



# ANALYSIS OF RI STATE BUILDING CODES

Building Code Standards Committee

Building Code Commission  
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## Introduction and Executive Summary

The Rhode Island Building Code Standards Committee (RIBCSC), pursuant to R.I. General Laws [23-27.3](#), has the statutory authority to promulgate and amend rules and regulations related to the state building code. The current building codes are filed with the Rhode Island Secretary of State's office. Each of the RI State Building Codes include:

- An underlying base code (and any applicable supplements), incorporated by reference, from a national/international organization (the International Plumbing Code (IPC) issued by the International Code Council (ICC), and
- Rhode Island-specific amendments to these base codes that are developed by RIBCSC.

RIBCSC is proposing changes to the Rhode Island State Building Code Regulations. These changes include updating the base codes to a more recent version of the relevant national/international base codes—updating from the ICC 2012 family of model codes to the ICC 2015 model codes. RIBCSC has also compiled RI-specific amendments that make changes to these base codes to better align with the specific needs of Rhode Island.

Building and fire codes have a significant impact on the state. The following economic analysis will explain the process of regulatory development and the potential impacts that these regulations will have on Rhode Islanders. The construction standards in the state building and fire codes impacts include:

- Safety, health, livability, and environmental impacts related to increased protective requirements;
- Building quality and resiliency impacts related to higher-quality construction and energy savings requirements;
- Construction cost impacts related to the cost of construction and compliance with the state building code requirements; and,
- Procedural and administrative impacts related to the management and application of the code requirements.

The Rhode Island Building Code Commission reviewed the significant changes to the Rhode Island State Building Codes in both the updated incorporated model codes and the newly-proposed Rhode Island-specific amendments and conducted the following regulatory analysis. This report includes the following sections:

- An overview of the regulatory development process;
- An overview of the significant revisions to the Rhode Island Building Codes;
- An overview of the RI-specific changes to the Rhode Island Building Codes;
- An economic analysis that reviews the impacts of a selection of the changes to the codes; and
- Appendices that includes a list of the significant changes and information about those changes.

This analysis estimates the statewide annual construction cost impact related to the changes to the provisions in the state building codes to be approximately \$9.5 million, for a 5-year net present value cost of \$44 million. These costs are related to significant health, safety, building resiliency, and other benefits.

## Regulatory Development Process

Each state’s code development process varies—some states implement a mandatory statewide code, some leave code development to local governments, and some use a mixed approach.<sup>1</sup> In any case, a jurisdiction will not “start from scratch” and create its own building code; rather, a jurisdiction will adopt a base code from a national or international organization to use for the vast majority of provisions, and will make revisions to specific provisions as it deems necessary. Using a base code allows jurisdictions to leverage the expertise of national and international code development organizations, and makes compliance easier for builders by keeping codes relatively standardized across jurisdictions.

The proposed revision to the Rhode Island State Building Codes update the incorporated versions of the relevant model codes from the International Code Council (ICC) 2012 editions to the 2015 editions. In the case of the RI State Electrical Code, the proposed revision updates the model code from the 2014 to the 2017 National Electrical Code (NEC), created by the National Fire Protection Association. Additionally, Rhode Island-specific amendments to this base code are developed by RIBCSC during the review process and adopted by the SBC regulations.

<b>RI Building Codes: Current and Proposed Model Codes</b>			
<b>Reg.</b>	<b>Title</b>	<b>Current Model Code</b>	<b>Proposed Model Code</b>
510-RICR-00-00-1	RI State Building Code	2012 IBC (ICC)	2015 IBC (ICC)
510-RICR-00-00-2	RI State One and Two Family Dwelling Code	2012 IRC (ICC)	2015 IRC (ICC)
510-RICR-00-00-3	RI State Plumbing Code	2012 IPC (ICC)	2015 IPC (ICC)
510-RICR-00-00-4	RI State Mechanical Code	2012 IMC (ICC)	2015 IMC (ICC)
510-RICR-00-00-5	RI State Electrical Code	2014 NEC (NFPA)	2017 NEC (NFPA)
510-RICR-00-00-6	RI State Property Maintenance Code	2012 IPMC (ICC)	2015 IPMC (ICC)
510-RICR-00-00-14	RI Swimming Pool and Spa Code	N/A	2015 ISPSC (ICC)
510-RICR-00-00-19	RI State Fuel Gas Code	2012 IBC (ICC)	2015 IBC (ICC)

### Model Code Development

For building codes, most jurisdictions—including Rhode Island—use some version of the International Building Code (IBC), which is a model code developed and revised by the International Code Council (ICC). The ICC maintains 15 codes which are coordinated and compatible with each other, of which Rhode Island uses seven. Rhode Island also uses the National Electrical Code (NEC), which is created by the National Fire Protection Association (NFPA). The ICC and NFPA processes attempt to balance health

<sup>1</sup> [http://opim.wharton.upenn.edu/risk/library/WP201601\\_Simmons-Czajkowski-Done\\_Effectiveness-of-Florida-Building-Code.pdf](http://opim.wharton.upenn.edu/risk/library/WP201601_Simmons-Czajkowski-Done_Effectiveness-of-Florida-Building-Code.pdf)

and safety goals with cost effectiveness and industry best practices and utilizes a mixture of design and performance standards.

The ICC and NFPA generally revise model codes on a three-year cycle. These code revision processes bring together a wide variety of interests, including: consumers, regulators, builders, contractors, design professionals, trade associations, manufacturers, standard developing organizations, academia, research and testing labs. Code committees are composed of representatives from each of these groups. These committees discuss proposed code changes, consider alternatives, conduct hearings, gather public comment on the proposed changes, prepare further revisions, and publish the new edition of the model code.<sup>2</sup>

Jurisdictions considering updating their code to reflect a recently published model or national code must weigh the advantages and disadvantages of doing so. Some states will choose to keep using an older model code, often citing the additional costs that are related to the incremental increases in the stringency of new model code provisions. Alternatively, the benefits of updating Rhode Island's code on a three-year cycle to adopt the most recent model code include:

- Keeping the code aligned with advancements in building science and material technology;
- Improving the building quality of construction in the state lifetime through long-term value additions related to construction resiliency and energy-savings improvements;
- Securing additional health, safety, and livability improvements for Rhode Islanders; and
- Easing compliance through procedural and administrative changes, and remaining in alignment with other jurisdictions that use more recent model codes.

### Rhode Island Amendments

The Rhode Island Building Code Standards Committee uses the following process to review and recommend the adoption of national model codes and standards for the construction of buildings under its jurisdiction, with the overarching goal of promoting public safety.

When the national model codes (such as those prepared by the International Code Council, or National Fire Protection Association) update or modify industry recognized standards, the Building Code Standards Committee receives and reviews those documents to evaluate the appropriateness of incorporation into the Rhode Island family of codes. Publications are distributed to the members of the Building Code Standards Committee, which then divides, by expertise and interest, into various subcommittees. Chair and staff members are assigned within the subcommittees of the building codes standards commission to assist each group.

The individual subcommittees review every modification to the national publications, evaluating life safety, and construction practicality, and their effect on local industry and topics such as environmental or flood related conditions, insurance ratings, and economic considerations. The committees also consider alternative courses of action, and if necessary, prepare RI-specific amendments to the building codes. The Chair of the subcommittees then report those evaluations or modifications back to the full Building Code Standards Committee.

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<sup>2</sup> <https://www.iccsafe.org/cs/codes/Documents/misc/CodeDevelopmentProcess.pdf>

Upon concurrence, The Building Code Standards Committee, in accordance with RI regulatory adoption procedures, schedules the necessary internal reviews, public notices and hearings, and adoption of regulations.

## Summary of Building Code Changes

### Significant Revisions to Building Codes

#### Explanation of Significant Changes and Themes

##### *Harmonization with RI Fire Code*

An important initiative during this round of code adoption is the harmonization of conflicting areas between the building and fire codes. Extensive outreach to stakeholders has been conducted to pinpoint conflicts and identify requirements that might create confusion.

Currently, the unwritten rule-of-thumb is: where the fire and building codes differ, the more restrictive of the two requirements is to be followed. However, it is not always clear which is more restrictive. Take for example an area of confusion often brought up by stakeholders; that of “handrails”. The 2012 building code requires a “minimum” of 1 ½” clearance and the 2012 life safety code requires “not less than” 2 ¼” clearance. This discrepancy was reconciled by modifying the fire safety code to require handrails to have a minimum of 1 ½” clearance.

Likewise, several requirements in the 2012 Building Code have been removed from the 2015 code to eliminate the confusion of which code is to be followed. Specifically:

Code	Citation	Description
SBC-1	1011.5.2	Deleting Exception 3 of building code this would make building and fire codes consistent for Group R-3 & R-2 trade and riser heights.
SBC-1	1003.5	Deleting Exception 1 of building code this would make building and fire code consistent and would require all exit doors level at interior to exterior.

The harmonization initiative has identified discrepancies between the codes, which has led to changes to both codes. More importantly though, it has brought attention to the need for a more streamlined and uniform enforcement process. To help achieve this, beginning in Jan 2019, DBR’s Division of Building, Design and Fire Professionals will conduct joint training sessions of all municipal building and fire inspectors. More training sessions, and an increased cooperation between the building and fire communities, will bring about greater consistency in inspections.

