

# Utah State Amendments for the 2015 IRC

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### Chapter 1 – Scope & Administration

<https://codes.iccsafe.org/public/document/code/553/9806828>

In IRC, Section R102, a new Section R102.7.2 is added as follows:

**"R102.7.2 Physical change for bedroom window egress.**

A structure whose egress window in an existing bedroom is smaller than required by this code, and that complied with the construction code in effect at the time that the bedroom was finished, is not required to undergo a physical change to conform to this code if the change would compromise the structural integrity of the structure or could not be completed in accordance with other applicable requirements of this code, including setback and window well requirements."

In IRC, Section 109:

(a) A new IRC, Section 109.1.5, is added as follows:

**"R109.1.5 Weather-resistant exterior wall envelope inspections.** An inspection shall be made of the weather-resistant exterior wall envelope as required by Section R703.1 and flashings as required by Section R703.8 to prevent water from entering the weather-resistive barrier."

(b) The remaining sections are renumbered as follows: R109.1.6 Other inspections; R109.1.6.1 Fire- and smoke-resistance-rated construction inspection; R109.1.6.2 Reinforced masonry, insulating concrete form (ICF) and conventionally formed concrete wall inspection; and R109.1.7 Final inspection.

IRC, Section R114.1, is deleted and replaced with the following:

**"R114.1 Notice to owner.** Upon notice from the building official that work on any building or structure is being prosecuted contrary to the provisions of this code or other pertinent laws or ordinances or in an unsafe and dangerous manner, such work shall be immediately stopped. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent or to the person doing the work; and shall state the conditions under which work will be permitted to resume."

## Chapter 2 – Definitions

<https://codes.iccsafe.org/public/document/code/553/9807060>

In IRC, Section R202, the following definition is added:

**"CERTIFIED BACKFLOW PREVENTER ASSEMBLY TESTER:** A person who has shown competence to test Backflow prevention assemblies to the satisfaction of the authority having jurisdiction under Utah Code, Subsection 19-4-104(4)."

**"CONDITIONED SPACE"** is modified by deleting the words at the end of the sentence "being heated or cooled by any equipment or appliance" and replacing them with the following: "enclosed within the building thermal envelope that is directly heated or cooled, or indirectly heated or cooled by any of the following means:

1. Openings directly into an adjacent conditioned space.
2. An un-insulated floor, ceiling or wall adjacent to a conditioned space.
3. Un-insulated duct, piping or other heat or cooling source within the space."

**"CROSS CONNECTION.** Any physical connection or potential connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety or steam, gas, or chemical, whereby there exists the possibility for flow from one system to the other, with the direction of flow depending on the pressure differential between the two systems (see "Backflow, Water Distribution")."

The definition for **gray water** a comma is inserted after the word "washers"; the word "and" is deleted; and the following is added to the end: "and clear water wastes which have a pH of 6.0 to 9.0; are non-flammable; non-combustible; without objectionable odors; non-highly pigmented; and will not interfere with the operation of the sewer treatment facility."

New definition will read;

**Gray Water.** Waste discharged from lavatories, bathtubs, showers, clothes washers, laundry trays, and clear water wastes which have a pH of 6.0 to 9.0; are non-flammable; non-combustible; without objectionable odors; non-highly pigmented; and will not interfere with the operation of the sewer treatment facility

The definition of "Potable Water" is deleted and replaced with the following:

**"POTABLE WATER.** Water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming to the Utah Code, Title 19, [Chapters] Chapter 4, Safe Drinking Water Act, and Title 19, Chapter 5, Water 1267 Quality Act, and the regulations of the public health authority having jurisdiction."

