



Notable Changes to the 2021 Commerce City Building Code Compared to the 2018 Edition



Topic	Summary & Implication	Code, Section	Amended or Added Provision								
Occupancy Group R-5	To better align the administrative provisions of the IBC with the IRC, occupancy Group R-5 is added. This code change is specifically created as a housekeeping measure.	IRC 310.6, 310.6.1	<p>310.6 Residential Group R-5. Residential Group R-5 occupancies include detached one-and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height. The provisions of the International Residential Code, as amended by the city, shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of Group R-5 occupancies.</p> <p>310.6.1 Additional requirements. Methods of construction, materials, systems, equipment or components for Group R-5 occupancies not addressed by prescriptive or performance provisions of the International Residential Code, as amended by the city, shall comply with the applicable provisions of this code.</p>								
Accepted Engineering Practice	A new definition is introduced to provide clarity for when a building component is designed outside of the prescriptive requirements of the code. The elements of the definition include conformance to nationally recognized standards, testing, engineering principles and the intent of the code.	IRC R202	<p>R202 Definitions</p> <p>ACCEPTED ENGINEERING PRACTICE. An engineered design, analysis or similar, performed by a registered design professional, that conforms to nationally recognized principles, testing or standards; meets the functional intent of this code; and is approved by the Building Official.</p>								
Duplexes, Townhouse	<p>The 2021 IRC introduces a new definition for townhouses and townhouse units. To adapt city-specific firewall requirements for duplexes from the 2018 code into the 2021 code, the townhouse definition is changed.</p> <p>This is not a technical change from the current code. Instead, the 2021 requirements are found in different provisions. Similar amendments are made to the IBC but are not listed in this document.</p>	IRC R202, R302.3	<p>R202 Definitions</p> <p>TOWNHOUSE. A building that contains two or more attached townhouse units.</p> <p>R302.3 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. A fire-resistance rating of ½ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904. 2. Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than ½-inch (15.9 mm) Type X gypsum board, an attic draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the dwellings and the structural framing supporting the ceiling is protected by not less than ½-inch (12.7 mm) gypsum board or equivalent. 								
Fire Separation Distance	To provide clarity for where the fire separation distance is measured, the definition is amended. The fire separation distance in the 2021 code will be measured from the finished surface of the exterior wall. The current measurement in the 2018 code is taken from the foundation wall and conflicts with the code’s intent.	IRC R202	<p>R202 Definitions</p> <p>FIRE SEPARATION DISTANCE. The distance measured from the finished surface of the building face to one of the following:</p> <ol style="list-style-type: none"> 1. To the closest interior lot line. 2. To the centerline of a street, an alley or public way. 3. To an imaginary line between two buildings on the lot. 4. The distance shall be measured at a right angle from the face of the wall. 								
Ground Snow Load	The ground snow load is raised to 35 PSF from the current 30 PSF. However, the 2021 code will permit snow load reductions per ASCE 7. The net effect on the design load of roof elements will not be affected.	IRC Table R301.2(1)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Ground snow load</td> <td style="width: 30%; text-align: center;">35 psf</td> </tr> </table>	Ground snow load	35 psf						
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Ice Barrier Underlayment	To reduce the effects of ice damming, ice barrier underlayment will be required.	IRC Table R301.2(1)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Ice barrier underlayment required</td> <td style="width: 30%; text-align: center;">Yes</td> </tr> </table>	Ice barrier underlayment required	Yes						
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Exterior Covering Flame Spread Rating	<p>At the direction of City Council, added requirements are introduced to exterior wall coverings when the fire separation distance is 5 feet or greater. Exterior finishes will be required to have a maximum flame spread of 75.</p> <p>This change is in response to the Marshall Fire.</p>	IRC Table R302.1(1)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">EXTERIOR WALL ELEMENT</th> <th style="text-align: center;">MINIMUM FIRE-RESISTANCE RATING</th> <th style="text-align: center;">MINIMUM FIRE SEPARATION DISTANCE</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Walls</td> <td style="width: 15%;">Not fire-resistance rated</td> <td style="width: 40%;">0 hours with exterior wall coverings having a maximum flame spread rating of 75 tested in accordance with ASTM E84 (UL 723)</td> <td style="width: 30%; text-align: center;">≥ 5 feet</td> </tr> </tbody> </table>	EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE	Walls	Not fire-resistance rated	0 hours with exterior wall coverings having a maximum flame spread rating of 75 tested in accordance with ASTM E84 (UL 723)	≥ 5 feet
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Fire Protection of Floors	<p>The protection of floors with an unfinished underside will be required in the 2021 code. However, Exception 1 is limited to P2904 sprinkler systems; NFPA 13D sprinkler systems will not qualify for the exception.</p>	IRC R302.13	<p>R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a ½-inch (12.7 mm) gypsum wallboard membrane, ¾-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904. 2. Floor assemblies located directly over a crawl space not intended for storage or for the installation of fuel-fired or electric-powered heating appliances. 3. Portions of floor assemblies shall be permitted to be unprotected where complying with the following: <ol style="list-style-type: none"> 3.1. The aggregate area of the unprotected portions does not exceed 80 square feet (7.4 m²) per story. 3.2. Fireblocking in accordance with Section R302.11.1 is installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly. 4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance. 												