##### *Short-term Rental*

One significant revision impacts the use of residential occupancies for short term rentals. Currently, the Building Codes treat Residential Occupancies differently dependent upon term of occupancy as either Transient (short term) or Non-Transient (long term – exceeding 30 days). The One and Two-Family Dwelling Code (SBC-2), being the less restrictive code, is based upon the occupancy being “Primarily Non-Transient.” The Building Code (SBC-1) addresses a wider range of residential occupancies of both higher density non-transient (three or more dwelling units), and short-term transient occupancies.

A recent issue has arisen because of increasing popularity of short-term rentals (STRs), particularly those available through websites such as Airbnb and HomeAway. Through these services, it is possible to use non-transient, long-term units for transient, short-term purposes. Some municipalities are registering these short-term rental properties to aid in enforcement and taxation, and often require the fire and building officials to verify code compliance in the process. Some building and fire officials, while certifying code compliance, determined that a change of use (or code) has occurred at the unit. By shifting from the non-transient to transient designation, the current code would require additional protection of properties and occupants—this could include fire suppression systems, as well as other requirements.

Due to the costs and compliance issues related to complying with these requirements, the board received several requests for variances from the code criteria. The board granted that in One and Two-Family Dwellings, renting for less than 30 days would not be the sole criteria to disqualify a property from non-transient to transient designation. This was done by adding an exception for one and two-family dwellings that had subsequently been subject to such a rental or lease to SBC-1: Article 3408.1 Conformance. <http://www.ribcc.ri.gov/documents/blanket/BV-31%20.pdf> The blanket variance will subject to the Building Code Standards Commission procedures stay in force until adoption of or inclusion into the next adopted code.

*Pool and Spa Code*

Previous regulations for pools were scattered throughout multiple building codes. Provisions in SBC-1 primarily related to public pools, including requirements in chapter 10 (occupancy limits for Assembly A-3 or A-4 uses) and chapter 31 (enclosure and safety for special construction). Provisions in SBC-2 provided the regulations for swimming pools, hot tubs, and spas, including criteria listed in Appendix G for an effective barrier surrounding the water area, as well as entrapment protection for suction outlets to reduce the potential for drowning of young children. The operational aspect of pool filtration and circulation systems were extensively changed to provide systems that would prevent such entrapment of children (small individuals) that had resulted in tragic deaths. The physical construction of pools is still regulated by similar Association of Pool & Spa Professionals standards that are now coauthored by ANSI APAP and ICC.

The new code has been separated and established as a singular code to reinforce its importance to a primary code, rather than an appendix in the residential document or scattered throughout the chapters of the building code. In addition to incorporating the construction and function standards, the energy operation standards of the SBC-8 Energy Code are addressed within the one document.

*Snow and Winter Resiliency*

Multiple changes were made in the codes to better prepare structures for snow and other cold-weather issues:

Code	Citation	Description
SBC-1	1603.1.3	Change to model code adds requirement for snow drift information on construction documents to facilitate the plan review process.
SBC-1	1608.1	Change to the RI Amendments alters the minimum flat roof snow loads for several towns in RI to address roof issues observed over recent years.

### Electrical Vehicle Provisions

The proposed building code includes numerous provisions related to electric vehicles:

Code	Citation	Description
SBC-5	625.1	Model code scope revised to include wireless power transfer (contactless inductive) charging means for electric vehicle charging, to recognize new technology and methods.

### Restaurant-related Provisions

Multiple code revisions apply specifically to restaurants and other food establishments. This includes the following items:

Code	Citation	Description
SBC-1	304.1 306.2	Change allows food processing establishments and commercial kitchens that are not associated with restaurants/cafeterias/and similar dining facilities and are less than 2,500 square feet to be classified as Group B (Business) rather than Group F-1 (Factory and Industrial). Small catering businesses would fall under this classification. Other food-related businesses that do not provide space for their product to be eaten on site would also be classified as Group B occupancy.
SBC-1	603.1	The model code provides more flexibility for the design of freezers and coolers within Buildings of Type I or Type II construction.
SBC-1	2902.3	The model code adds an exemption for the requirement for public toilet facilities. Public toilet facilities will not be required in structures or tenant spaces intended for quick transactions—including takeout, pickup, or drop-off—with a public access area less than or equal to 300 square feet.
SBC-4	506.3.7.1 506.3.8 506.5.1.2	Several changes are being made to the commercial kitchen hood ventilation system duct and exhaust equipment requirements. This includes changes to requirements for grease duct reservoirs, grease duct cleanouts, and in-line fan locations.

### Decks

A few changes to the residential code add provisions for deck construction. This includes the following items:

Code	Citation	Description
SBC-2	R317.1.4	Model code adds exception to wood column decay-resistance requirements to omit deck posts that are 1" above concrete floor or 6" above exposed earth.
SBC-2	R507.5	Model code adds section for lateral restraint at supports for exterior decks. The change provides for the prescriptive design and details for deck boards, joist spacing, joist span, deck beam span, bearing requirements for joist and beams and connection of deck beam to deck post, to provide less movement of joist. This proposal offers guidance regarding the structural capacity of the joists, beams and posts for use in exterior decking.

## Significant Revisions to Building Codes

The table in Appendix 1 provides an overview of the identified significant revisions as a result of updating the building codes.

## RI-Specific Changes to Building Codes

The following tables provides an overview of the significant revisions to the Rhode Island-specific amendments to the model codes:

### SBC-1: RI Amendments to State Building Code

SBC-1 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 4: Special Detailed Requirements</i>			
403.6.1	RI Amendment Deleted	Administrative	The RI amendment is deleted as the model code inclusion makes the amendment no longer necessary. No Code Changes or additional requirements result.
<i>Chapter 7: Fire and Smoke Protection Features</i>			
717.5.3 Shaft Enclosures	RI Amendment Deleted	Administrative	Rhode Island amendment was no longer required as changes to model code incorporated or rendered the prior amendment obsolete
<i>Chapter 9: Fire Protection Systems</i>			
Section 915 Carbon Monoxide Detection	Added	Administrative	The RI code references the RI Fire Code requirement for specific Carbon Monoxide Detection. No new requirement is created this is inserted to provide a cross-reference to existing Fire Code Detection requirements only.
<i>Chapter 10: Means of Egress</i>			
User Note	Deleted	Administrative	Removed an Informational "User Note" at the chapter heading to avoid confusion between the model code adoption process and the State of Rhode Island code promulgation process. No Code Changes or additional requirements result.
<i>Chapter 16: Structural Design</i>			
1609.1.2 Protection of openings	RI Amendment Deleted	Administrative	Prior amendments not modified. This deletion reflects the changes resulting from the Building Code Standard Committee's errata, issued on April 9, 2015. Results in No Code Modifications. The errata was issued to clarify conflicting references, the result of deleting maps and substituting table information from remaining stray cross-references in the model code language.

SBC-1 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 16: cont'd</i>			
1609.3 Basic Wind Speed	RI Amendment modified	Administrative	Prior amendments not modified. This deletion reflects the changes resulting from the Building Code Standard Committee's errata, issued on April 9, 2015. Results in No Code Modifications. The errata was issued to clarify conflicting references, the result of deleting maps and substituting table information from remaining stray cross-references in the model code language.
1608.1	Insert Table 1608.1	Administrative	Table 1608.1 was developed as an alternate to illegible maps provided in the model code which determined design criteria at the 2004 changeover to ICC Model Codes. The tables provide clarity and reference each municipality.
Table 1608.1 Ground Snow Column	Modified +5 PSF	Structural / Life Safety	Snow loads are modified to increase by 5 pounds in higher snowfall areas, to address damage to buildings. The increase is required based on field observation and roof issues encountered over recent years.
Figure 1609 (A)	Insert New Figure (Wind-Borne Debris Coastal Region offset)	Administrative / Enforcement Aid	This is a new figure developed to provide a graphic interpretation of preexisting limits of wind borne debris. This delineation is also intended to be available in the statewide planning GIS Database as a tool for designers. It was developed as a usable reference for designers and for officials that allows for consistent interpretation.
<i>Chapter 21 Masonry</i>			
2106.1	Redact	Administrative	Rhode Island amendment was withdrawn as changes to model code incorporated or rendered the prior amendment obsolete
<i>Chapter 29: Plumbing</i>			
P2902.2 Exceptions	Addition	Enforcement	Added exception for existing facilities that provide multiple or separate sex facilities to include fewer than 50 occupants. This exception provides relief from the requirement of constructing additional restrooms in limited occupancy facilities.
<i>Chapter 31: Special Construction</i>			
3112.1 Definition Fabric Structure	Addition of BV Language	Administrative	Prior amendments not modified. These alterations provide consistency with 2014 blanket variance BV 30, which will continue as adopted code.
<i>Chapter 34: Existing Structures</i>			

SBC-1 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
	Retention of Article	Administrative / Enforcement Option	The ICC Model Code actions recommended removing and transferring this article to an additional code (Existing Buildings Code IEBC 2015). The RI Building Code Standards Committee has elected to retain the existing article in its entirety as Chapter 34 within the RI Building Code. This Article provides for definable alternate performance standards allowing existing structures to remain in use, but to be repaired, altered, and renovated.

