, cables and or circuiting on plans.

Informative Annexes A, B, C, D, F, G and I may be used and are included for informational purpose only.

Informative Annex E refers to construction types in NFPA 220 which do not correlate directly with construction types and hourly ratings specified in SBC-1-2013. Refer any questions to the building code authority having jurisdiction.

Informative Annex H is deleted. See the provisions of RIGL 23-27.3-100 et al for administration and enforcement provisions.

Revise 210.25 as follows;

210.25 Branch Circuits in Buildings with More Than One Occupancy.

(A) Dwelling Unit Branch Circuits. Branch circuits in each dwelling unit shall supply only loads within that dwelling unit or loads associated only with that dwelling unit.

(B) Common Area Branch Circuits. Branch circuits installed for the purpose of lighting, central alarm, signal, communications, or other purposes for public or common areas of a two-family dwelling, a multifamily dwelling, or a multi occupancy building shall not be supplied from equipment that supplies an individual dwelling unit or tenant space.

(C) Common Area Branch Circuits of Existing Three- Family Dwellings. Branch circuits installed for the purpose of associated smoke and carbon monoxide detection required for three (3) family dwellings located in the common areas of a three (3) family dwelling shall be permitted to be supplied from equipment that supplies an individual dwelling unit. Written documentation shall be supplied that there will be no interruption in service to said common area smoke and carbon monoxide devices.

Informational Note: See Rhode Island General Law(RIGL) 23-28.1-2(b)(2)(i) and Section 8, Chapter 25 of the Rhode Island Life Safety Code of the Rhode Island State Fire Code for requirements regarding the Installation of Smoke and Carbon Monoxide Alarms.

(D) Modifications to Existing Electric Service. When the electric service to a three family dwelling with branch circuits installed in accordance with 210.25(C) is upgraded or an electric meter is added for any other purpose, said property shall comply with 210.25 (A) and (B).

Substantiation: Rhode Island General Law section 23-28.1-2(b)(2)(i) has been adopted by the General Assembly. This statute directed the State Fire Board to provide reasonable standards for the installation of smoke and carbon monoxide devices in all existing three (3) family dwellings. The deadline for such installation was set to be on or before July 1, 2008. The State Fire Board then developed and implemented the above-referenced standards as Section 8, Chapter 25 of the Rhode Island Life Safety Code. These further regulations directed compliance with the State Building Code and both NFPA 72 and 720.

Serious questions arose as to installation methods. It was determined that SBC-5 NEC 2014 Section 210.25 required that these devices, located in the common areas of the three (3) family building, would not be allowed to draw power from a dwelling unit. This led to the initial unanticipated expense of installing a separate electrical meter in the building. A second unanticipated expense resulted from compliance with the electrical service provider's standing policy that new meters could only be installed on the exterior of the building. Accordingly, the owner of an existing three (3) family house could now incur thousands of dollars in unanticipated additional expenses for the installation of Smoke and CO devices that were originally anticipated to cost far less.

This amendment is limited to those owners of three (3) family dwellings who are simply complying with the provisions of RIGL 23-28.1-2(b)(2)(i) and Section 8, Chapter 25 of the Rhode Island Life Safety Code. Any such owner who utilizes this amendment is advised that his or her failure to maintain the electrical power to the Smoke and CO devices located in his or her three (3) family dwelling will result in a violation of the State Fire Code and subject the above owner to fines of five hundred dollars (\$500.00) a day under the provisions of RIGL 23-28.3-9.

For the purpose of RIGL 23-28.1-2(b)(2)(i) and Section 8, Chapter 25 of the Rhode Island Life Safety Code of the Rhode Island State Fire Code the requirement of SBC-5 NEC 2011 Section 210.25 shall be amended as follows;

Delete 230.24(A) Exception No. 5

Substantiation for deletion of 230.24(A) Exception No. 5

This exception to the 2011 National Electrical Code (NEC) will permit overhead service conductors with a vertical clearance of not less than 3 ft to pass over the surface of a flat roof, if the roof area is guarded or isolated. The justification for this exception was to correlate the NEC with allowances in the National Electrical Safety Code (NESC). Currently, the NESC allows conductors to be a minimum of 900 mm (3 ft) above the roof, if the area is guarded or isolated. However, this justification is flawed, because the NEC applies to installations on the load side of the service point and the NESC applies to installations on the supply side of the service point.

Section 230.24(A) applies to Overhead Service Conductors, which are defined in the NEC as the overhead conductors between the service point and the first point of connection to the service-entrance conductors at the building or other structure. Service-Entrance Conductors of an overhead system are defined in the NEC as the service conductors between the terminals of the service equipment and a point usually outside the building, clear of building walls, where joined by tap or splice to the service drop or overhead service conductors. Clearly, under these definitions, overhead service conductors are within the scope of the NEC and not the NESC.