Area Well Fall Protection	<p>Area wells (window wells in the 2018 IRC) deeper than 30 inches must have a grate or cover capable of resisting human live load.</p> <p>This change is in response to numerous complaints by homeowners of builders not providing covers for deep window wells.</p>	IRC R310.4.4, R310.4.5	<p>R310.4.4 Area well fall protection. Area wells deeper than 30 inches (762 mm), measure vertically from adjacent grade, shall be equipped with bars, grills, covers or similar in accordance with Section R310.4.5 and shall be capable of resisting a 40 psf (1.92 kPa) live load in accordance with Section R301.5.</p> <p>R310.4.5 Bars, Grilles, Covers and Screens. Where bars, grilles, covers, screens or similar devices are placed over emergency escape and rescue openings, bulkhead enclosures or area wells that serve such openings, the minimum net clear opening size shall comply with Sections R310.2 through R310.2.2 and R310.4.1. Such devices shall be releasable or removable from the inside without the use of a key or tool or force greater than that required for the normal operation of the escape and rescue opening.</p>												
Residential Sprinklers	<p>At the direction of City Council, residential sprinklers will be required on two-family dwellings, duplexes and townhouses. Sprinkler systems will only be required on detached single family dwellings with a fire separation distance less than 8 feet.</p> <p>Due to the impact on the fire service and water authority, NFPA 13D systems are edited out of the IRC and IBC (those affected code sections are not shown in this document).</p>	IRC R313.1, R313.1.1, R313.2	<p>R313.1 Townhouse automatic fire sprinkler systems. An automatic sprinkler system shall be installed in townhouses.</p> <p>Exception: An automatic sprinkler system shall not be required where additions or alterations are made to existing townhouses that do not have an automatic sprinkler system installed.</p> <p>R313.1.1 Design and installation. Automatic sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904.</p> <p>R313.2 One- and two-family dwellings automatic sprinkler systems. An automatic sprinkler system shall be installed in one- and two-family dwellings with a fire separation distance of less than 8 feet (2440 mm) at any location along the building perimeter.</p> <p>Exception: An automatic sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with a sprinkler system.</p> <p>R313.2.1 Design and installation. Automatic sprinkler systems shall be designed and installed in accordance with Section P2904.</p>												
Wall Bracing Fastener Spacing Adjustment Factor	<p>When reducing the faster spacing of braced wall panels with Methods WSP, CS-WSP and CS-G to 4 inches on center at the panel edges, the amount of required bracing can be reduced by 17 percent.</p> <p>This is the result of APA testing and research that was never pursued by APA for inclusion into the IRC.</p>	IRC Table R602.10.3(2)	<table border="1"> <thead> <tr> <th>ITEM NUMBER</th> <th>ADJUSTMENT BASED ON</th> <th>STORY/SUPPORTING</th> <th>CONDITION</th> <th>ADJUSTMENT FACTOR</th> <th>APPLICABLE METHODS</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>Fastener spacing</td> <td>Any story</td> <td>4 inches o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked</td> <td>0.83</td> <td>WSP, CS-WSP, CS-G</td> </tr> </tbody> </table>	ITEM NUMBER	ADJUSTMENT BASED ON	STORY/SUPPORTING	CONDITION	ADJUSTMENT FACTOR	APPLICABLE METHODS	7	Fastener spacing	Any story	4 inches o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked	0.83	WSP, CS-WSP, CS-G