### SBC-2: RI Amendments to State One and Two Family Dwelling Code

SBC-2 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 1: Administrative</i>			
R102.5 Appendices	Additional References No Code Changes		Additional ICC Appendices are referenced as Appendix U Solar Ready Provisions and are informational. Appendices R and S for Straw Construction as Applicable. The ICC Appendices referenced are new to the Model Code and are incorporated as listed. The Appendices are only applicable if chosen/ informational or if related to the types of construction selected by the owner or builder. The listing of the appendices does not impose any additional code requirements.
<i>Chapter 3: Building Planning</i>			
R301.2.1.1 Design Criteria	Reference Change No Code Change		The change of technical design standards from Basic to ultimate wind speeds keeps with updates and modifications of the referenced engineering standards used in structural calculations. (ASCE-7 as an example)
R303.1 Habitable Rooms	Reference Change No Code Change		Added language to clarify the article as an exception and not an additional section. The change does not alter any existing code requirement
R321.1 Elevators	Delete RI amendment		Reference to RI Elevator code is no longer necessary as the ICC codes now have a compliant equivalent reference.
R321.2 Platform Lifts	Delete RI amendment		Reference to RI Elevator code is no longer necessary as the ICC codes now have a compliant equivalent reference.
<i>Chapter 4: Foundations</i>			

SBC-2 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
Note D	Delete RI amendment		Referenced dimensions are no longer a necessary amendment
<i>Chapter 6: Wall Construction</i>			
612.6 Wind Zone Protection	Delete RI amendment		This item is addressed in the design criteria 301.2.1.2
<i>Chapter 11: Energy Efficiency</i>			Cross-reference numbers added only
N1102.4.1.2	Air Change Rate for Testing		This article adds in the required maximum air exchange rates for energy code compliance to be implemented.

### SBC-3: RI Amendments to State Plumbing Code

SBC-3 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 4</i>			
403.3 Minimum Plumbing Facilities	Add exception #4	Cost Savings	The new exception prevents having to add another bathroom facility for 49 people or fewer in existing structures or tenant spaces.
<i>Chapter 6</i>			
602.3.4 Disinfection of System	Delete and Substitute	Enforcement	Adds disinfection after “major repair”, in addition to after “construction”. Board felt that disinfection after construction alone would not clarify that major repair work would also require disinfection.
<i>Chapter 7</i>			
703.6 Combined sanitary and storm public sewer	Delete	Enforcement	The current RI amendment would remove this section. Local cities and towns’ Sewer Authority and Public Works Departments are the presiding jurisdictional authorities. Waste detrimental to the public sewer system shall be treated and disposed of in accordance with section 1003, as directed by the code official, and in accordance with the jurisdictional authority. The added amendment prevents conflict between local cities and towns and the Building Department.
705.11.2 Solvent cementing	Exception Delete	Enforcement	Exception deleted in RI code. This will be a new RI amendment. Pipe and fitting manufactures require both primer and solvent cement for proper bonding of pipe and fitting joints. The visible use of purple primer would aid in the enforcement.
<i>Chapter 10</i>			

SBC-3 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
1002.6 Building Traps	Delete/ Substitute	Enforcement	The existing language allows local city and towns to use a building trap where certain conditions, such as a need for rat control in sewer systems, necessitate said traps.
1003.3.6 Gravity grease interceptors and gravity grease interceptors with fats, oils, and greases disposal	Delete	Enforcement	The current RI amendment would remove this section. Local cities and towns' Sewer Authority and Public Works Departments are the presiding jurisdictional authority. All separators shall be sized and installed in accordance with the authority having jurisdiction 1003. 2. The added amendment prevents conflict between local cities and towns and the Building Department.
1003.3.7 Direct connection	Delete	Enforcement	The current RI amendment would remove this section. Local cities and towns' Sewer Authority and Public Works Departments are the presiding jurisdictional authority. All separators shall be sized and installed in accordance with the rules of the jurisdictional authority. The added amendment prevents conflict between local cities and towns and the Building Department.

#### SBC-4: RI Amendments to State Mechanical Code

SBC-4 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 3</i>			
304.11	Deleted/ Exception	Health / Safety	Board felt there was no way to verify that the fall arrest/restraint anchorage connector devices are affixed for the lifetime of the roof covering and would be a safety issue.
306.5.2	Delete RI Amendment	Procedural	Delete RI amendment and keep ICC 306.5.2. ICC language is in-line with RI amendment. Will keep ICC 306.5.2
307.2	Delete RI Amendment	Procedural	Delete RI amendment and keep ICC exception. New ICC exception is in line with the RI amendment.
307.3	Deleted	Enforcement	Provisions are in place to prevent system operation in event of a failure in section 307.2.3

### SBC-5: RI Amendments to State Electrical Code

SBC-4 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>No new RI-specific amendments</i>			

### SBC-6: RI Amendments to State Property Maintenance Code

SBC-6 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 1:</i>			
109.2	Relocate Existing Language	Administrative/ Enforcement	The existing articles 111.3, 111.3.1, and 111.3.2 were relocated and renumbered in their entirety to IPMC article 109 as that article properly addresses Emergency Procedures. This was done to keep emergency procedures in a central location within the document. Article numbers were reassigned of subsequent items for consistency.
109.6.1	Added	Administrative/ Enforcement	This article was added as an administrative clarification requested by the city and town representatives to more clearly define the items that could be included as a “Cost of emergency repairs” referenced by 109.6. The costs for reimbursement of emergency measures relative to enforcement actions are also mandated in R.I. Gen. Laws § 23-27.3- 125.6
111.2.1	Added Renumbered	Administrative	A clarification of procedure was added to the current 111.0 Appeals Hearings article better defining the existing application procedures. No new procedures are referenced or established.
111.2.1	Added Clarification	Administrative/ Enforcement	The clarification to “Court of competent jurisdiction” provided for the continued use of municipal previously established courts to continue to provide hearing and appeal process. Many municipalities had prior established jurisdiction under previously enforced municipal regulation and the benefits to retaining those authorities was deemed necessary. Subsequent articles renumbered for consistency
111.2.1.3	Added clarification	Administrative	Word added for grammatic correction
<i>Chapter 2:</i>			
Definitions	Added/ Replaced	Enforcement	The definition of Occupant was altered during the code cycle by Blanket Variance BV-29 to bring the term “Occupant” into compliance with prior definition of R.I. Gen. Law § 45-24.3-5(26)
<i>Chapter 3:</i>			

SBC-6 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
304.14	Added dates	Enforcement	The dates were added in for clarification and consistency
308.1	Added Text	Enforcement	The word "Refuse" was added and included to better define and clarify objectionable materials
308.2	Added Text	Enforcement	The word "Rubbish" was added to clarify issues for consistency and enforceability
<i>Chapter 6:</i>			
605.6	Added Article		The article on required access to electric panels was inserted to reference and clarify the requirements of the existing electric code.
606.1	Added exception	Administrative	The exception was added to article 606.1, elevator law applicability, to provide consistency with R.I. Gen. Law § 23-33-1 et seq., which exempts elevators entirely within a single dwelling unit from the referenced law.

### SBC-19: RI Amendments to State Fuel Gas Code

SBC-19 Code Sections and Citations	Description	Reason	Brief Explanation of Amendment
<i>Chapter 3</i>			
305.10 Repair garages	Delete/ Substitute	Enforcement	Keeping language from 2013, 305.10. Board felt this was better code clarification and had 2 necessary exceptions.
307.6 Condensate Pumps	Deleted	Enforcement	Provisions are in place to prevent system operation in event of a failure in section 307
310.1.1.1 Point of connection	Deleted		Delete RI amendment and keep new ICC. ICC language is in-line with RI amendment.
310.1.1.2 Size and material of jumper	Deleted	Enforcement	Delete RI amendment and keep new ICC. ICC language is in-line with RI amendment.
310.1.1.3 Bonding jumper length	Deleted	Enforcement	Delete RI amendment and keep new ICC. ICC language is in-line with RI amendment.
310.1.1.4 Bonding connections	Deleted	Enforcement	Delete RI amendment and keep new ICC. ICC language is in-line with RI amendment.
310.1.1.5 Connection devices	Deleted	Enforcement	Delete RI amendment and keep new ICC. ICC language is in-line with RI amendment.

## Regulatory Impact Analysis

The Rhode Island state building and fire codes are some of the largest and most significant regulations in the state, and have a far-reaching impact that affects the quality, safety, and cost of construction in Rhode Island. These impacts include:

- Safety, Health, livability, and environmental impacts related to increased protective requirements;
- Building quality and resiliency impacts related to higher-quality construction and energy savings requirements;
- Construction cost impacts related to the cost of construction and compliance with the state building code requirements;
- Procedural and Administrative impacts related to the management and application of the code requirements

### Impacted Stakeholders

#### State & Local Government

The proposed changes to the building codes will alter the standards that state and local government building code and inspection offices enforce through building inspections and permitting activities. This will require these offices to become familiar with the changes to the model codes as well as the changes to the Rhode Island amendments. Some of the proposed changes also alter the way in which the building codes are administered by state and local entities that have jurisdiction.