### Chapter 3 – Building Planning

<https://codes.iccsafe.org/public/document/code/553/9807076>

IRC, Figure R301.2(5), is deleted and replaced with Table R301.2(5a) and Table R301.2(5b) as follows:

"TABLE NO. R301.2(5a)				
STATE OF UTAH - REGIONAL SNOW LOAD FACTORS				
	COUNTY	Po	S	Ao
	Beaver	43	63	6.2
	Box Elder	43	63	5.2
	Cache	50	63	4.5
	Carbon	43	63	5.2
	Daggett	43	63	6.5
	Davis	43	63	4.5
	Duchesne	43	63	6.5
	Emery	43	63	6.0
	Garfield	43	63	6.0
	Grand	36	63	6.5
	Iron	43	63	5.8
	Juab	43	63	5.2
	Kane	36	63	5.7
	Millard	43	63	5.3
	Morgan	57	63	4.5
	Piute	43	63	6.2
	Rich	57	63	4.1
	Salt Lake	43	63	4.5

	San Juan	43	63	6.5
	Sanpete	43	63	5.2
	Sevier	43	63	6.0
	Summit	86	63	5.0
	Tooele	43	63	4.5
	U	43	63	7.0
	Utah	43	63	4.5
	Wasatch	86	63	5.0
	Washington	29	63	6.0
	Wayne	36	63	6.5
	Weber	43	63	4.5

TABLE NO. R301.2(5b)

REQUIRED SNOW LOADS FOR SELECTED UTAH CITIES AND TOWNS<sup>1,2</sup>

The following jurisdictions require design snow load values that differ from the Equation in the Utah Snow Load Study.

County	City	Elevation	Ground Snow Load (psf)	Roof Snow Load (psf) <sup>6</sup>
Carbon	Price <sup>3</sup>	5550	43	30
	All other county locations <sup>5</sup>	--	--	--
Davis	Fruit Heights <sup>3</sup>	4500 - 4850	57	40
Emery	Green River <sup>3</sup>	4070	36	25
Garfield	Panguitch <sup>3</sup>	6600	43	30
Rich	Woodruff <sup>3</sup>	6315	57	40
	Laketown <sup>4</sup>	6000	57	40
	Garden City <sup>5</sup>	--	--	--
	Randolph <sup>4</sup>	6300	57	40
San Juan	Monticello <sup>3</sup>	6820	50	35
Summit	Coalville <sup>3</sup>	5600	86	60
	Kamas <sup>4</sup>	6500	114	80
Tooele	Tooele <sup>3</sup>	5100	43	30

Utah	Orem <sup>3</sup>	4650	43	30
	Pleasant Grove <sup>4</sup>	5000	43	30
	Provo <sup>5</sup>	--	--	--
Wasatch	Heber <sup>5</sup>	--	--	--
Washington	Leeds <sup>3</sup>	3460	29	20
	Santa Clara <sup>3</sup>	2850	21	15
	St. George <sup>3</sup>	2750	21	15
	All other county locations <sup>5</sup>	--	--	--
Wayne	Loa <sup>3</sup>	7080	43	30
1The IRC requires a minimum live load -- See R301.6.				
2This table is informational only in that actual site elevations may vary. Table is only valid if site elevation is within 100 feet of the listed elevation. Otherwise, contact the local Building Official.				
3Values adopted from Table VII of the Utah Snow Load Study				
4Values based on site-specific study. Contact local Building Official for additional information.				
5Contact local Building Official.				
6Based on Ce =1.0, Ct =1.0 and Is =1.0"				

IRC, Section R301.6, is deleted and replaced with the following:

**"R301.6 Utah Snow Loads.** The snow loads specified in Table R301.2 (5b) shall be used for the jurisdictions identified in that table. Otherwise, the ground snow load,  $P_g$ , to be used in the determination of design snow loads for buildings and other structures shall be determined by using the following formula:  $P_g = (P_o^2 + S^2(A-A_o)^2)^{0.5}$  for A greater than  $A_o$ , and  $P_g = P_o$  for A less than or equal to  $A_o$ .

WHERE:

$P_g$  = Ground snow load at a given elevation (psf);

$P_o$  = Base ground snow load (psf) from Table No. R301.2(5a);

S = Change in ground snow load with elevation (psf/100 ft.) From Table No. R301.2 (5a);

A = Elevation above sea level at the site (ft./1,000);

$A_o$  = Base ground snow elevation from Table R301.2 (5a) (ft./1,000).

The building official may round the roof snow load to the nearest 5 psf. The ground snow load,  $P_g$ , may be adjusted by the building official when a licensed engineer or architect submits 1338 data substantiating the adjustments. Where the minimum roof live load in accordance with Table R301.6 is greater than the design roof snow load, such roof live load shall be used for design, however, it shall not be reduced to a load lower than the design roof snow load. Drifting need not be considered for roof snow loads less than 20 psf."

