Commerce City Amendments

to the

2018 International Residential Code

The city of Commerce City adopts the 2018 edition of the International Residential Code, including Appendices H, J, K, and M, and the standards referenced in such code and appendix (the "IRC"), save and except such amendments as set forth in this article.

The 2018 edition of the International Residential Code is amended in the following respects and adopted herein as amended (effective date December 4, 2019 and amended on August 2, 2021 and October 4, 2021).

(a) Section R101.1 is amended to read as follows:

R101.1 Title. These regulations shall be known as the Residential Code for One-and Two-family Dwellings of the city of Commerce City, hereinafter referred to as "this code."

(b) Section R102.2, entitled "Other Laws," is amended by addition of the following:

Whenever any county health department, state or federal law or regulation imposes a greater or more restrictive requirement than required by this code, the provisions of those laws or regulations shall govern. Whenever the requirements imposed by this code are greater or more restrictive than the requirements imposed by any other law or regulation or resolution of any governmental body, then the requirement of this code shall govern.

(c) Section R103, entitled "Department of Building Safety," is deleted in its entirety and the following is added in lieu thereof:

SECTION R103 - CODE ADMINISTRATION

R103.1 Entity charged with code administration. The Community Development Department, as established by the Commerce City Revised Municipal Code, is charged with the administration and enforcement of this code.

R103.2 Building official. The building official, appointed by the city manager, is charged with the direct overall administration and enforcement of this code; and, in the performance of said duties, may delegate the necessary authority to the appropriate technical, administrative, and compliance staff under the supervision of the building official.

(d) Section R104.6, entitled "Right of entry," is deleted in its entirety and the following is added in lieu thereof:

R104.6 Right of entry. The building official's right to enter and inspect property shall be exercised in accordance with section 1-3001 of the Commerce City Revised Municipal Code, as amended from time to time.

(e) Section R105.2, entitled "Work exempt from permit," is amended to read as follows:

R105.2 Work exempt from permit. Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinances of this jurisdiction. Permits shall not be required for the following:

Building:

1. One-story detached accessory structures, provided that the floor area does not exceed 256 square feet (23.78 m^2). For the purpose of this Section, accessory structures shall include by way of illustration but not by limitation; site-constructed and pre-manufactured treehouses, playhouses, greenhouse and nursery type structures; pergolas,

gazebos and similar shade structures with wood, composite, fabric, plastic or metal roof coverings including structures intended for day and/or seasonal use; tool, garden and storage sheds; hobby, shop, craft and similar recreational use buildings and structures.

2. Fences not over 72 inches (829 mm) high unless used for the barrier of a swimming pool.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1,220 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or III A liquids.
5. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18,927 L) and the ratio of height to diameter or width does not exceed 2:1.
6. Sidewalks, driveways and similar "flat work" when located entirely upon private property and whether constructed of concrete, asphalt, bricks, paving-stones and similar materials including surfacing materials permitted by the Commerce City Land Development Code and/or Commerce City Engineering and Construction Specifications and Public Works Department. This does not include driveway aprons, driveway approaches, curb and gutter, curb-cuts, sidewalks and/or any other work located within the public right-of-way.
7. Painting, papering, tiling, carpeting, cabinets, millwork, trim, casing, countertops and similar finish work.
8. Prefabricated swimming pools that are less than 24 inches (1,220 mm) deep.
9. Swings and other playground equipment.
10. Window awnings supported by an exterior wall that do not project more than 54 inches (1,372 mm) from the exterior wall and do not require additional support.
11. Decks not exceeding 256 square feet (23.78 m^2) in area that are not more than 30 inches (762 mm) above grade at any point, are not attached to a dwelling and do not serve the exit door required by Section R311.4.
12. Minor repair work to interior drywall to non-fire-resistive rated construction.
13. Minor, cosmetic repairs to existing dwellings not involving structural members, load-bearing walls, fire resistive rated construction, electrical, plumbing, mechanical systems, fire protection systems or elevator or escalator systems and equipment.
14. Concrete or masonry walls not over 72 inches (1,829 mm) high unless used for the barrier of a swimming pool. Ornamental column caps shall not be considered to contribute to the height of the wall and shall be permitted to extend above the 72-inch (1,829-mm) height measurement.
15. Flagpoles 30 feet (9,144 mm) or less in height.
16. Temporary ramps where the height of the entrance served by the ramp is no more than 30 inches (762 mm) above grade.
17. Replacement of windows and doors with windows and doors of similar operation and opening dimensions that do not require changes to the existing framed opening and that are not required to be fire rated.
18. Replacement of an unlimited amount of roof covering or siding and replacement of 100 square feet (9.29 m^2) or less of roof covering in all groups.
19. Replacement of 256 square feet (23.78 m^2) or less of roof decking unless the decking to be replaced was required at the time or original construction to be fire-retardant-treated or protected in some other way to form a fire-rated wall termination.
20. Replacement of interior wall or ceiling finishes.
21. Installation or replacement of floor finishes.
22. Building work or repairs deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

Electrical:

1. Electrical utilization equipment energized by means of a cord or cable having an attachment plug end to be connected to an approved receptacle when that cord or cable is permitted by the National Electric Code.
2. Repair or replacement of stationary electric utilization equipment of the same type and rating in the same location.
3. Reinstallation of attachment plug receptacles, but not the outlets therefor.
4. Repair or replacement of any overcurrent devices of the correct voltage, interrupting rating and ampere rating in the same location.
5. Repair or replacement of ballasts, transformers, or electronic power supplies of the same size and rating for signs, outline lighting systems, or field installed skeleton tubing.
6. Removal of electrical wiring or equipment.

