

THE CITY OF NORTH KANSAS CITY BUILDING AND CONSTRUCTION CODE UPDATE
FROM THE 2012 TO THE 2018 INTERNATIONAL CODES, EFFECTIVE JULY 1, 2018
SIGNIFICANT CODE CHANGES
International Residential Code

Building Planning

Chapter 3 Building Planning:

- R301.2(1) Jurisdictions will now include variables for Manual J assessments with other climatic and geographic design criteria available in the building department's Table R301.2(1) Design Criteria.
- R301.2.2.1 A new alternative seismic map allows potentially a lower seismic design category based on determination of soil type.
- R301.2.2.6 The irregular building section of the seismic provisions of the IRC has been rearranged for greater ease of use.
- 301.3 Story height of wood and steel wall framing, insulated concrete and SIP walls may not exceed 11 feet, 7 inches. Masonry wall height is limited to 13 feet, 7 inches. An engineered design shall be provided for the wall or wall framing members where the limits of Chapter 6 are exceeded.
- 302.1 References to the IBC offer additional options and provide flexibility in determining the fire-resistance rating of exterior wall assemblies. Table footnotes have been revised to clarify to correlation between gable end vents and the fire-resistance requirements for projections.
- R302.2 Two-paths for achieving the fire-resistance separation between townhouse dwelling units – two 1-hour walls or a common wall – are spelled out in the townhouse provisions.
- R302.3 A new reference to Section 703.3 of the IBC provides alternatives for determining the fire-resistance rating of wall and floor/ceiling assemblies for separation of dwelling units.
- R302.4.2 Listed luminaires that have been tested for the application are specifically permitted for fire-resistant-rated ceiling membrane penetrations.
- 302.5 An automatic-closing device is now permitted as an alternative to a self-closing device for the door between the garage and dwelling.

- 302.10 The testing of insulation materials for flame spread and smoke-developed ratings applies to facings including vapor retarders and other coverings.
- 302.13 Fire-resistant membrane protection is now required for the applicable floor framing materials above crawl spaces containing fuel-fired or electric-powered heating appliances.
- 308.4.2 Glazing within 24 inches of the hinge side of an in-swing door now requires safety glazing where the glazing is at angle less than 180 degrees from the plane of the door.
- R308.4.4 Unless laminated glass is used, structural glass baluster panels in guards now require an attached top rail or handrail.
- R308.4.7 Figure R308.4.7 has been replaced with a new figure and the caption modified to more accurately reflect the related code provision.
- Delete R310.1 Emergency escape and rescue openings are no longer required for bedrooms in basements when dwelling unit is protected with an automatic fire sprinkler system and other conditions are met.
- 310.3 For emergency escape and rescue doors in basements, a change in terminology replaces “bulkhead enclosures” with “area wells” and provisions for ladders and steps for area wells have been added.
- R311.7.1, R311.7.8 A new exception to the handrail projection limitation provides for adequate clearance behind the handrail when it passes a projection of a floor, landing or tread return.
- R311.7.3 The maximum rise of a flight of stairs has increased by 4 inches from 147 to 151 inches.
- R311.7.5.3 The revised text clarifies that nosing’s must be consistent throughout the stairway.
- R311.7.11, R311.7.12 Alternating tread devices and ships ladders are now permitted as a means for serving lofts that do not exceed 200 square feet in area surface that exceeds 30 inches above grade.
- R314- The exemption for interconnection of alarms during alterations based on feasibility has been removed from the code.
- R314.6 Battery-operated smoke alarms are permitted for satisfying the smoke alarm power requirements when alterations, repairs and additions occur.

- R315 Interconnection is now required where multiple carbon monoxide alarms are required in a dwelling unit.
- R315.5 Battery-operated carbon monoxide alarms are permitted for satisfying the carbon monoxide alarm power requirements when alterations, repairs and additions occur.
- R317.3 Staples in preservative-treated wood and fire-retardant-treated wood are now required to be made of stainless steel.
- R324.4 Structural requirements for rooftop-mounted photovoltaic panel systems have been revised and consolidated in Section R324.4.
- R324.6 Requirements for roof access and pathways for firefighters have been introduced into the IRC provisions for rooftop-mounted photovoltaic solar energy systems.
- R324.6.2.2 Rooftop-mounted photovoltaic solar energy panels and modules are not permitted to be installed directly below emergency escape and rescue openings.
- R335.3 The area limitation for mezzanines has been increased from one-third to one-half of the area of the room containing the mezzanine under certain conditions.
- R325.6 The definition of habitable attic space has been revised and the technical requirements have been placed in a new section.