In IRC, Section R302.5.1

The words "self-closing device" are deleted and replaced with "self-latching hardware". It now reads

**Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than  $1\frac{3}{4}$  inches (35 mm) in thickness, solid or honeycomb core steel doors not less than  $1\frac{3}{4}$  inches (35 mm) thick, or 20-minute fire-rated doors, equipped with a self-latching device.

IRC, Section R302.13, is deleted

In IRC, Section R303.4

The number "5" is changed to "3" in the first sentence. It will now read:

**R303.4 Mechanical ventilations.** Where the air infiltration rate of a *dwelling unit* is 3 air changes per hour or less where tested with a blower door at a pressure of 0.2 inch w.c (50 Pa) in accordance with Section N1102.4.1.2, the *dwelling unit* shall be provided with whole-house mechanical ventilation in accordance with Section M1507.3.

IRC, Sections R311.7.4 through R311.7.5.3, are deleted and replaced with the following:

**R311.7.4 Stair treads and risers. R311.7.5.1 Riser height.** The maximum riser height shall be 8 inches (203 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than  $\frac{3}{8}$  inch (9.5 mm).

**R311.7.5.2 Tread depth.** The minimum tread depth shall be 9 inches (228 mm).

The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than  $\frac{3}{8}$  inch (9.5 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point 12 inches (305 mm) from the side where the treads are narrower. Winder

treads shall have a minimum tread depth of 6 inches (152 mm) at any point. Within any flight of stairs, the greatest winder tread depth at the 12-inch (305 mm) walk line shall not exceed the smallest by more than 3/8 inch (9.5 mm).

**R311.7.5.3 Profile.** The radius of curvature at the leading edge of the tread shall be no greater than 9/16 inch (14.3 mm). A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosing shall not exceed 1/2 inch (12.7 mm). Risers shall be vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 degrees (0.51 rad) 1380 from the vertical. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch diameter (102 mm) sphere.

**Exceptions:**

1. A nosing is not required where the tread depth is a minimum of 10 inches (254 mm).
2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less."

IRC, Section R312.2, is deleted.

IRC, Section R313.1 through R313.2.1, are deleted and replaced with the following:

**"R313.1 Design and installation.** When installed, automatic residential fire sprinkler systems for townhouses or one- and two-family dwellings shall be designed and installed in accordance with Section P2904 or NFPA 13D."

IRC Section 315.3, The following words are added to the first sentence after the word "installed": "on each level of the dwelling unit and". It will now read as:

**R315.3 Location.** Carbon monoxide alarms in *dwelling units* shall be installed on each level of the dwelling unit and outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning *appliance* is located within a bedroom or its attached bathroom. A carbon monoxide alarm shall be installed within the bedroom.

IRC, Section R315.5, A new exception, 3, is added as follows:

**"3.** Hard wiring of carbon monoxide alarms in existing areas shall not be required where the alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for hard wiring, without the removal of interior finishes."

IRC, Section R315.7, is added as follows:

**"R315.7 Interconnection.** Where more than one carbon monoxide alarm is required to be installed within an individual dwelling unit in accordance with Section R315.1, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms



shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

Exception: Interconnection of carbon monoxide alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes."

## **Chapter 4 – Foundations**

<https://codes.iccsafe.org/public/document/code/553/9809187>

In IRC, Section R403.1.6, a new Exception 3 is added as follows:

"3. When anchor bolt spacing does not exceed 32 inches (813 mm) apart, anchor bolts may be placed with a minimum of two bolts per plate section located not less than 4 inches (102 mm) from each end of each plate section at interior bearing walls, interior braced wall lines, and at all exterior walls."

In IRC, Section R403.1.6.1, a new exception is added at the end of Item 2 and Item 3 as follows:

"Exception: When anchor bolt spacing does not exceed 32 inches (816 1424 mm) apart, anchor bolts may be placed with a minimum of two bolts per plate section located not less than 4 inches (102 mm) from each end of each plate section at interior bearing walls, interior braced wall lines, and at all exterior walls."

