

1 **STATE CONSTRUCTION CODE AMENDMENTS**

2 2017 GENERAL SESSION

3 STATE OF UTAH

4 **Chief Sponsor: Mike Schultz**

5 Senate Sponsor: Curtis S. Bramble

7 **LONG TITLE**

8 **General Description:**

9 This bill amends provisions related to the state construction code.

10 **Highlighted Provisions:**

11 This bill:

- 12 ▶ amends a provision related to residential installation of electrical outlets;
- 13 ▶ amends a provision related to drainage systems;
- 14 ▶ amends a provision related to the installation of passive radon controls; and
- 15 ▶ amends a provision related to natural gas-fired water heater emissions.

16 **Money Appropriated in this Bill:**

17 None

18 **Other Special Clauses:**

19 None

20 **Utah Code Sections Affected:**

21 AMENDS:

22 **15A-3-202**, as last amended by Laws of Utah 2016, Chapter 249

23 **15A-3-206**, as last amended by Laws of Utah 2016, Chapter 249

24 **15A-6-102**, as enacted by Laws of Utah 2016, Chapter 249

26 *Be it enacted by the Legislature of the state of Utah:*

27 Section 1. Section **15A-3-202** is amended to read:

28 **15A-3-202. Amendments to Chapters 1 through 5 of IRC.**

29 (1) In IRC, Section R102, a new Section R102.7.2 is added as follows: "R102.7.2
30 Physical change for bedroom window egress. A structure whose egress window in an existing
31 bedroom is smaller than required by this code, and that complied with the construction code in
32 effect at the time that the bedroom was finished, is not required to undergo a physical change to
33 conform to this code if the change would compromise the structural integrity of the structure or
34 could not be completed in accordance with other applicable requirements of this code,
35 including setback and window well requirements."

36 (2) In IRC, Section 109:

37 (a) A new IRC, Section 109.1.5, is added as follows: "R109.1.5 Weather-resistant
38 exterior wall envelope inspections. An inspection shall be made of the weather-resistant
39 exterior wall envelope as required by Section R703.1 and flashings as required by Section
40 R703.8 to prevent water from entering the weather-resistive barrier."

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

45 (3) IRC, Section R114.1, is deleted and replaced with the following: "R114.1 Notice to
46 owner. Upon notice from the building official that work on any building or structure is being
47 prosecuted contrary to the provisions of this code or other pertinent laws or ordinances or in an
48 unsafe and dangerous manner, such work shall be immediately stopped. The stop work order
49 shall be in writing and shall be given to the owner of the property involved, or to the owner's
50 agent or to the person doing the work; and shall state the conditions under which work will be
51 permitted to resume."

52 (4) In IRC, Section R202, the following definition is added: "CERTIFIED
53 BACKFLOW PREVENTER ASSEMBLY TESTER: A person who has shown competence to
54 test Backflow prevention assemblies to the satisfaction of the authority having jurisdiction
55 under Utah Code, Subsection 19-4-104(4)."

56 (5) In IRC, Section R202, the definition for "CONDITIONED SPACE" is modified by
57 deleting the words at the end of the sentence "being heated or cooled by any equipment or
58 appliance" and replacing them with the following: "enclosed within the building thermal
59 envelope that is directly heated or cooled, or indirectly heated or cooled by any of the following
60 means:

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

64 (6) In IRC, Section R202, the definition of "Cross Connection" is deleted and replaced
65 with the following: "CROSS CONNECTION. Any physical connection or potential
66 connection or arrangement between two otherwise separate piping systems, one of which
67 contains potable water and the other either water of unknown or questionable safety or steam,
68 gas, or chemical, whereby there exists the possibility for flow from one system to the other,
69 with the direction of flow depending on the pressure differential between the two systems (see
70 "Backflow, Water Distribution")."

71 (7) In IRC, Section 202, in the definition for gray water a comma is inserted after the
72 word "washers"; the word "and" is deleted; and the following is added to the end: "and clear
73 water wastes which have a pH of 6.0 to 9.0; are non-flammable; non-combustible; without
74 objectionable odors; non-highly pigmented; and will not interfere with the operation of the
75 sewer treatment facility."

76 (8) In IRC, Section R202, the definition of "Potable Water" is deleted and replaced
77 with the following: "POTABLE WATER. Water free from impurities present in amounts
78 sufficient to cause disease or harmful physiological effects and conforming to the Utah Code,
79 Title 19, Chapter 4, Safe Drinking Water Act, and Title 19, Chapter 5, Water Quality Act, and
80 the regulations of the public health authority having jurisdiction."