#### Builders and Construction Industry

Many of the proposed changes will have an impact on developers—in some cases adding costs, and in some cases savings. In many cases, depending on the market, developers may pass any additional costs on to their customers, the property owners.

#### Homeowners, Property Owners, and Business Owners

Additional costs or savings created by the revised building code provisions may change the prices charged to property owners. The benefits associated with the proposed code revisions—such as safety, building resiliency, and efficiency savings—are benefits to the end-users of the buildings.

### Neighboring States

Rhode Island’s neighbors use the following model codes, when they use a specific code:

Code	Connecticut	Massachusetts	Rhode Island (Proposed)
<b>Building Code</b>	2012 IBC	2015 IBC	2015 IBC
<b>Residential Code</b>	2012 IRC	2015 IRC	2015 IRC
<b>Plumbing Code</b>	2012 IPC		2015 IPC
<b>Mechanical Code</b>	2012 IMC	2015 IMC	2015 IMC
<b>Electrical Code</b>	2014 NEC		2017 NEC
<b>Swimming Pool and Spa</b>		2015 ISPSC	2015 ISPSC
<b>Fuel Gas Code</b>			2015 IFGC

In Massachusetts, the current edition of the building code became effective on October 20<sup>th</sup>, 2017.<sup>3</sup> Connecticut is currently in the process of revising its building codes and adopting an updated model code, and it anticipates adopting the revised code in October 2018.<sup>4</sup> ICC maintains a list of International Code Adoptions by state.<sup>5</sup>

## Methodology

The Building Code Commission and Fire Safety Code Board of Review, in consultation with the Office of Regulatory Reform and external consultants and advisers, developed a methodology to identify, explain, and estimate the impact of proposed revisions to the building and fire codes.

## Identification and Explanation of Code Changes

Each change in the building and fires codes that was identified as a significant revision was included in a explanatory table, provided as Appendix 1 of this report. This table includes the following information, where appropriate, for each change that was identified:

### *Descriptive Information*

- Code citation
- description
- current code language
- proposed code language
- a brief description of the difference between the current and proposed code
- background information, reasoning, and/or justification for the proposed code revision

### *Cost*

- whether the code change is likely to lead to an increase or decrease in construction costs (if applicable)
- The prototype, cost per prototype, and cost per square-foot of development
- The frequency (high, medium, low, or rare) of this provision applying to a project in each of following categories:
  - Residential- Basic
  - Residential- Specialty
  - Commercial- Basic
  - Commercial- Specialty
- An estimated statewide construction cost impact

### *Categorization*

- Identification of up to five benefits/categorizations associated with the code change from the following list:
  - Safety
  - Building Resiliency
  - Cost Savings
  - Health/Livability

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<sup>3</sup> <https://www.mass.gov/handbook/ninth-edition-of-the-ma-state-building-code-780>

<sup>4</sup> <https://portal.ct.gov/DAS/Office-of-State-Building-Inspector/Building-and-Fire-Code-Adoption-Process>

<sup>5</sup> <https://www.iccsafe.org/wp-content/uploads/Master-I-Code-Adoption-Chart-May-Update.pdf>

- Energy/Environmental Savings
- Flexibility
- Increase Permissiveness
- New Materials/Technology
- Administrative/Procedural
- Technical
- Whether the code revision is a significant change
- Whether the change falls within one of the following revision themes that was identified across the codes:
  - Snow/ Cold Weather Resiliency
  - Flood Related
  - Energy
  - Pool
  - Restaurant-related
  - Detectors and warning systems

### Cost Estimation

Cost estimates were generated for provision changes, when deemed possible and appropriate. The cost estimation process includes three primary calculations: the percentage increase in construction costs, the frequency/prevalence of the code change, and the impact on overall Rhode Island construction output. An example of the calculation of a code revision is provided on page 22.

#### *Percentage Increase in Construction Costs*

Most of the code provisions analyzed in this report make incremental changes to specific provisions in the code. For any given provision or requirement that has been altered in some form, this analysis estimates costs by looking at the marginal difference between the current cost of the provision and the estimated cost were the change to be adopted. The cost estimates should not be taken to represent the cost of the provision in totality, because, for the purpose of this analysis, the costs associated with the current code language are fixed.

To generate these incremental percentage changes, the BCC based their estimates on material provided by external consultants and other subject matter experts to understand the change in construction costs associated with the proposed revisions to the code. Prototype projects were used to provide structure to the estimation of code impacts around a typical example of a project where the code revision would lead to construction cost differences.

For example, suppose a (hypothetical) revision to the code now requires GFCI outlets to be installed in two common home locations that typically do not have GFCI outlets. Cost estimators would use an example prototype project of a 2,000 square foot home to determine the cost impact per home of these two new GFCI outlets. Since the wiring, outlets, and labor would be installed regardless of the code change, the incremental cost difference would be the difference between two GFCI outlets vs. two regular outlets. Using an example cost difference of \$10, the cost of two additional GFCI outlets is \$20 per 2,000 square foot home, or \$0.01 per square foot.

To determine the percentage increase in the cost of development per square foot, the cost estimates per square foot were divided by the average cost of development per square foot. These estimates were

based on values from valuation tables published by the ICC. This analysis used four different total cost of development per square foot assumptions:

- Residential- Basic
- Residential- Specialty
- Commercial- Basic
- Commercial- Specialty

Using the value for Residential-Basic, the percentage increase in the cost of development related to the GFCI example provided above is 0.01%.

#### *Frequency/Prevalence Factor*

Each provisional change was assigned a ranking that estimated how likely it is that the change would impact a construction project. Identifying prevalence or commonality is critical to understanding the magnitude of effect each provision could have in the state. This factor ensures that the impact of code changes that only apply to rare project types or circumstances are not attributed to all construction, and therefore over-estimate the impact. Conversely, it also ensures the estimates reflect a larger impact for the code changes that affect everyday construction projects.

Since more accurate data from permitting data or other RI data sources could not be provided to estimate the commonality of a code change, the following scale was used to rank the prevalence of a code change applying to a category of construction:

- High
- Medium
- Low
- Rare

These ranks corresponded to percentages that were used to generate the overall cost estimate. A frequency could be applied to up to four of the categories of construction noted in the list above, depending on the relevance of the code change to that type of construction.

#### *Impact on Overall Construction Output*

The percentage increases in construction costs and frequency factors were applied to an estimate of overall Rhode Island construction output. This figure represents the assumed statewide cost estimate. Since more accurate data from permitting data or other RI data sources was not available, the construction output estimates were based on national-level data, which were then proportionally applied to the state level in RI. Total RI Construction Industry Output estimates and forecasts were based on national level BEA/Census/BLS data on gross output by industry and other economic indicators, and were then distributed to the state level. The overall state-level estimate was then distributed to the four types of construction outlined above using Census Bureau estimates of the Value of Construction Put in Place by type of construction.<sup>6</sup>

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<sup>6</sup> <https://www.census.gov/construction/c30/c30index.html>

### Calculation

$$\frac{\text{Cost of Provision per Square Foot}}{\text{Cost of Construction per Square Foot}} \times \text{Frequency Factor} \\ \times \text{RI Construction Industry Output} \\ = \text{Estimated Statewide Impact of Provision}$$

### Calculation Example

Example: Cost of a Residential Provision			
Category	Item	Estimate	Source
Percentage Increase in Construction Costs	Cost of Provision in Prototype Project	\$100	Estimate
	Square-footage of Prototype Project	2,000	Estimate
	Cost of Provision Per Square Foot	\$0.05	Calculation
	Total Cost of Development Per Square Foot: Basic Residential	\$130	Based on ICC Valuation Tables for R-3 Residential
	Percentage Increase of Cost of Development	0.04%	Calculation
Prevalence	Frequency: Likelihood of provision applying to a residential project	25%	Analytic Assumption
RI Construction Output: Residential	Total RI Construction Industry Output	\$4,530,337,315	Based on BEA/Census Data
	Percentage of Construction Output: Basic Residential	32.8%	Based on category percentages from BEA Value of Construction Put-in-Place data
	RI Construction Industry Output: Basic Residential	\$1,486,065,775	Calculation
Statewide Impact		\$142,891	

### Benefit Categorization and Comparisons

The proposed building code changes that were identified and described in this analysis have benefits that are related to the changes. In some cases, the proposed changes were associated with multiple categories of benefit.

### Changes by Subject Area/Benefit Category

The proposed changes were categorized by the type of benefits that are related to that provision's change:

Categorization of Code Changes	
Category	Description
Safety	Positive impact on personal safety from immediate risks, likely lowering the chances of danger or injury.
Health/Livability	Positive impact on long-term health and enjoyment of living space.
Building Resiliency	Positive impact on the long-term durability and value of a structure.

<b>Energy/Environ. Savings</b>	Positive Impact on energy usage, conservation, or environmental effect.
<b>New Materials/Technology</b>	Positive Impact by incorporating the use of new types of building materials or technology.
<b>Cost Savings</b>	Positive impact through the lowering of construction or materials costs.
<b>Flexibility</b>	Positive Impact by increasing flexibility in building materials, methods, or designs.
<b>Increase Permissiveness</b>	Positive Impact through new allowances that lower requirements and other barriers.
<b>Procedural/Administrative</b>	Alters the method by which code provisions are administered or enforced.
<b>Technical</b>	Alters the provision to update technical language.