In IRC, Section R404.1, a new exception is added as follows:

"Exception: As an alternative to complying with Sections R404.1 through R404.1.5.3, concrete and masonry foundation walls may be designed in accordance with IBC Sections 1807.1.5 and 1807.1.6 as amended in Section 1807.1.6.4 and Table 1807.1.6.4 under these rules."

**Chapter 11 – Energy Efficiency**

<https://codes.iccsafe.org/public/document/code/553/9849024>

**2015 IECC Commercial and  
Residential Utah State Amendments  
Draft Copy - 04/15/2016**

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2015 International Energy  
Conservation Code®

First Printing: May 2014

ISBN: 978-1-60983-486-9  
(soft-cover edition)

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by

INTERNATIONAL CODE  
COUNCIL, INC.

Date of First Publication: May 30,  
2014

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**TABLE R303.1.3(3)**

**DEFAULT GLAZED FENESTRATION SHGC AND VT**

	SINGLE GLAZED		DOUBLE GLAZED		GLAZED BLOCK
	Clear	Tinted	Clear	Tinted	
SHGC	0.8	0.7	0.7	0.6	0.6
VT	0.6	0.3	0.6	0.3	0.6

**R303.1.4 Insulation product rating.** The thermal resistance (*R*-value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission *R*-value rule (CFR Title 16, Part 460) in units of  $h \cdot ft^2 \cdot ^\circ F/Btu$  at a mean temperature of 75°F (24°C).

**R303.1.4.1 Insulated siding.** The thermal resistance (*R*-value) of insulated siding shall be determined in accordance with ASTM C 1363. Installation for testing shall be in accordance with the manufacturer’s instructions.

**R303.2 Installation.** Materials, systems and equipment shall be installed in accordance with the manufacturer’s instructions and the *International Building Code* or *International Residential Code*, as applicable.

**R303.2.1 Protection of exposed foundation insulation.** Insulation applied to the exterior of basement walls, crawl- space walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation’s thermal performance. The protective covering shall cover the exposed exterior insulation and extend not less than 6 inches (153 mm) below grade.

**R303.3 Maintenance information.** Maintenance instructions shall be furnished for equipment and systems that require preventive maintenance. ~~Required regular maintenance actions shall be clearly stated and incorporated on a readily accessible label. The label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.~~

**R401.2 Compliance.** Projects shall comply with one of the following:

1. Sections R401 through R404.
2. Section R405 and the provisions of Sections R401 through R404 labeled “Mandatory.”
3. An energy rating index (ERI) approach in Section R406.
4. **Phase-in added: "4. Compliance may be shown by demonstrating a result, using the software RESCheck 2012 Utah Energy Conservation Code, of:**
  - a) **on or after January 1, 2017, and before January 1, 2019, "3 percent better than code";**
  - b) **on or after January 1, 2019, and before January 1, 2021, "4 percent better than code"; and**
  - c) **after January 1, 2021, "5 percent better than code.""**

**TABLE R402.1.4 EQUIVALENT U-FACTORS<sup>a</sup>**

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR <sup>b</sup>	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091 <sup>c</sup>	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

- a. Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.
- b. When more than half the insulation is on the interior, the mass wall *U*-factors shall be a maximum of 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.
- c. Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Figure R301.1 and Table R301.1.

**R402.3.3 Glazed fenestration exemption.** Up to 15 square feet (1.4 m<sup>2</sup>) of glazed fenestration per dwelling unit shall be permitted to be exempt from *U*-factor and SHGC requirements in Section R402.1.2. ~~This exemption shall not apply to the *U*-factor alternative approach in Section R402.1.4 and the Total UA alternative in Section R402.1.5.~~

**R402.3.4 Opaque door exemption.** One side-hinged opaque door assembly up to 24 square feet (2.22 m<sup>2</sup>) in area is exempted from the *U*-factor requirement in Section R402.1.4. ~~This exemption shall not apply to the *U*-factor alternative approach in Section R402.1.4 and the total UA alternative in Section R402.1.5.~~

**R402.3.5 Sunroom fenestration.** *Sunrooms* enclosing *conditioned space* shall meet the fenestration requirements of this code.