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

83	"TABLE NO. R301.2(5a)			
84	STATE OF UTAH - REGIONAL SNOW LOAD FACTORS			
85	COUNTY	P _o	S	A _o
86	Beaver	43	63	6.2
87	Box Elder	43	63	5.2
88	Cache	50	63	4.5
89	Carbon	43	63	5.2
90	Daggett	43	63	6.5
91	Davis	43	63	4.5
92	Duchesne	43	63	6.5
93	Emery	43	63	6.0
94	Garfield	43	63	6.0
95	Grand	36	63	6.5
96	Iron	43	63	5.8
97	Juab	43	63	5.2
98	Kane	36	63	5.7
99	Millard	43	63	5.3
100	Morgan	57	63	4.5
101	Piute	43	63	6.2
102	Rich	57	63	4.1
103	Salt Lake	43	63	4.5
104	San Juan	43	63	6.5
105	Sanpete	43	63	5.2
106	Sevier	43	63	6.0
107	Summit	86	63	5.0

108	Tooele	43	63	4.5
109	Uintah	43	63	7.0
110	Utah	43	63	4.5
111	Wasatch	86	63	5.0
112	Washington	29	63	6.0
113	Wayne	36	63	6.5
114	Weber	43	63	4.5

115	TABLE NO. R301.2(5b)				
116	REQUIRED SNOW LOADS FOR SELECTED UTAH CITIES AND TOWNS ^{1,2}				
117	The following jurisdictions require design snow load values that differ from the Equation in the Utah Snow Load Study.				
118	County	City	Elevation	Ground Snow Load (psf)	Roof Snow Load (psf) ⁶
119	Carbon	Price ³	5550	43	30
		All other county locations ⁵	--	--	--
120	Davis	Fruit Heights ³	4500 - 4850	57	40
121	Emery	Green River ³	4070	36	25
122	Garfield	Panguitch ³	6600	43	30
123	Rich	Woodruff ³	6315	57	40
		Laketown ⁴	6000	57	40
		Garden City ⁵	--	--	--
		Randolph ⁴	6300	57	40
124	San Juan	Monticello ³	6820	50	35
125	Summit	Coalville ³	5600	86	60
		Kamas ⁴	6500	114	80

126	Tooele	Tooele ³	5100	43	30
127	Utah	Orem ³	4650	43	30
		Pleasant Grove ⁴	5000	43	30
		Provo ⁵	--	--	--
128	Wasatch	Heber ⁵	--	--	--
129	Washington	Leeds ³	3460	29	20
		Santa Clara ³	2850	21	15
		St. George ³	2750	21	15
		All other county locations ⁵	--	--	--
130	Wayne	Loa ³	7080	43	30
131	¹ The IRC requires a minimum live load -- See R301.6.				
132	² This 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.				
133	³ Values adopted from Table VII of the Utah Snow Load Study				
134	⁴ Values based on site-specific study. Contact local Building Official for additional information.				
135	⁵ Contact local Building Official.				
136	⁶ Based on $C_e = 1.0$, $C_t = 1.0$ and $I_s = 1.0$ "				

137 (10) IRC, Section R301.6, is deleted and replaced with the following: "R301.6 Utah
 138 Snow Loads. The snow loads specified in Table R301.2(5b) shall be used for the jurisdictions
 139 identified in that table. Otherwise, the ground snow load, P_g , to be used in the determination of
 140 design snow loads for buildings and other structures shall be determined by using the following
 141 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
 142 A_o .
 143 WHERE:

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

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

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

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

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

149 The building official may round the roof snow load to the nearest 5 psf. The ground snow
150 load, P_g , may be adjusted by the building official when a licensed engineer or architect submits
151 data substantiating the adjustments.

152 Where the minimum roof live load in accordance with Table R301.6 is greater than the design
153 roof snow load, such roof live load shall be used for design, however, it shall not be reduced to
154 a load lower than the design roof snow load. Drifting need not be considered for roof snow
155 loads less than 20 psf."

156 (11) In IRC, Section R302.5.1, the words "self-closing device" are deleted and replaced
157 with "self-latching hardware".

158 (12) IRC, Section R302.13, is deleted.

159 (13) In IRC, Section R303.4, the number "5" is changed to "3" in the first sentence.