It is the opinion of this committee that when conductors pass over roof surfaces other than those addressed in Exceptions 2, 3, and 4, the minimum vertical clearance of not less than 2.5 m (8 ft) should be maintained, because guarding and isolation in locations that are not under the exclusive control of the utility will not provide equivalent safety as currently allowed in Exceptions 2, 3 and 4. As an example: The flat roof of a strip mall that is enclosed by a fence, with a locked gate is considered "isolated". Equipment such as HVAC and CATV is mounted on the roof and those servicing this equipment have access (a key) to the roof and may come in contact with the conductors.

If the NEC Technical Committee CMP-4 feels the need to correlate these documents, modifications should have been made to the less restrictive NESC and not the NEC. Conductors installed and maintained by the electric utility on the supply side of the service point are beyond the scope of the NEC. The NESC applies to utility work and its requirements are different from those of the NEC because these installations are fundamentally different than those for premises wiring. And the three elements that make that so are is that the utility has exclusive control, restricted access and qualified persons maintain the installation.

230.82. Revise this section to read as follows:

230.82. Equipment Connected to the Supply Side of Service Disconnect. Only equipment included in this section shall be permitted to be connected to the supply side of the service disconnecting means.

(A) Supply Side Equipment.

(1) Cable limiters or other current-limiting devices.

(2) Meters and meter sockets nominally rated not in excess of 1000 volts provided all metal housings and service enclosures are grounded in accordance with Part VII and bonded in accordance with Part V of Article 250.

- (3) Instrument transformers (current and voltage), impedance shunts, load management devices, surge arresters, and Type 1 surge-protective devices.
- (4) Taps used only to supply load management devices, circuits for standby power systems, fire pump equipment, and fire and sprinkler alarms, if provided with service equipment and installed in accordance with requirements for service-entrance conductors.
- (5) Solar photovoltaic systems, fuel cell systems, or interconnected electric power production sources.
- (6) Control circuits for power-operable service disconnecting means, if suitable overcurrent protection and disconnecting means are provided.
- (7) Ground-fault protection systems or Type 2 surge protective devices, where installed as part of listed equipment, if suitable overcurrent protection and disconnecting means are provided.
- (8) Connections used only to supply listed communications equipment under the exclusive control of the serving electric utility, if suitable overcurrent protection and disconnecting means are provided. For installations of equipment by the serving electric utility, a disconnecting means is not required if the supply is installed as part of a meter socket, such that access can only be gained with the meter removed.

(B) Meter Disconnect. A disconnecting means shall be permitted to be located ahead of the service equipment provided the installation complies with 230.82(B) (1) through 230.82(B) (3). A separate service disconnecting means that complies with Part V of Article 230 shall be installed, and shall be located as provided in 230.70(A) (1).

(1) Rating. A meter disconnect shall be capable of interrupting the load served. It shall have a short-circuit current rating not less than the available short-circuit current.

(2) Marking. A meter disconnect shall be legibly field marked on its exterior in a manner suitable for the environment substantially as follows:

METER DISCONNECT
NOT SERVICE EQUIPMENT

Informational Note: This rule does not specify whether the meter disconnect is on the line or load side of the meter because either side is acceptable and will be governed by the policies of the serving utility.

(3) Grounding. A meter disconnect shall be grounded in accordance with Part VII and bonded in accordance with Part V of Article 250. The grounding connections shall be permitted to be in accordance with 250.142(A) (1).

Substantiation;

The proposed amendment to section 230.82, which is the same as a Massachusetts amendment was to address meter disconnects. These disconnects are required by some utilities, because of the greater safety they provide for their service personnel. They are installed either "hot sequence" (meter ahead of the switch) or "cold sequence" (switch ahead of the meter). Section 230.82(3) of the Code addresses meter disconnects on the supply side of the service disconnect, but the problem is when these meter disconnects are installed the Authority Having Jurisdiction (AHJ) is treating it as a service disconnecting means. This interpretation invokes all the rules for services including the need for a grounding electrode at the metering location and the classification of the conductors supplied by the switch as feeders and not a continuation of the service conductors. As a feeder an additional conductor would be required to be run to the building and a grounding electrode installed at the meter/disconnect means location. When the meter and disconnect means is a distance from the building being served, which is often the case, an additional electrode that meets code would accomplish very little in terms of safety, since there would be no electrical loads at the remote metering point. It would be like requiring a grounding electrode conductor to be brought to every conventional meter socket.

This proposed amendment would require that the disconnect means be legibly field marked as a meter disconnect, be capable of interrupting the load served and have a short-circuit current rating not less than the available short-circuit current. The amendment will also require the meter disconnect to be grounded in accordance with Part VII and bonded in accordance with Part V of Article 250. Most importantly this amendment will clarify the purpose of this disconnect means and establish the rules for their installation.