**Exception:** For *sunrooms* with *thermal isolation* and enclosing *conditioned space* in *Climate Zones 2* through 8, the maximum fenestration *U*-factor shall be

0.45 and the maximum skylight *U*-factor shall be 0.70.

.New fenestration separating the *sunroom* with *thermal isolation* from *conditioned space* shall meet the *building thermal envelope* requirements of this code

**R402.4 Air leakage (Mandatory).** The *building thermal envelope* shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

**R402.4.1 Building thermal envelope.** The *building thermal envelope* shall comply with Sections R402.4.1.1 **OR** R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

**R402.4.1.1 Installation.** The components of the *building thermal envelope* as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. ~~Where required by the code official, an approved third party shall inspect all components and verify compliance.~~ **ADDED: "Where allowed by the code official, the builder may certify compliance to components criteria for items which may not be inspected during regularly scheduled inspections."**

**R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding **five** air changes per hour in Climate Zones 1 and 2, and ~~three air changes per hour in~~ **3.5 ACH beginning Jan 1 2019;** **3 ACH beginning Jan 1 2021** Climate Zones 3 through 8. Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). ~~Where required by the code official, testing shall be conducted by an approved third party.~~ A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing **ADDED: "The following parties shall be approved to conduct testing: Parties certified by BPI or RESNET, or licensed contractors who have completed training provided by a Blower Door Test equipment manufacturer or comparable training."**

**R403.3.1 Insulation (Prescriptive).** Supply and return ducts in attics shall be insulated to a minimum of R-8 where 3 inches (76 mm) in diameter and greater and R-6 where less than 3 inches (76 mm) in diameter. Supply and return ducts in other portions of the building shall be insulated to a minimum of R-6 where 3 inches (76 mm) in diameter or greater and R-4.2 where less than 3 inches (76 mm) in diameter.

**Exception:** Ducts or portions thereof located completely inside the *building thermal envelope*.

**R403.3.2 Sealing (Mandatory).** Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or *International Residential Code*, as applicable.

**Exceptions:**

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
- 2 For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams of other than the snap-lock and button-lock types.

**R403.3.2.1 Sealed air handler.** Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

**R403.3.3 Duct testing (Mandatory).** Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

**Exception:** A duct air leakage test shall not be required **where 65% of** where the ducts and air handlers are located entirely within the building thermal envelope

**Phase in:** 65% beginning Jan 1, 2017; 75% beginning Jan 1, 2019; 80% beginning Jan 1, 2021

A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. **ADDED: "The following parties shall be approved to conduct testing: Parties certified by BPI or RESNET, or licensed contractors who have completed training provided by a Duct Test equipment manufacturer or comparable training."**

**R403.3.4 Duct leakage (Prescriptive).** The total leakage of the ducts, where measured in accordance with Section R403.3.3, shall be as follows: Rough-in test: The total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to **6** cubic feet per minute (**114.6** L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area.

1. Postconstruction test: Total leakage shall be less than or equal to **8** cubic feet per minute (**226.5** L/min) per 100 square feet (9.29 m<sup>2</sup>) of conditioned floor area

**Phase in:** 8CFM (226.5 L/min) beginning Jan 1, 2017; 7 CFM (198.2 L/min) beginning Jan 1, 2019; 6 CFM (169.9 L/min) beginning Jan 1, 2021

**R403.3.5 Building cavities (Mandatory).**

Building framing cavities shall not be used as ducts or plenums.

**R403.4 Mechanical system piping insulation (Mandatory).** Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

**R403.4.1 Protection of piping insulation.** Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

**R403.5 Service hot water systems.** Energy conservation measures for service hot water systems shall be in accordance with Sections R403.5.1 and R403.5.4.

**R403.5.1 Heated water circulation and temperature maintenance systems (Mandatory).** Heated water circulation systems shall be in accordance with Section R403.5.1.1. Heat trace temperature maintenance systems shall be in accordance with Section R403.5.1.2. Automatic Controls, temperature sensors and pumps shall be accessible. Manual controls shall be readily accessible.

**R403.5.1.1 Circulation systems.** Heated water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-siphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

**R403.5.1.2 Heat trace systems.** Electric heat trace systems shall comply with IEEE 515.1 or UL 515. Controls for such systems shall automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy.