Appendix A provides additional information regarding the reasoning and benefits associated with each of the proposed code changes. The following table outlines the number of reviewed proposed changes that are associated with the following benefits:

<b>Number of Changes to RI Building Codes by Benefit Type</b>							
<b>Code</b>	<b>SBC-1</b>	<b>SBC-2</b>	<b>SBC-3</b>	<b>SBC-4</b>	<b>SBC-5</b>	<b>SBC-6</b>	<b>SBC-19</b>
Safety	42	24	6	14	14	0	7
Health/Livability	3	1	4	16	0	0	2
Building Resiliency	27	18	5	11	10	0	2
Energy/Environ. Savings	5	5	0	1	1	0	3
New Materials/Technology	5	1	2	1	2	0	0
Cost Savings	29	3	4	4	3	0	1
Flexibility	29	5	2	2	5	0	0
Increase Permissiveness	16	1	2	1	4	0	0
Procedural/Administrative	6	3	3	1	0	0	0
Technical	2	0	0	0	0	0	0

#### *Benefits Related to Significant Provisions*

Proposed revisions to the building code that have an estimated cost impact also have the following benefits related to the change:

<b>Benefits Related to Select Provisions</b>		
<b>Code</b>	<b>Provision</b>	<b>Explanation of Benefit</b>
SBC-1	903.2.1.6 – Additional Sprinklers for roofs with Group A Occupancies.	Requiring sprinkler systems within buildings with group A occupancies on roofs will help to maintain personal safety and building resiliency
SBC-1	Table 1608.1—Snow Load Tables	The RI-specific changes to the minimum flat-roof snow load are based on engineering data, as well as recent field observations and roof issues encountered over recent years. While the estimated construction cost impact is high, the benefit of averted costs related to roof collapse (such as property damage and safety/injury) are likely to outweigh the additional costs of construction.

SBC-1	2308.5.4 Non-bearing partition requirements	The revised spacing of wall studs may lead to some increased construction costs, but will likely lead to increased building resiliency and safety.
SBC-1	2407.1 Glass Rails and Walkways	The new requirement that glass used in handrails and guards above walkways be laminated glazing is estimated to lead to increased construction costs. However, glass in handrail and guard applications are often exposed to impacts from people, carried objects, or other items; additionally, some glass panels are structural and must resist loads placed on handrails. The safety and building resiliency benefits associated with falling broken glass are expected to outweigh the increase in cost.
SBC-2	N905.7.5 Roof Covering; Wood Shingles	The new requirements related to fasteners for wood shingles in coastal areas may lead to slight increases in construction costs, but will also likely lead to long-term building resiliency benefits.
SBC-2	N1103.1.1 Programmable Thermostats	The new requirement is estimated to lead to increased costs related to newly required programmable thermostats, however there are also long-term energy cost savings related to the use of programmable thermostats.
SBC-4	607.5.4 Duct and Transfer Openings; Corridors /smoke barriers	While the new requirement for ceiling radiation dampers is estimated to lead to some construction cost increases, it will also help to prevent smoke migration across corridor walls through duct penetrations. This will lead to increased fire resistance, and yield safety and building resiliency benefits.

**Results**

**Construction Cost Results/Estimate**

The methodology outlined above estimates the statewide annual construction cost impacts across the identified/quantified building code revisions to be approximately \$9.5 million per year, or a 5-year net present value cost of \$44 million between 2019-2023.

**Comparison to Benefits**

There are numerous benefits to the code changes that are being proposed that are not easily quantifiable. The Building Code Commission focuses on public safety and welfare, and many of the proposed code revisions are likely to decrease risks associated with building construction and increase the safety and well-being of Rhode Islanders.

These benefits are not easily quantifiable because they represent incremental changes to the risk and long-term building values. The qualitative analysis in this report notes the type of benefit and the justification for the proposed changes. For a means of comparison, the estimated construction costs noted above would be outweighed by benefits if 1.1 statistical lives were saved per year as a result of these changes. In reality, a combination of benefits—related to all of the categories noted above—will accrue to Rhode Islanders due to the proposed changes.

## Conclusion & Determination

Pursuant to R.I. Gen. Laws § 42-35-2.9(b)(3)(ii), the Building Standards Committee must “make a determination” as to whether the proposed rule will achieve the objectives of the authorizing statute in a more cost-effective manner, or with greater net benefits, than other regulatory alternatives.” Looking to statute, the Building Standards Committee is charged by the legislature with establishing “adequate and uniform regulations governing the construction and alteration of buildings and structures within the state” that “insures public health, safety, and welfare.”<sup>7</sup> The building standards committee has the authority to “adopt, promulgate, and administer a state building code,” which shall be “reasonably consistent with recognized and accepted standards adopted by national model code organizations and recognized authorities.”<sup>8</sup>

After considering each of the proposed changes and the alternative means of achieving the goals of each provision, the Building Code Standard Committee has determined:

- that the benefits of the proposed changes to the state building codes justify the costs of the proposed rule, and
- that the proposed rule will achieve the objectives of the authorizing statute in a more cost-effective manner, or with greater net benefits, than other regulatory alternatives.

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<sup>7</sup> See R.I. Gen. Laws Chapter 23-27.3, including [R.I. Gen. Laws § 23-27.3-100.1.2](#) and [R.I. Gen. Laws § 23-27.3-100.3](#)

<sup>8</sup> See [R.I. Gen. Laws § 23-27.3-100.1.5](#)

## Appendix 1: List of All Changes and Information

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/ Decrease Likely?	Benefits
SBC-1	304.1 and 306.2	Food establishment under 2,500 sf classified as group B	The 2015 RISBC allows food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet in area to be classified as a Group B occupancy instead of a Group F-1 occupancy.	Food processing operations that are not directly associated with a restaurant. Those 2,500 square feet or smaller fall under the Group B classification. A small catering business would fall under this classification. Other food-related businesses which do not provide a space for their product to be eaten on site, such as a take-out pizza store or a neighborhood bakery, would also be classified as a Group B occupancy.	Decrease in Cost	Cost Savings, Increase Permissiveness
SBC-1	310.5	Lodging House defined as one-family dwelling	The 2015 RISBC specifically defines a lodging houses and classifies them as a Group R-3 occupancy.	The intent of the lodging house provisions is to allow bed and breakfast and similar facilities under the Group R-3 category even though transient housing generally falls under the Group R-1 classification. The limit is set to the number of guest rooms. There is no specified limit on the number of guests, the number of residents, or the combination of both.	Decrease in Cost	Cost Savings, Procedural/Administrative
SBC-1	406.3.1	Private parking garages required to be compartmentalized	The 2015 RISBC limits private garages and carports classified as a Group U occupancy to a maximum floor area of 1000 square feet (the area increase to 3,000 square feet provision was removed); however, multiple Group U private garages will be permitted in the same building when they are compartmentalized by 1-hour fire-resistance rated construction.	The new definition better conforms to the fire protection and life safety requirements in the IBC that address U occupancies in separated or mixed occupancies in a more defined manner than the previous legacy code from which these requirements were taken from. The retaining of a maximum size of 1000 square feet private garage (roughly a 20' x 50' floor area) is a reasonable limitation for a private garage.	Increase in Cost	Procedural/Administrative, Safety

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-1	406.4.9	Addition of electrical charging systems	New requirements for electrical charging stations	Initially proposed by BCC	Increase in Cost	Energy/Environ. Savings, New Materials/Technology
SBC-1	406.4.10	Addition of electrical charging systems	New requirements for electrical charging stations	Initially proposed by BCC	Increase in Cost	Energy/Environ. Savings, New Materials/Technology
SBC-1	903.2.1.6	Additional sprinkler on roofs	New sprinkler system requirements for assembly occupancies on roofs	Requiring an automatic sprinkler system within a building where a group A occupancy is located on the roof was felt to be a necessary life safety requirement. A roof does not meet the definition of a fire area. As such, protection of the occupants can be less than what would otherwise be required were the occupancy located on a floor rather than on the roof. The occupants of the Group A occupancy, whether within the building or on the roof, are unaware of the hazards in the building and need to evacuate through the building. The roof itself is not required to be sprinklered.	Increase in Cost	Safety, Building Resiliency
SBC-1	903.3.1.1.1	Less stringent sprinkler requirements for elevator control rooms	The 2015 RISBC permits the exemption of sprinklers within control rooms and control spaces associated with occupant evacuation elevators.	This change allows the omission of sprinkler protection in certain locations if an approved automatic fire detection system is installed. Buildings in compliance with one of the six listed conditions would still be considered fully sprinklered throughout in compliance with the code and NFPA 13. Due to limited space the 6 compliances have been omitted.	Decrease in Cost	Cost Savings, Increase Permissiveness, Safety, Flexibility