Chapter 4 Foundations:

- 408.3 Ventilation of the under-floor spaces not required when an adequately-sized dehumidifier is provided. The City plans to delete this section.

Chapter 5 Floors:

- 505.3.2 Maximum spans for cold-formed steel joists are updated for wind speeds up to 140 miles per hour in single or continuous spans. Footnote f is added to clarify that 33 and 43 mill thickness joists need to be single span joists when using this prescriptive table.
- R507 Section R507 is reorganized for ease of use and additional provisions are added to simplify prescriptive construction of a deck.
- 507.2 Section 507.2 adds requirements for fasteners and fastener connections, flashing and alternative materials.
- R507.3 A new section on footing minimum size is added to help describe minimum prescriptive (non-engineered) requirements for an exterior deck footing based on snow load, soil quality and footing slope and size.

- 507.4 Information on deck posts moves to the middle of Section R507 as topics flow in the order of construction sequence. The section has been clarified adding additional prescriptive or nonengineered options.
- R507.5 The table on maximum beam span includes single-ply beams. Beam bearing and connection to posts are clarified.
- R507.6 Maximum joist spacing and total span length have been clarified. In Table R507.6 maximum span length is listed followed by maximum cantilever length.
- R507.7, R507.8, R507.9 Decking material options and fastener systems are clarified. Vertical and horizontal support of an exterior deck is updated while additional details on support and attachment of ledgers are added.

Chapter 6 Wall Construction:

- R602.3(6) A prescriptive is added for studs greater than 10 feet in height, in an exception to Section R602.3.1 as well as a reference to new Table R602.3(6) that applies to 11 and 12-foot tall walls in one-and two-story buildings.
- R602.7(1), R602.7(2) Girder and header spans are updated assuming No. 2 Southern Pine rather than No. 1 Southern pine as used in the 2015 IRC. A footnote is added to clarify that headers and girders are assumed to be braced. For headers with pony walls above, a further reduction in span is taken for 2 X 8 and larger headers.
- R602.7.5 The 2015 IRC full-height stud table is significantly altered. The table increases the number of king studs in higher wind regions and requires only one or two king studs at each end of a header in regions with 115 mph wind speeds.
- R602.10.3(4) Attempts to clarify roof and ceiling dead loads in the top story of a multi-story dwelling and an alternative to use of the BV-WSP bracing method have been added. Table R602.10.3(4) now allows use of Methods WSP and CS-WSP with brick veneer in the second story of a dwelling.
- R602.10.4.1 Mixing of continuous sheathing methods with an intermittent alternate bracing method is clarified. Braced wall line(s) containing an intermittent alternate method must have sufficient bracing length for the alternate method, not just for the continuous sheathing method.
- R602.10.6.4 Method Continuous Sheathing-Portal Frame (CS-PF) has been tweaked slightly in this code edition. A note is added emphasizing that when a single CS-PF is built, the side of the portal frame that has a post must have continuous sheathing beyond that end of the portal frame.

- R602.10.6.5 An attempt to clarify use of the Braced Veneer (BV)-WSP method is made. New limits are added to Section R602.10.6.5.
- R603.3.1, R603.3.1.1(2) Cold-formed steel construction tables are updated for wind speeds less than 140 miles per hour. Values in the IRC tables now match AISI S230, the Standard for Coldformed steel framing prescriptive method for one- and two-family dwellings.
- R610 The section on structural insulated panels is reorganized. Information on facers, core and adhesive requirements are now located in APA PRS 610.1 and deleted from the IRC.

Chapter 7 Wall covering:

- R703.2 Water-resistive barrier materials other than No. 15 asphalt felt must be installed following the manufacture's installation instructions. The exemption for detached accessory buildings is deleted.
- R703.3.1 Requirements for wood structural panel soffits are added to Section R703.3.1 and vinyl soffit requirements are clarified.
- R703.8.4 Masonry veneer is explicitly allowed to attach through insulation into the underlying wood structural panels. Attachment must follow Table R703.8.4(2).
- R703.8.4(1) The new footnote "c" in Table R703.8.4(1) allows drainage airspace to contain some mortar spills.
- R703.11.2 Testing has been done on vinyl siding over insulation to determine fastener requirements for vinyl siding attachment in high wind regions. New Table R703.11.2 gives design wind pressures for vinyl siding resisting all wind loads without reliance on wood structural panel sheathing below.