**R403.5.2 Demand recirculation systems.** A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe shall be a *demand recirculation water system*. Pumps shall have controls that comply with both of the following:

1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.
2. The control shall limit the temperature of the water entering the cold water piping to 104°F (40°C).

**R403.5.3 Hot water pipe insulation (Prescriptive).** Insulation for hot water pipe with a minimum thermal resistance (*R*-value) of R-3 shall be applied to the following:

1. Piping  $\frac{3}{4}$  inch (19.1 mm) and larger in nominal diameter.
2. serving more than one dwelling unit.
3. Piping located outside the conditioned space.
4. Piping from the water heater to a distribution manifold.
- ~~5. Piping located under a floor slab.~~
6. Buried in piping.



7. Supply and return piping in recirculation systems other than demand recirculation systems.

**R403.5.4 Drain water heat recovery units.** Drain water heat recovery units shall comply with CSA B55.2. Drain water heat recovery units shall be tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units shall be less than 3 psi (20.7 kPa) for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units shall be less than 2 psi (13.8 kPa) for individual units connected to three or more showers

**TABLE R406.4  
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### **Chapter 13 – General Mechanical System Requirements**

<https://codes.iccsafe.org/public/document/code/553/9852674v>

In IRC, Section M1307.2,

The words "In Seismic Design Categories D0, D1, and D2, and in townhouses in Seismic Design Category C", are deleted, and in Subparagraph 1, the last sentence is deleted. It will now read as follows:

**“M1307.2 Anchorage of appliances.** *Appliances* designed to be fixed in positions shall be fastened or anchored in an *approved* manner. Water heaters and thermal storage units shall be anchored or strapped to resist horizontal displacement caused by earthquake motion in accordance with one of the following:

1. Anchorage and strapping shall be designed to resist a horizontal force equal to one-third of the operation weight of the water heater storage tank, acting in any horizontal direction. Strapping shall be at points within the upper one-third and lover one-third of the *appliance’s* vertical dimensions.

2. The anchorage strapping shall be in accordance with the appliance manufacture's recommendations."

## **Chapter 14 – Heating And Cooling Equipment And Appliances**

<https://codes.iccsafe.org/public/document/code/553/9852888>

IRC, Section M1411.8, is deleted

## **Chapter 24 – Fuel Gas**

<https://codes.iccsafe.org/public/document/code/553/9854210>

A new IRC, Section G2401.2, is added as follows:

**"G2401.2 Meter Protection.** Fuel gas services shall be in an approved location and/or provided with structures designed to protect the fuel gas meter and surrounding piping from physical damage, including falling, moving, or migrating ice and snow. If an added structure is used, it must provide access for service and comply with the IBC or the IRC."

## **Chapter 26 – General Plumbing Requirements**

<https://codes.iccsafe.org/public/document/code/553/9867986>

A new IRC, Section P2602.3, is added as follows:

**"P2602.3 Individual water supply.** Where a potable public water supply is not available, individual sources of potable water supply shall be utilized, provided that the source has been developed in accordance with Utah Code, Sections 73-3-1 and 73-3-25, as administered by the Department of Natural Resources, Division of Water Rights. In addition, the quality of the water shall be approved by the local health department having jurisdiction."

A new IRC, Section P2602.4, is added as follows:

**"P2602.4 Sewer required.** Every building in which plumbing fixtures are installed and all premises having drainage piping shall be connected to a public sewer where the sewer is accessible and is within 300 feet of the property line in accordance with Utah Code, Section 10-8-38; or an approved private sewage disposal system in accordance with Utah Administrative Code, Chapter 4, Rule R317, as administered by the Department of Environmental Quality, Division of Water Quality."

## **Chapter 28 – Water Heaters**

<https://codes.iccsafe.org/public/document/code/553/9868416>

IRC, Section P2801.8,

All words in the first sentence up to the word "water" are deleted. It will now read as follows:

**“P2801.8 Water heater seismic bracing.** Water heaters shall be anchored or strapped in the upper one-third and in the lower one-third of the appliance to resist a horizontal force equal to one-third of the operating weight of the water heater, acting in any horizontal direction, or in accordance with the appliance manufacture’s recommendations.”