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-1	1007.8	Two-way communication systems for elevators	The 2015 RISBC provides additional clarification and exceptions to omit a two-way communication system.	This change clarifies which elevator landings are required to have a two-way communication system where there are multiple elevators or banks of elevators on an accessible floor. This change would require a single two-way communication at the landing for each single elevator or each bank of elevators on the floor. This system is an important part of the fire and safety evacuation plans.	Decrease in Cost	Cost Savings, Increase Permissiveness, Safety, Flexibility
SBC-1	1203.2	Attic ventilation	Revised percentage of air to be provided by ventilators to 40-50% (in lieu of 50-80%). Essentially limiting use of the ventilators to not provide more than 50% of the air and increasing the requirement of natural ventilation.	Fires that spread to attics that are not properly draftstopped often cause considerable damage. For this reason, draftstopping is required in attic and concealed roof spaces. This change introduces new comprehensive provisions for unvented attics, including applications of insulation for moisture and condensation control, proper installation of vapor retarders, specific provisions for roof covering installation, and other climate specific requirements.	Unknown	Building Resiliency, Health/Livability, Energy/Environ. Savings, Flexibility
SBC-1	1210.2.3	Toilet & bathroom requirements	Revised height of shower enclosures to 72".	Reason: The 72-inch (1778 mm) requirement in this section is based on the height of the shower compartment and walls that are exposed to significant moisture that would cause the surface to become insanitary over a long period of time. This height is consistent with the IRC. This will bring IBC in line with IRC.	Increase in Cost	Health/Livability, Building Resiliency, Flexibility
SBC-1	Table 1607.1	Residential canopy live load	Provided distinction for Residential Marquees to reduce the Live Load from 75 psf to 20 psf.	The live load requirements for the design of buildings and structures are based on the type of occupancy. Live loads are transient loads that vary with time. Generally, the design live load is that which is believed to be near the maximum transient load that is reasonably expected to occur for a given occupancy.	Decrease in Cost	Safety, Cost Savings, Increase Permissiveness, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-1	1607.10.2	Uniform live load reduction	Adds distinction for reduction of horizontal members supporting one floor vs. all. And, reduction of vertical members supporting 2 or more floors vs. one.	This proposal restores the original intent of the UBC provision and brings the provision into better alignment with Section 1607.9.1. Where reductions are permitted, they are allowed at a rate of 0.08 percent per square foot of area in excess of 150 square feet (14 m <sup>2</sup> ). This value cannot exceed 60 percent for members supporting two or more floors, such as columns and bearing walls below the top floor of a building or 40 percent for members supporting loads from just one floor or level, such as most slabs, beams and girders.	Increase in Cost	Safety
SBC-1	Table 1608.1	Snow load increase 5 psf	Changed the minimum flat snow loads for several towns in RI.	Snow loads are modified to, increase 5 pounds, to reflect increased snow loads and are based on the accompanying frost depth charts. The increase is required based on field observation and roof issues encountered over recent years.	Increase in Cost	Safety, Building Resiliency
SBC-1	1705.2.3	Open web joists - third party testing	Added the requirement of needing to have special inspections for open-web joists and joist girder at end connections and standard bridging.	This proposal is an editorial cleanup of the special inspection and testing requirements for steel. In addition, it brings in the term "nondestructive testing" in order to match terminology of referenced standards.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-1	1705.12.9	Cold rolled steel - third party testing	Added the requirement of needing to have special inspections for the installation of cold-formed steel special bolted moment frames in certain Seismic categories.	Reason: The purpose for this proposal is to require special inspections for the installation of cold-formed steel special bolted moment frames, which are a new type of seismic force-resisting system and are listed in Table 12.2-1 of ASCE 7-10 in the category of moment-resisting frame systems (Item C.12).	Increase in Cost	Safety, Building Resiliency, New Materials/Technology
SBC-1	1804.2	Underpinning	Added provision to require underpinning to be designed and documented in construction documents.	When the structure is to be protected by underpinning, this section states the general requirements that apply.	Increase in Cost	Building Resiliency, Safety, Procedural/Administrative
SBC-1	2308.5.4	Non bearing partition requirements	Revised spacing of non-load bearing wall studs from 28" to 24". Also, restricts use of utility grade lumber on parallel wall studs exceeding 10 feet.	All 2308 This proposal is intended to completely replace the existing section 2308 "Conventional Light-Frame Construction" with a re-formatted version. This proposal is not intended to introduce any new requirements into, nor remove any requirements from, the existing section 2308.	Increase in Cost	Safety, Building Resiliency
SBC-1	Table 2308.6.3(1)	Wall bracing materials	Revised minimum thickness from 5/8" to 3/4" on diagonal board sheathing braced wall methods.	All 2308 This proposal is intended to completely replace the existing section 2308 "Conventional Light-Frame Construction" with a re-formatted version. This proposal is not intended to introduce any new requirements into, nor remove any requirements from, the existing section 2308.	Increase in Cost	Safety, Building Resiliency
SBC-1	2407.1	Glass rails & walkways	Revision requires all glass in hand rails and guardrails to be laminated glazing.	Glass in handrail and guard applications is often exposed to impact from people, carried objects and other items. Glass used as structural balustrade panels must resist the design loads applied to the handrail component of the guard system with an adequate factor of safety. This change will make mandatory the use of the retentive	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
				characteristics of laminated glass in these applications unless there is no walking surface below or it is permanently protected from falling glass, in which case, fully tempered glass meeting safety criteria of would be permitted. Additionally, the proposal adds the term "guardrail" to section 2407.1 since that term is also used in various locations throughout the I-codes in connection with these types of systems.		
SBC-1	2603.5.5	Exterior wall vertical & lateral fire propagation	Removing requirement of all exterior walls to comply with NFPA 285. Removes requirements of walls needing to comply with NFPA 285 for non-high-rise buildings that have a fire sprinkler system.	One story building walls will be excluded from the provisions of NFPA 285 if they have a fire sprinkler system.	Decrease in Cost	Cost Savings, Energy/Environ. Savings, Increase Permissiveness, safety
SBC-1	2603.5.7	Exterior wall ignition	Added exception to provide fiber cement finish over material a plastic material (foam insulation) that does not require with NFPA 268.	The foam plastic is not to support continued flaming when tested in accordance with NFPA 268. Where the foam plastic is to be used in more than one thickness, a test is to be performed on minimum and maximum thickness. If the assembly is protected on the outside with one of the specified materials, the test is not required.	Decrease in Cost	Safety, Cost Savings, Flexibility

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-1	2902.3	Public bathrooms for facility under 300 sf	Does not require public access to restrooms for occupancies that have a public access area of <300 s.f for "quick" transactions.	Toilet facilities must be available for all public establishments that are used by persons engaged in activities involved with the purpose of the establishment, with exceptions of parking structures and small tenant space for transactions.	Decrease in Cost	Cost Savings, Flexibility, Increase Permissiveness
SBC-1	3004	Hoistway venting	Venting to exterior for elevator shafts that connect more than three stories is not required.	Reason: The intent of the hoistway venting is to limit smoke spread to upper stories of a building via elevator hoistways. Elevator hoistway pressurization systems have been introduced to the IBC within the past 10 years that provide a means of limiting smoke movement into elevator hoistways making the hoistway venting redundant.	Decrease in Cost	Safety, Cost Savings
SBC-1	3007.8	Back up lighting - elevator	Lighting in elevator cars is required to be on standby power for elevators with fire service access.	Elevators can be a component of an accessible means of egress therefore, it must be dependable as a means of egress at all times. Without backup power, an elevator could be a dead end for someone with physical disabilities who is trying to egress a building. Standby power is necessary for elevator car lighting as specified in item 4 to ensure that firefighters are not trapped in a pitch-black elevator in case the building power is interrupted.	Increase in Cost	Safety
SBC-2	R302.1(1)	Fire-Resistant Construction; Exterior Walls	Reduced fire separation distance to < 3' for penetrations at exterior walls.	The location of buildings on the owner's property relative to the property line requires regulation. The property line concept is a convenient means of protecting one building from another regarding exposure. Exposure is the potential for heat to be transmitted from one building to another during a fire in the exposing building. The proposed change provides a builder's option to mitigate the potential of fire-spread to unprotected attics by	Decrease in Cost	Building Resiliency, Cost Savings, Safety, flexibility