160 (14) IRC, Sections R311.7.4 through R311.7.5.3, are deleted and replaced with the
161 following: "R311.7.4 Stair treads and risers. R311.7.5.1 Riser height. The maximum riser
162 height shall be 8 inches (203 mm). The riser shall be measured vertically between leading
163 edges of the adjacent treads. The greatest riser height within any flight of stairs shall not
164 exceed the smallest by more than 3/8 inch (9.5 mm).

165 R311.7.5.2 Tread depth. The minimum tread depth shall be 9 inches (228 mm). The tread
166 depth shall be measured horizontally between the vertical planes of the foremost projection of
167 adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within
168 any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder
169 treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point
170 12 inches (305 mm) from the side where the treads are narrower. Winder treads shall have a

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

174 R311.7.5.3 Profile. The radius of curvature at the leading edge of the tread shall be no greater
175 than 9/16 inch (14.3 mm). A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4
176 inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection
177 shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) between two
178 stories, including the nosing at the level of floors and landings. Beveling of nosing shall not
179 exceed 1/2 inch (12.7 mm). Risers shall be vertical or sloped from the underside of the leading
180 edge of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open
181 risers are permitted, provided that the opening between treads does not permit the passage of a
182 4-inch diameter (102 mm) sphere.

183 Exceptions.

- 184 1. A nosing is not required where the tread depth is a minimum of 10 inches (254 mm).
- 185 2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches
186 (762 mm) or less."

187 (15) IRC, Section R312.2, is deleted.

188 (16) IRC, Sections R313.1 through R313.2.1, are deleted and replaced with the
189 following: "R313.1 Design and installation. When installed, automatic residential fire
190 sprinkler systems for townhouses or one- and two-family dwellings shall be designed and
191 installed in accordance with Section P2904 or NFPA 13D."

192 (17) In IRC, Section 315.3, the following words are added to the first sentence after the
193 word "installed": "on each level of the dwelling unit and".

194 (18) In IRC, Section R315.5, a new exception, 3, is added as follows:

195 "3. Hard wiring of carbon monoxide alarms in existing areas shall not be required where the
196 alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing
197 the structure, unless there is an attic, crawl space or basement available which could provide

198 access for hard wiring, without the removal of interior finishes."

199 (19) A new IRC, Section R315.7, is added as follows: " R315.7 Interconnection.

200 Where more than one carbon monoxide alarm is required to be installed within an individual
201 dwelling unit in accordance with Section R315.1, the alarm devices shall be interconnected in
202 such a manner that the actuation of one alarm will activate all of the alarms in the individual
203 unit. Physical interconnection of smoke alarms shall not be required where listed wireless
204 alarms are installed and all alarms sound upon activation of one alarm.

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

209 (20) In IRC, Section R403.1.6, a new Exception 3 is added as follows: " 3. When
210 anchor bolt spacing does not exceed 32 inches (813 mm) apart, anchor bolts may be placed
211 with a minimum of two bolts per plate section located not less than 4 inches (102 mm) from
212 each end of each plate section at interior bearing walls, interior braced wall lines, and at all
213 exterior walls."

214 (21) In IRC, Section R403.1.6.1, a new exception is added at the end of Item 2 and
215 Item 3 as follows: "Exception: When anchor bolt spacing does not exceed 32 inches (816 mm)
216 apart, anchor bolts may be placed with a minimum of two bolts per plate section located not
217 less than 4 inches (102 mm) from each end of each plate section at interior bearing walls,
218 interior braced wall lines, and at all exterior walls."

219 (22) In IRC, Section R404.1, a new exception is added as follows: "Exception: As an
220 alternative to complying with Sections R404.1 through R404.1.5.3, concrete and masonry
221 foundation walls may be designed in accordance with IBC Sections 1807.1.5 and 1807.1.6 as
222 amended in Section 1807.1.6.4 and Table 1807.1.6.4 under these rules."

223 (23) In IRC, Section R405.1, a new exception is added as follows: "Exception: When a
224 geotechnical report has been provided for the property, a drainage system is not required unless

225 the drainage system is required as a condition of the geotechnical report."