## **Chapter 29 – Water Supply and Distribution**

[https://codes.iccsafe.org/public/document/code/553/9868470?code\\_id=9868470](https://codes.iccsafe.org/public/document/code/553/9868470?code_id=9868470)

A new IRC, Section P2902.1.1, is added as follows:

**"P2902.1.1 Backflow assembly testing.** The premise owner or the premise owner's designee shall have backflow prevention assemblies operation tested in accordance with administrative rules made by the Drinking Water Board at the time of installation, repair, and relocation and at least on an annual basis thereafter, or more frequently as required by the authority having jurisdiction. Testing shall be performed by a Certified Backflow Preventer Assembly Tester. The assemblies that are subject to this paragraph are the Spill Resistant Vacuum Breaker, the Pressure Vacuum Breaker Assembly, the Double Check Backflow Prevention Assembly, the Double Check Detector Assembly Backflow Preventer, the Reduced Pressure Principle Backflow Preventer, and Reduced Pressure Detector Assembly. Third-party certification for backflow prevention assemblies will consist of any combination of two certifications, laboratory or field. Acceptable third-party laboratory certifying agencies are ASSE, IAPMO, and USC-FCCCHR. USC-FCCCHR currently provides the only field testing of backflow protection assemblies. Also see [www.drinkingwater.utah.gov](http://www.drinkingwater.utah.gov) and rules made by the Drinking Water Board."

IRC, Section P2902.1, the following subsections are added as follows:

**"P2902.1.1 General Installation Criteria.** Assemblies shall not be installed more than five feet above the floor unless a permanent platform is installed. The assembly owner, where necessary, shall provide devices or structures to facilitate testing, repair, and maintenance, and to insure the safety of the backflow technician.

**P2902.1.2 Specific Installation Criteria.**

**P2902.1.2.1 Reduced Pressure Principle Black flow Prevention Assembly.**

The reduced pressure principle backflow prevention assembly shall be installed as follows:

- a. The assembly may not be installed in a pit.
- b. The relief valve of the assembly shall not be directly connected to a waste disposal line, including a sanitary sewer, a storm drain, or a vent.
- c. The assembly shall be installed in a horizontal position only, unless listed or approved for vertical installation in accordance with Section 303.4.
- d. The bottom of the assembly shall be installed a minimum of 12 inches above the floor or ground.
- e. The body of the assembly shall be a minimum of 12 inches from any wall, ceiling, or obstacle, and shall be readily accessible for testing, repair, and maintenance.

**P2902.1.2.2 Double Check Valve Backflow Prevention Assembly.**

A double check valve backflow prevention assembly shall be installed as follows:

- a. The assembly shall be installed in a horizontal position only, unless listed or approved for vertical installation.
- b. The bottom of the assembly shall be a minimum of 12 inches above the ground or floor.
- c. The body of the assembly shall be a minimum of 12 inches from any wall, ceiling, or obstacle, and shall be readily accessible for testing, repair, and maintenance.
- d. If installed in a pit, the assembly shall be installed with a minimum of 12 inches of clearance between all sides of the vault, including the floor and roof or ceiling, with adequate room for testing and maintenance.

**P2902.1.2.3 Pressure Vacuum Break Assembly and Spill Resistant Pressure Vacuum Breaker Assembly.** A pressure vacuum break assembly or a spill resistant pressure vacuum breaker assembly shall be installed as follows:

- a. The assembly shall not be installed in an area that could be subject to backpressure or back drainage conditions.
- b. The assembly shall be installed a minimum of 12 inches above all downstream piping and the highest point of use.
- c. The assembly shall be a minimum of 12 inches from any wall, ceiling, or obstacle, and shall be readily accessible for testing, repair, and maintenance.
- d. The assembly shall not be installed below ground, in a vault, or in a pit.
- e. The assembly shall be installed in a vertical position."

IRC, Section P2910.5, is deleted and replaced with the following:

**"P2910.5 Potable water connections.** When a potable water system is connected to a nonpotable water system, the potable water system shall be protected against backflow by a reduced pressure backflow prevention assembly or an air gap installed in accordance with Section 2901."