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
				providing for the installation of a top-side roof vent in lieu of fire-resistance treatment of the eave projection. The resulting solid wood fire-block in place of the otherwise required eave vents protects the attic from fire intrusion.		
SBC-2	R322.2.4	Flood-Resistant Construction; Tanks	New section for anchoring tanks in flood areas/zones.	Underground tanks need to be installed to take into consideration the fact that soils may be saturated during flooding, creating conditions that can cause tanks to be dislodged. Above-ground tanks must be elevated, otherwise buildings would not comply with the free of obstruction requirement. This proposal more clearly separates underground tanks from above-ground tanks to mitigate content release during floods. The NFIP considers tanks as structures and structures have always been subject to the general NFIP requirement to be constructed by methods and practices that minimize flood damage and to be stable under flood conditions, both are included in the IRC at R322.1.2 and R322.1.3.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-2	R322.3.2	Design Criteria; Elevation Requirements	Revised section does not differentiate between direction of structure and requires all buildings to be elevated 1' higher than flood elevation.	Buildings and structures to be located in coastal high hazard areas (V Zones) and Coastal A Zones must be elevated so that the bottom of the lowest horizontal structural members is not subject to flood loads during conditions of the base flood. Elevation is one of the most important requirements to provide resistance to flood damage. This proposal would require that dwellings in areas designated as "Coastal A Zones" meet the requirements of Section 322.3 for dwellings in coastal high hazard areas (Zone V), including open foundations (pilings or columns) with an exception that permits filled stemwalls.	Increase in Cost	Safety, Building Resiliency
SBC-2	R322.3.5.1	Flood-Resistant Construction; Protection of Building Envelope	New section requiring an exterior grade door in walls designed to break away at the top of stairs in flood elevation zones.	If the enclosed area is used for building access, then a stairway provides access to the elevated building requires the walls to be designed and constructed to break away under flood loads. Post-disaster investigations have identified increased damage to the interior of elevated buildings because wave splash, wave run-up, and wind-driven rain can enter buildings through the unprotected doorway at the top of the stairs. Walls below elevated buildings in coastal high hazard areas (Zone V) are permitted if the area enclosed by walls is used for parking of vehicles, building access or storage. If the enclosed area is used for building access, then a stairway provides access to the elevated building.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-2	Table R404.1.1(1)	Plain Masonry Foundation Walls.	Increased block size/ reinforcement.	Minimum thickness of concrete masonry and clay masonry foundation walls are predicated on the type of soil. The maximum heights of wall and unbalanced backfill and the type of wall system that is to be supported. The proposed change is to make the values shown in Table R404.1.1 (1) compliant with the prescriptive and analytical requirements of TMS 402/ACI 530/ASCE 5.	Increase in Cost	Safety, Building Resiliency
SBC-2	Table 502.3.3(2)	Wood Floor Framing; Cantilevered	Reduced fire separation distance to < 3' for penetrations at exterior walls.	This table provides the prescriptive span and uplift requirements for cantilever wood floor joists supporting an exterior balcony. The table was developed based on an engineered design consistent with the requirements of the IBC. The purpose of this code change proposal is to restore an exception to the requirement for full-depth blocking at the supported end of cantilever for low-seismic areas and short cantilevers. This proposal restores the original intent of the 2006/2007 VBCOA proposal by adding the exception to the two footnotes.	Decrease in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-2	R905.7.5	Requirements for Roof Covering; Wood Shingles, Application	New requirements for fasteners of wood shingles in coastal areas and fire treated shingles.	Penetration into sheathing more than ½" thick must be at minimum ¾" or all the way through the sheathing in order to attach the product strongly enough to hold in place and prevent loosening of the fastener. This change simplifies the code while directly codifying which fasteners are used in specific situations.	Increase in Cost	Safety, Building Resiliency
SBC-2	R905.8.6	Requirements for Roof Covering; Wood Shakes, Application	New requirements for fasteners of wood shingles in coastal areas and fire treated shingles.	905.7.5: This change simplifies the code while directly codifying which fasteners are used in specific situations.	Increase in Cost	Safety, Building Resiliency
SBC-2	N1103.1.1	Systems; Programmable Thermostat DONE UNDER THE ENERGY CODE	Change in section now requires all heating and cooling systems to be controlled by a programmable thermostat.		Increase in Cost	Safety, Energy/Environ. Savings
SBC-2	N1103.2	Systems; Hot Water Boiler Outdoor Temperature Setback DONE	Adds requirement for more controllability of hot water boilers.		Increase in Cost	Safety, Energy/Environ. Savings

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
		UNDER THE ENERGY CODE				
SBC-2	N1103.5.1.1	Systems; Heated Water Circulation Systems <b>DONE UNDER THE ENERGY CODE</b>	Added section for more controls with circulation pumps.		Increase in Cost	Safety, Energy/Environ. Savings
SBC-2	P2906.9.1.3	Materials, Joints, and Connections	Adds exception to eliminate primer in certain conditions.	Base Code removed manufacture's requirements for primer and solvent cement for bonding and fitting joints. This exemption is being removed in RI: pipe and fitting manufactures require both primer and solvent cement for proper bonding of pipe and fitting joints.	Increase in Cost	Enforcement
SBC-3	106.1.1	Permits; Annual Permit	New section allows an owner to pull one annual permit in lieu of multiple plumbing permits during an annual year.	The additional language to the IFC, IFGC, IMC, IPC and IPSDC will coordinate with provisions in the IBC. This allowance will be handy for projects with continual work. If this option is used, the building owner will be responsible for providing records, such as inspections, so that compliance can be tracked by the jurisdiction.	Decrease in Cost	Procedural/Administrative, Cost Savings
SBC-3	314.2.4.1	Ductless Mini-split Systems Traps.	Added provision to add a trap for condensate lined of mini ductless split systems.	Such equipment may use a liquid seal trap or a check valve, depending on the design of the indoor unit, as both prevent airflow from interfering with condensate flow and prevent the escape of air through the drain.	Increase in Cost	Health/Livability, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-3	601.5	General; Rehabilitation of piping systems.	Standards for pressure piping using epoxy lining system.	Metallic water-service piping and water distribution piping can internally corrode, resulting in leaks. Replacing piping is often a very expensive option because of the process of getting to the piping; epoxy internal lining systems can be used to repair leaking piping without removal of the piping.	Unknown	Cost Savings, Flexibility, Building Resiliency, New Materials/Technology
SBC-3	605.2.1	Materials, Joints, and Connections; Lead Content of Drinking Water Pipe and Fittings	Added provision of pipe requirements to limit lead in pipe used for drinking water.	This change will coordinate the IPC with Federal legislation limiting the amount of lead that can be used to supply drinking water. Section 605.2 is still necessary since remaining components in a potable water distribution system must still have a maximum of 8 percent lead. The Federal legislation only applies to drinking water components.	Increase in Cost	Health/Livability, Safety
SBC-3	703.6	Building Sewer; Combined Sanitary and Storm Public Sewers	Adds provision where a combined sanitary and storm sewer lines exists, connections must be made independently to the line.		Increase in Cost	Procedural/Administrative
SBC-3	705.11.2	PVC Solvent Cementing	Adds exception to eliminate primer in certain conditions.		Increase in Cost	Procedural/Administrative, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-4	106.1.1	Permits; Annual Permit	New section allows an owner to pull one annual permit in lieu of multiple mechanical permits during an annual year.	The additional language to the IFC, IFGC, IMC, IPC and IPSDC will coordinate with provisions in the IBC. This allowance will be handy for projects with continual work. If this option is used, the building owner will be responsible for providing records, such as inspections, so that compliance can be tracked by the jurisdiction.	Decrease in Cost	Procedural/Administrative, Cost Savings
SBC-4	401.2	General; Ventilation Required.	Requiring ambulatory care and I-2 buildings/ spaces to conform to new requirements.	The method of ventilation, mechanical or natural, is the choice of the owner or designer except for dwelling units having less than 5 air changes per hour (5 ACH50) and except for ambulatory care facilities and Group I-2 occupancies.	Unknown	Health/Livability, Safety
SBC-4	403.1	Mechanical Ventilation; Ventilation System.	Revision changes requirements for R-2, R-3 and R-4 not requiring return air.	Unlike natural ventilation, mechanical ventilation does not depend on unpredictable air pressure differentials between the indoors and outdoors to create airflow. Mechanical ventilation has the advantage of being both predictable and dependable because it is not subject to all of the variables that affect natural ventilation.	Decrease in Cost	Health/Livability, cost savings, Increase Permissiveness, flexibility, New Materials/Technology
SBC-4	403.3.2.2	Mechanical Ventilation; Outdoor air for other spaces	Changes outdoor air requirement for common spaces of residential buildings.	This section addresses the spaces in an apartment building that are not within a dwelling unit. These areas of conditioned spaces such as corridors, foyers, and vestibules must be provided with ventilation air independently of the dwelling units.	Unknown	Health/Livability, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-4	502.20	Manicure and Pedicure Stations	New section provides requirements for exhaust at manicure and pedicure stations.	This code section requires that the nail stations for hands and feet must be designed and built with factory-installed exhaust inlets, or field installed exhaust inlets must be provided and located not greater than 12 inches (305 mm) in any direction from the point of chemical application to the hands and feet.	Increase in Cost	Health/Livability, Safety
SBC-4	506.5.1.2	Commercial Kitchen Hood Ventilation System Ducts and Exhaust Equipment; In-Line Fan Location	Requires that rooms that contain the in-line fan be rated to match the duct enclosure.	If the exhaust duct is required to be enclosed in fire-resistance-rated construction or a listed integral or field-installed duct enclosure system, the in-line fan must also be so enclosed because the in-line fan is part of the duct system.	Increase in Cost	Health/Livability, Safety
SBC-4	513.5.2	Smoke Control Systems; Testing and Leaking Area	New section requiring testing if a passive system is utilized for smoke control.	This code change clarifies leakage area calculation and testing, and clarifies requirements for passive smoke control systems.	Increase in Cost	Safety, Building Resiliency, Health/Livability
SBC-4	607.5.4	Duct and Transfer Openings; Corridors/ smoke barriers.	New requirement for ceiling radiation dampers in rated assemblies.	To prevent smoke migration across corridor walls and smoke barriers through duct penetrations and transfer openings, a damper designed to resist the passage of smoke must be installed. The damper must close upon detection of smoke by an approved smoke detector. Where smoke barriers and corridor wall fire partitions must be fire-resistance rated, a fire damper is also required, except as allowed by applicable exceptions. Where a fire damper is required, a combination fire and smoke damper or separate fire and smoke dampers must be installed.	Increase in Cost	Safety, Safety, Safety