Chapter 8 Roof-ceiling Construction:

- R802 Section R802, design and construction of roofs, has been clarified by dividing the content into three separate sections on roof ridges, rafters and ceiling joists.
- R802.1.5.4 Each stick of fire-retardant-treated (FRT) lumber and each FRT wood structural panel require a label with eight specific items of information.
- R806.2 The minimum vent area exception is clarified, stating that net free ventilation may be less than 1/150 only if both required conditions are met. Lower vents must be in the bottom third of the attic space.

- R806.5 Item 5.2 is added as an alternative path for unvented attics and rafter assemblies to the requirements of item 5.1. The new option is limited to warm climates and has 10 requirements to address in the installation of air-permeable insulation.

Chapter 9 Roof Assemblies:

- R905.1.1(1), R905.1.1(2) Underlayment requirements for photovoltaic (PV) shingles are revised for consistency with other roofing materials and moved to the Tables R905.1.1(1) and R905.1.1(2) for underlayment.
- R905.17 New Section R905.17 addresses installation and attachment of building-integrated photovoltaic (BIPV) roof panels.

Chapter 10 Chimneys and Fireplaces:

- R1005.8 Factory-built chimneys, which have been required to maintain a minimum clearance to insulation, are now required to have an insulation shield to provide clearance.

Chapter 11 Energy Conservation:

- N1102.1 Log homes are now exempt from the prescriptive building thermal envelope requirements when designed in accordance with ICC-400, Standard on the Design and Construction of Log Structures.
- N1102.1.2, N1102.1.4 The prescriptive U-factors for fenestration have been lowered to improve the energy efficiency of dwellings and townhouses.
- N1102.2.2 When applying the exception for insulating in ceilings without attics, the insulation must extend to the outside of the top plate.
- N1102.2.5 The mass wall provisions have been itemized in a numbered list to bring accuracy to the technical requirements.
- N1102.2.6 Conflicting entries have been removed from the table establishing cold-formed steel R-values equivalent to those for wood framing.
- N1102.4 A new standard for air-leakage testing. RESNET/ICC 380, is now referenced in the IRC to provide flexibility for the testing industry.
- N1103.3.2, N1103.3.3 If not part of the heating or cooling system duct work, ducts serving heat or energy recovery ventilators do not require an air leakage test.
- N1103.3.6, N1103.3.7 New provisions address the methods, minimum coverage requirements and thermal benefits for ducts buried within ceiling insulation, and when those ducts are considered inside the building thermal envelope.

- N1104.1 The required percentage of permanent lighting fixtures having high-efficacy lamps has increased from 75% to 90%.
- N1106.3, 1106.4 The maximum rating index values based on Climate Zone have increased slightly to make the Energy Rating Index (ERI) provisions less restrictive and improve the flexibility of the energy provisions.

Chapter 12 Mechanical Administration:

- M1305.1.1 The appliance access and clearance requirements for furnaces in compartments have been removed from the code in favor of other code provisions and the manufactures instructions.
- M13.5.1.3.2 The requirements for appliance in pits has been expanded to provide more detail and to be like language found in other ICC Codes. The minimum bottom clearance has been reduced from 6 inches to 3 inches.

Chapter 15 Mechanical Exhaust Systems:

- M1502.3.1 A minimum area of 12.5 square inches has been established for the terminal outlet of dryer duct exhaust.
- M1502.4.2 Wall and ceiling cavities enclosing dryer exhaust ducts must provide sufficient space that the 4-inch duct is not squeezed out of its round shape.
- M1503 “Domestic cooking exhaust equipment” is the preferred terminology for “kitchen exhaust” because it is more descriptive and includes all the components of the exhaust system.
- M1503.6 Makeup air for domestic cooking exhaust systems is no longer required if all fuel burning appliances in the dwelling unit have a direct vent or mechanical draft vent system.

Chapter 16 Mechanical duct Systems:

- M1601.1.2 Underground ducts, including both direct-burial ducts and those encased in concrete, require sealing and testing.

Chapter 19 Mechanical Special Fuel Burning Equipment:

- M1901 Provisions for reduced clearances above cooking surfaces have been clarified. The listing requirements for microwave ovens has been added to Section M1901.

Chapter 21 Mechanical Hydronic Piping:

- M2101.9 Support spacing requirements for PEX tubing 1 ¼ inches and greater have been added to Table M2101.9.