IRC, Section P2910.9.5, is deleted and replaced with the following:

**"P2910.9.5 Makeup water.**

Where an uninterrupted nonpotable water supply is required for the intended application, potable or reclaimed water shall be provided as a source of makeup water for the storage tank. The makeup water supply shall be protected against backflow by means of an air gap not less than 4 inches (102 millimeters) above the overflow or by a reduced pressure backflow prevention assembly installed in accordance with Section 2902."

In IRC, Section P2911.12.4,

The following words are deleted: "and backwater valves" It now reads:

**P2911/12.4 Inspection and testing of backflow prevention assemblies.** The testing of backflow preventers shall be conducted in accordance with Section P2503.8

IRC, Section P2912.15.6,

The following words are deleted: "and backwater valves" It now reads:

**P2912.15.6 Inspection and testing of backflow prevention assemblies.** The testing of backflow preventers shall be conduction in accordance with Section P2503.8

IRC, Section P2913.4.2,

The following words are deleted: "and backwater valves".

**P2913.4.2 Inspection and testing of backflow prevention assemblies.** The testing of backflow preventers shall be conducted in accordance with Section P2503.8.

## **Chapter 30 – Sanitary Drainage**

[https://codes.iccsafe.org/public/document/code/553/9872482?code\\_id=9872482](https://codes.iccsafe.org/public/document/code/553/9872482?code_id=9872482)

IRC, Section P3009, is deleted and replaced with the following:

**"P3009 Connected to nonpotable water from on-site water reuse systems.** Nonpotable systems utilized for subsurface irrigation for single-family residences shall comply with the requirements of R317-401, UAC, Gray Water Systems."

## **Chapter 31 – Vents**

[https://codes.iccsafe.org/public/document/code/553/9873119?code\\_id=9873119](https://codes.iccsafe.org/public/document/code/553/9873119?code_id=9873119)

In IRC, Section P3103.6, The following sentence is added at the end of the paragraph: "Vents extending through the wall shall terminate not less than 12 inches from the wall with an elbow pointing downward."

In IRC, Section P3104.4, The following sentence is added at the end of the paragraph: "Horizontal dry vents below the flood level rim shall be permitted for floor drain and floor sink installations when installed below grade in accordance with Chapter 30, and Sections P3104.2 and P3104.3. A wall cleanout shall be provided in the vertical vent."

## **Chapter 39 – Power and Lighting Distribution**

<https://codes.iccsafe.org/public/document/code/553/9875212>

IRC, Section E3901.9, the following exception is added:

"Exception: Receptacles or other outlets adjacent to the exterior walls of the garage, outlets adjacent to an exterior wall of the garage, or outlets in a storage room with entry from the garage may be connected to the garage branch circuit."

IRC, Section E3902.16 is deleted

IRC, Section E3902.17: following the word "Exception" the number "1." is added; and (b) at the end of the section, the following sentences are added: "2. This section does not apply for a simple move or an extension of a branch circuit or an outlet which does not significantly increase the existing electrical load. This exception does not include changes involving remodeling or additions to a residence." It will now read as follows:

**“E3902.17 Arc-fault circuit interrupter protection for branch circuit extensions or modifications.** Where branch-circuit wiring is modified, replace, or extended in any of the areas specified in Section E3902.16, the branch circuit shall be protected by one of the following:

1. A combination-type AFCI located at the origin of the branch circuit
2. An outlet branch-circuit type AFCI located at the first receptacle outlet of the existing branch circuit, [210.12(B)]

**Exception:**

1. AFCI protection shall not be required where the extension of the existing conductors is not more than 6 feet (1.8 m) in length and does not include any additional outlets or devices. [210.12(B) Exception]”
2. This section does not apply for a simple move or an extension of a branch circuit or an outlet which does not significantly increase the existing electrical load. This exception does not include changes involving remodeling or additions to a residence.

**Chapter 44 – Referenced Standards**

<https://codes.iccsafe.org/public/document/code/553/9880881>

IRC, Chapter 44, is amended by adding the following reference standard:

"Standard reference number	Title	Referenced in code section number
USC-FCCCHR 10th Edition Manual of Cross Connection Control	Foundation for Cross-Connection Control and Hydraulic Research University of Southern California Kaprielian Hall 300 Los Angeles CA 90089-2531	Table P2902.3"