226 Section 2. Section **15A-3-206** is amended to read:

227 **15A-3-206. Amendments to Chapters 39, 44, and Appendix F of IRC.**

228 (1) In IRC, Section E3901.9, the following exception is added:

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

232 (2) [~~In~~] IRC, Section E3902.16[~~, the following words in the first sentence are deleted: "~~
233 ~~family rooms, dining rooms, living rooms, parlors, libraries, dens," and "sunrooms, recreation~~
234 ~~rooms, closets, hallways, and similar rooms or areas."~~] is deleted.

235 (3) In Section E3902.17:

236 (a) following the word "Exception" the number "1." is added; and

237 (b) at the end of the section, the following sentences are added:

238 "2. This section does not apply for a simple move or an extension of a branch circuit or an
239 outlet which does not significantly increase the existing electrical load. This exception does
240 not include changes involving remodeling or additions to a residence."

241 (4) 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"

244 (5) (a) When passive radon controls or portions thereof are voluntarily installed, the
245 voluntary installation shall comply with Appendix F of the IRC.

246 (b) An additional inspection of a voluntary installation described in Subsection (5)(a) is
247 not required.

248 Section 3. Section **15A-6-102** is amended to read:

249 **15A-6-102. Nitrogen Oxide emission limits for natural gas-fired water heaters.**

250 (1) As used in this section:

251 (a) "BTU" means British Thermal Unit.

252 (b) (i) "Heat input" means the heat of combustion released by fuel burned in a water
253 heater based on the heating value of the fuel.

254 (ii) "Heat input" does not include the enthalpy of a water heater's incoming combustion
255 air.

256 (c) "Heat output" means the enthalpy of a water heater's working fluid output.

257 (d) "Natural gas-fired water heater" means a device that heats water:

258 (i) using natural gas combustion;

259 (ii) for use external to the device at a pressure that is less than or equal to 160 pounds
260 per square inch gage; and

261 (iii) to a thermostatically controlled temperature less than or equal to:

262 (A) 210 degrees Fahrenheit; or

263 (B) 99 degrees Celsius.

264 (e) "ppm" means parts of Nitrogen Oxide per million parts of water heater air output.

265 (f) "Recreational vehicle" means the same as that term is defined in Section [13-14-102](#).

266 (2) [~~Subject to Subsection (6)~~] On and after July 1, 2018, a person may not sell or
267 install a natural gas-fired water heater with an emission rate greater than the following limits:

268 (a) for a water heater that has a heat input of less than or equal to 75,000 BTU per hour
269 that is not installed in a mobile home, a limit of:

270 (i) 10 nanograms per Joule of heat output; or

271 (ii) 15 ppm, corrected to 3% oxygen;

272 (b) for a water heater that has a heat input of greater than 75,000 BTU per hour and less
273 than 2,000,000 BTU per hour that is not installed in a mobile home, a limit of:

274 (i) [~~10~~] 14 nanograms per Joule of heat output; or

- 275 (ii) 20 ppm, corrected to 3% oxygen;
- 276 (c) for a water heater installed in a mobile home, a limit of:
- 277 (i) 40 nanograms per Joule of heat output; or
- 278 (ii) ~~[20]~~ 55 ppm, corrected to 3% oxygen;
- 279 (d) for a pool or spa water heater with a heat input that is less than or equal to 400,000
- 280 BTU per hour, a limit of:
- 281 (i) 40 nanograms per Joule of heat output; or
- 282 (ii) 55 ppm, corrected to 3% oxygen; and
- 283 (e) for a pool or spa water heater with a heat input of greater than 400,000 BTU per
- 284 hour and less than 2,000,000 BTU per hour, a limit of:
- 285 (i) 14 nanograms per Joule of heat output; or
- 286 (ii) ~~[55]~~ 20 ppm, corrected to 3% oxygen.
- 287 (3) A water heater manufacturer shall use California South Coast Air Quality
- 288 Management District Method 100.1 to calculate the emissions rate of a water heater subject to
- 289 this section.
- 290 (4) A water heater manufacturer shall display on a water heater subject to this section,
- 291 as a permanent label, the model number and the Nitrogen Oxide emission rate of the water
- 292 heater.
- 293 (5) The requirements of this section do not apply to:
- 294 (a) a water heater using a fuel other than natural gas;
- 295 (b) a water heater used in a recreational vehicle;
- 296 (c) a water heater manufactured in the state for sale and shipment outside of the state;
- 297 or
- 298 (d) a water heater manufactured before July 1, 2018.
- 299 ~~[(6) Subsection (2) applies to the sale or installation of a water heater on or after July 1,~~
- 300 ~~2018.]~~