- M2101.10 Compressed air testing of PEX hydronic piping is now allowed when testing is in accordance with the manufacturer's instructions.
- M2103.2 For hydronic floor heating systems, the minimum insulation R-values have been removed from Section M2103.2 and reference to the energy provisions of Chapter 11 has been added.

Chapter 23 Mechanical Solar Systems:

- M2301 The requirements for access and freeze protection related to solar thermal energy systems have been expanded to provide detailed guidance to the code user.

Chapter 24 Mechanical Fuel Gas:

- G2406.2 A gas fired clothes dryer is now allowed to be installed in a bathroom or toilet room where a permanent opening communicates with other permitted spaces.
- G2411.2, G2411.3 The existing provisions for electrical bonding apply to CSST without an arc-resistant jacket or coating and a new section addresses electrical continuity and bonding of arc-resistant CSST.
- G2415.11 Reorganization of this section includes new provisions to address corrosion protection of underground steel gas piping and protection for steel risers other than anodeless risers.
- G2420.5.1 Shutoff valves located behind movable appliances are considered as meeting the requirement for access.
- G2420.6 Shutoff valves in gas tubing systems require rigid support separate from the tubing to prevent damage at the valve connection.
- G2442.2 The prescriptive duct size requirements for forced-air furnaces have been deleted in favor of other sizing methods specific to the appliance.
- G2447.2 Commercial cooking appliances are now permitted in dwelling units when installed in accordance with an engineered design and the manufacturer's instructions.

Chapter 25 Plumbing Administration:

- P2503.7 Compressed-air testing of PEX water-supply piping is now allowed when testing is in accordance with the manufacturer's instructions.

Chapter 26 Plumbing General Requirements:

- P2605 The expanded text clarifies that the sway bracing provisions only apply to horizontal drainage piping.

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Chapter 27 Plumbing Fixtures:

- P2704 Slip joint connections are permitted anywhere between the fixture outlet and the drainage piping and are no longer limited to the trap inlet, outlet and trap seal locations.
- P2713.1 Overflow outlets are no longer required for bathtubs.

Chapter 28 Plumbing Water Heaters:

- P2801.6 Plastic safety pans are now allowed under gas water heaters provided the material falls within the prescribed flame spread and smoke-developed indices.

Chapter 29 Plumbing Water Supply and Distribution:

- P2902.5.4, P2904.1 These Sections are revised and coordinated to clarify that stand and multipurpose fire sprinkler systems complying with Section P2904 or NFPA 13D do not require backflow protection under most circumstances.
- P2903.5 A water hammer arrestor is now required where quick-closing valves are used in the water distribution system.
- P2906.6.1 Saddle tap fittings are no longer permitted on water distribution system piping.
- P2906.18.2 A single solvent-cemented transition joint is now an acceptable method for connecting a CPVC water distribution system to a PVC water service pipe.

Chapter 30 Plumbing Sanitary Drainage:

- P3003.2 A solvent cement joint is now permitted for joining ABS and PVC piping at the connection of the building drain to the building sewer.
- P3005.1.6 Water closet flanges, offset bend fittings and offset flanges are now specifically listed as exceptions to the provision that drainage piping must not be reduced in size in the direction of flow.

Chapter 31 Plumbing Vents:

- P3103.1 The provisions for vent terminals have been reorganized and a new option has been added to allow a 2-inch vent extension through a sloped roof when the vent is covered.
- P3111 Food waste disposers are now permitted to connect to a combination waste and vent system.
- P3114.8 An air admittance valve cannot be used to resolve the problem of an open vent terminal that is too close to a building air intake.

Chapter 37 Electrical Branch Circuit and Feeder Requirements:

- E3703.5 A separate 20-ampere Branch circuit is now required to serve receptacle outlets of attached garages and detached garages with electric power.

Chapter 39 Electrical Wiring Methods:

- E3901.2 Cabinets with countertops are now considered wall space in determining required locations for general purpose receptacle outlets.
- E3901.9 A receptacle outlet must be in each vehicle bay in a garage.
- E3902.4 Ground-fault circuit-interrupter (GFCI) protection is now required for lighting outlets of crawl spaces.
- E3906.3 Where entering a metal box, nonmetallic sheathed cable must extend into the box at least $\frac{1}{4}$ inch and extend past the cable clamp.

Chapter 41 Electrical Appliance Installation:

- E4101.3 The maximum cord lengths for range hoods and built-in dishwashers have increased, and the code clarifies that the receptacle outlet for the dishwasher must be in a space adjacent to the appliance.