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-5	210.8(B)	GFCI receptacles in locations other than dwelling units	Expands the requirements for GFCI receptacles in other than dwelling unit applications. The expansion for single-phase applications includes an increase to 150 volts and up to 50 amperes. The expansion also includes three-phase applications up to 150 volts and 100 amperes, where not previously required for three-phase. Also adds GFCI requirement for crawlspaces and unfinished portions of basements not intended as habitable rooms.	This expansion of the GFCI requirement beyond 15 and 20 amp. receptacles is to recognize faults in other applications. This brings another level of safety to commercial and industrial applications.	Increase in Cost	Safety, Building Resiliency
SBC-5	210.8 E	Crawl space lighting	New requirement for GFCI protection on crawl space lighting	This requirement has been in article 210.8(A)(4) for dwelling units, no such requirement for non-dwelling units crawl spaces.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-5	210.11(C) (4)	Garage receptacle circuits	New requirement to provide a dedicated garage receptacle circuit.	The 2014 code required a branch circuit supplying receptacles in a dwelling unit garages could be 15 or 20 amp. the branch circuit supplying these receptacles could not supply outlets outside of the garage as indicated in article 210.52(G)(1). This new article 210.11(C) requires a 20 amp branch circuit and by exception allows supplying accessible outside receptacles. This a small expansion but major relief being able to add outside receptacles	Increase in Cost	Safety, Building Resiliency
SBC-5	210.12 C	Arc Fault requirements in guest rooms/suites	Requirement for arc fault protection in guest rooms and guest suites in hotels and motels.	AFCI technology that can help save lives and avoid property damage from fire related events has been expanded to guest rooms and suites of hotel and motels. The 2014 code expanded AFCI protection into dormitories increasing the level of safety in sleeping quarters. 2017 expands them into guest rooms and suites.	Increase in Cost	Safety, Building Resiliency
SBC-5	210.12 (D)	Arc Fault requirements in dormitories	Requirement to provide arc fault protection for existing circuits, when modified, expanded to dormitories.	As the 2014 code added dormitories to AFCI protection it continues this level of protection to existing modifications in the same way the 2014 code did for dwelling units.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/ Decrease Likely?	Benefits
SBC-5	210.71	Receptacle requirements in meeting rooms	New requirement to provide receptacles in meeting rooms.	We have all witnessed the current practice of providing an extension cord -usually plugged into a wall receptacle and taped to the carpet- for providing power to laptops, phone chargers, and projects that are several feet away from the available wall receptacle. This will also provide receptacles for use of booth displays, coffee pots, heating of catered food and other electrical / electronic equipment.	Increase in Cost	Safety, Building Resiliency, flexibility
SBC-5	210.71(B)(2)	Floor Receptacles in meeting rooms	New requirement to provide floor receptacles in meeting rooms that are more than 12 feet wide and larger than 215 square feet.	For the same reasons as for article 210.71 this article now requires the same receptacle spacing as article 210.52(A) (1) through (4) for fixed walls also a floor outlet for meeting rooms at least 12 feet wide with a floor area of at least 215sq ft and not less than 6 feet from a fixed wall for each area of 215sq ft.	Increase in Cost	Safety, Building Resiliency, flexibility
SBC-5	310.15 (B)(3)c	Derating circuits at rooftop installations	Mandatory Temperature adder table for rooftop installations deleted from code	After an extensive research and testing showed that increasing ambient temperature adjustment for roof top installations was not warranted, resulting in relief of installation cost.	Decrease in Cost	cost savings
SBC-5	406.12	Tamper resistant receptacles	Expansion of locations and occupancies requiring tamper resistant receptacles and also to include 250-volt receptacles.	In 2008 tamper resistant receptacles were introduced on reports from the CPSC resulting in 2,400 children being burned / electrocuted by inserting paper clips / metal objects in receptacle outlets. This a logical expansion of non-dwelling unit locations for protecting children and people with disabilities from electrocution, burns ,etc.	Increase in Cost	safety

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-5	620.23(A)	Add branch circuit for elevator machine rooms	Requires branch circuit providing lighting in elevator machine rooms or machinery spaces to be separate from branch circuits feeding receptacles.	This is revision language, however, this language does add another circuit to the machine room. Separating the lighting from the power circuit insures lighting to remain on in the event of a short or overload on the receptacle circuit.	Increase in Cost	safety
SBC-5	620.24(A)	Add branch circuit for elevator pits	Requires branch circuit providing lighting in elevator pit to be separate from branch circuits feeding elevator pit receptacles.	This provides the same level of surety to the power and lighting circuits in the elevator pit as in article 620.23(A).	Increase in Cost	safety
SBC-5	680.25	Feeders in corrosive environments	New exception permitting the use of wiring methods for a feeder for pool equipment, not listed for use in corrosive environments, where not installed in corrosive environments.	Revision and deletion. Most of this language is no change to intent. There are no Exceptions to this article. The only thing new is recognizing that in areas of non-corrosive environments the use of chapter 3 methods are allowed, which is relief.	Decrease in Cost	increase permissiveness, cost savings, flexibility
SBC-5	695.15	Surge protection at fire pump controller	New requirement to provide a surge protector for each fire pump controller.	This change is new. A listed Surge Protective Device (SPD) is required or permitted for such things as modular data centers, wind electric systems and emergency systems. For 2017 SPD protection is being added to fire pumps. This will help protect the electronics in the fire pump controller to increase its reliability for being ready for use during a fire event.	Increase in Cost	Safety, Building Resiliency
SBC-14	302.5	Elec, Plumbing. Mechanical. And Fuel Gas Requirements; Backflow Protection	Requires use of backflow protector for water supplies to pools.	Potable water supplies to pools or spas must be kept safe from contamination. The IPC or the IRC, as applicable, provides the necessary requirements for protection against backflow.	Increase in Cost	Safety, Health/Livability, building resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-14	303.1.1	Energy; Heaters	Requirement of switch at heater, when heater is installed.	Previously there were inconsistent energy efficiency requirements between the IECC and ISPC. This change adds in the integral on and off switches for heaters (already done in the IECC).	Increase in Cost	Energy/Environ. Savings, Building Resiliency, Safety
SBC-14	303.1.2	Energy; Time Switches	Requirement to put heaters and pumps on time switches.	Previously there were inconsistent energy efficiency requirements between the IECC and ISPC. This change provides for consistent verbiage within the time switch requirements.	Increase in Cost	Energy/Environ. Savings, Safety
SBC-14	303.1.3	Energy; Covers	Requirement for cover on heated pools.	Previously there were inconsistent energy efficiency requirements between the IECC and ISPC. Removing the specific reference to a liquid cover, and allowing the AHJ to determine what other “approved vapor retardant means” can be used consistent with Chapter 1 (already done in the IECC).	Increase in Cost	cost savings, Health/Livability, Safety, Energy/Environ. Savings
SBC-14	304.4	Flood Hazard Areas; Protection of Equipment	Requirement for elevated platforms (or other devices) to raise equipment above flood level.	Equipment associated with a pool or spa, such as filters, pumps and heaters, must be installed above the design flood elevation to protect such equipment. If equipment cannot be elevated and still serve the intended function, it can be installed below the flood elevation if it is anchored and protected.	Increase in Cost	Safety

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/Decrease Likely?	Benefits
SBC-14	321.2	Lighting; Artificial Lighting Required	Added requirements for artificial lighting when the pool is to be used during 'low natural illumination'	The intent is for all areas within the pool to be visible at all times that the pool is open to the public. A public pool that is accessible to swimmers, waders and other persons, both in and out of the water, must be illuminated and the water must be of sufficient clarity to allow unimpeded viewing of all areas of the pool, including the deepest parts and the main drains during all periods when the pool is open. Proper and unimpeded visibility is essential at all times for swimmers in the water and persons out of the water on adjacent perimeter surfaces, such as the deck, diving boards, lifeguard stands, etc.	Increase in Cost	Safety
SBC-19	404.7	Piping System Installation; Protection Against Physical Damage.	Adds additional criteria for protection of piping; see 404.7.2	Placing piping parallel to a member, either on the side or within a channel, exposes the piping to penetration, yet current code addresses only perpendicular penetrations.	Unknown	Safety, Building Resiliency, Cost Savings
SBC-19	404.7.2	Piping System Installation; Piping Installed in Other Locations.	Additional criteria in which a pipe shall need to be protected instead of just cuts and notches.	Placing piping parallel to a member, either on the side or within a channel, exposes the piping to penetration, yet current code addresses only perpendicular penetrations.	Increase in Cost	Safety, Building Resiliency

Code	Citation	Description	Difference between codes	Background/Reasoning	Increase/ Decrease Likely?	Benefits
SBC-19	410.2	Flow Controls; MP Regulators	Added provision to install a union within 1 foot of regulator.	Section 410.2 requires a union upstream of the regulator to allow it to be removed/replaced.	Increase in Cost	Safety, Building Resiliency

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