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Energy Efficiency	<p>Applicants may choose to use the 2018 or 2021 energy conservation provisions until July 1, 2026 at which time, all applicants must comply with the 2021 provisions.</p> <p>This amendment aligns with state mandates approved through 2022 House Bill HB22-1362.</p>	<p>IRC N1101.2.1, IECC R101.4.2</p>	<p>IRC N1101.2.1 When applicable. Construction for which a permit is submitted to the city on or after the effective date of the 2021 City of Commerce City Building Code shall comply with the provisions of this chapter, except for permit applications submitted prior to July 1, 2026. The applicant for a permit prior to July 1, 2026 shall be permitted to choose whether to comply with the residential energy provisions of this chapter or Chapter 11 of the 2018 International Residential Code as amended by the city.</p> <p>IECC R101.4.2 When applicable. Construction for which a permit is submitted to the city on or after the effective date of the 2021 City of Commerce City Building Code shall comply with the residential energy provisions of this code, except for permit applications submitted prior to July 1, 2026. The applicant for a permit prior to July 1, 2026 shall be permitted to choose whether to comply with the residential energy provisions of this code or the 2018 edition as amended by the city.</p>
Alcohol Fuel-Burning Decorative Appliances	<p>To be consistent with the 2021 IMC, the definition of an alcohol fuel-burning decorative appliance is added to the IRC, and its installation will be limited to exterior locations.</p>	<p>IRC R202, M1416.1</p>	<p>R202 UNVENTED ALCOHOL FUEL-BURNING DECORATIVE APPLIANCE. A stationary, self-contained appliance intended to be directly or indirectly secured to a wall or floor and not intended for duct connection. Such appliance burns alcohol and is made in a manufacturing facility for subsequent delivery to the installation site.</p> <p>M1416.1 General. The installation of unvented alcohol fuel-burning decorative appliances shall be prohibited in interior occupied areas. The installation of unvented alcohol fuel-burning decorative appliances in exterior locations shall be listed and labeled in accordance with UL 1370 for exterior locations and shall be installed in accordance with the conditions of the listing, manufacturer’s installation instructions and Chapter 13.</p>
Solar-Ready Provision	<p>Per the direction of City Council, Appendix AT of the IRC is adopted as mandatory to ensure new homes are solar-ready.</p>	<p>Municipal Code § 5-4200, IRC Appendix AT</p>	<p>Sec. 5-4200. – Adoption The City of Commerce City adopts the 2021 edition of the International Residential Code (IRC) to be known as the City of Commerce City Residential Code, including Appendix Chapters AH, AI, AJ, AK, AM, AQ, AR, AS, AT, AU and AW and the standards referenced in such code and appendix chapters, save and except such amendments as set forth in this article. The IRC is available to view for free on the International Code Council’s website at https://codes.iccsafe.org.</p>
Appendices Adopted	<p>Appendices for private sewage disposal, tiny houses, light straw-clay construction, strawbale construction, cob construction and 3D-printed building construction are adopted.</p>	<p>Municipal Code § 5-4200, IRC Appendices AI, AQ, AR, AS, AU, AW</p>	<p>Sec. 5-4200. – Adoption The City of Commerce City adopts the 2021 edition of the International Residential Code (IRC) to be known as the City of Commerce City Residential Code, including Appendix Chapters AH, AI, AJ, AK, AM, AQ, AR, AS, AT, AU and AW and the standards referenced in such code and appendix chapters, save and except such amendments as set forth in this article. The IRC is available to view for free on the International Code Council’s website at https://codes.iccsafe.org.</p>