7. Temporary wiring for experimental purposes in suitable experimental laboratories.
8. The installation, alteration, or repair of electrical wiring or equipment for the generation, transmission, distribution, or metering of electrical energy or in the operation of signals or the transmission of intelligence by a public or private utility in the exercise of its function as a serving utility.
9. Listed cord-and-plug connected temporary decorative lighting.
10. Electrical wiring, devices, appliances, appliance apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.
11. Minor repair work including the replacement of lamps or the connection of approved, portable electrical equipment to approved permanently installed receptacles.
12. Electrical work exempted by CRS Title 12, Article 23, Section 111 as may be amended by the state of Colorado.
13. Electrical work or repairs deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

Gas:

1. Portable heating, cooking or clothes drying appliances.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
3. Portable fuel-cell appliances and equipment not connected to a fixed piping system and not connected to a power grid.
4. Gas work or repairs deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

Mechanical:

1. Portable heating appliances.
2. Portable ventilation appliances.
3. Portable cooling units.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.5 kilograms) or less of refrigerant or that are actuated by motors of 1 horsepower (0.74 kW) or less.
8. Portable fuel-cell appliances and equipment not connected to a fixed piping system and not connected to a power grid.
9. Mechanical work or repairs deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste, or vent pipe: provided, however, that if any concealed trap, drainpipe, water, soil, waste, or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work, and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves, or fixtures and the removal and reinstallation of water closets, tubs, tub-shower combinations, showers, sinks, lavatories and similar plumbing fixtures, provided such repairs, removals or replacements do not involve or require the replacement or rearrangement of valves, pipes or fixtures or the removal or replacement of building finishes or alter any accessibility requirements.
3. Plumbing work or repairs deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

(f) Section R105.2.3, entitled "Public service agencies," is amended to read as follows:

R105.2.3 Public service agencies. A permit shall not be required for the installation, alteration, or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right or by public service agencies or utilities regulated by the state of Colorado Public Utilities Commission.

(g) Section 105.6, entitled "Suspension or revocation," is amended to read as follows:

105.6 Suspension or revocation. The building official is authorized to suspend or revoke a permit issued under the provisions of this code whenever a permit is issued in error, or on the basis of incorrect, inaccurate or incomplete information, or is obtained by fraudulent means, or is in violation of any ordinance or regulation of any of the provisions of this code, other ordinances or laws of the city, state or federal government.

(h) Section R108, entitled "Fees" is deleted in its entirety and the following is added in lieu thereof:

SECTION R108 - FEES

R108.1 Payment of fees. The fees for any permit issued pursuant to this code, as well as related fees for work done in connection to or concurrently with the work authorized by a building permit, shall be set by resolution of the city council. The city council is also authorized to establish a refund policy, and to impose additional fees for any person who commences any work before obtaining the necessary permits. No permit shall be valid until the appropriate fees have been paid, except emergency permits issued pursuant to Section R105.2.1.

R108.2 Building permit valuations. The applicant for a permit shall provide an estimated permit value at the time of application. Permit valuations shall include total value of all work including materials and equipment whether new or existing, donated or salvaged) and labor, for which the permit is being issued, such as electrical, fuel gas, mechanical, plumbing, roofing, elevators, fire extinguishing and alarm systems, building finishes and other permanent systems and equipment. If, in the opinion of the building official, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the building official.

The final determination of value or valuation under any of the provisions of this code shall be made by the building official. The value to be used in computing the building permit and building plan review fees shall be the total value of all work as described above. Where the permit applicants stated valuation is incomplete or under reported, the building official shall use the most recent Building Valuation Data published by the International Code Council to determine appropriate valuation.

After the completion of a project, an audit may be requested by the permit applicant or the city to establish the actual permit valuation. If the permit applicant requests an audit, he or she must do so within 60 days after the date the project is completed. Where actual valuation differs from the stated valuation, the required fees shall be reconciled, where indicated, excess fees collected shall be refunded or additional required fees shall be assessed.

(i) Section R112, entitled "Board of Appeals," is deleted in its entirety and the following is added in lieu thereof:

SECTION R112 – APPEALS

R112.1 Board of appeals. In order to hear and decide appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. For provisions relating to the board of appeals, see Section 5-21 of the Commerce City Revised Municipal Code.

(j) Section R113, entitled "Violations," is deleted in its entirety and the following is added in lieu thereof:

SECTION R114 – VIOLATIONS

R113.1 Unlawful acts. No person or entity shall violate a provision of this code or fail to comply therewith or with any of the requirements thereof. No person or entity shall fail to comply with any order issued by the building official under this code. No person or entity shall erect, construct, enlarge, alter, extend, repair, move, remove, improve, convert, demolish, equip, use, occupy, or maintain any building or structure in the city or cause or permit the same to be done except in conformity with all of the provisions of this code and in conformity with the terms and conditions of any permit, certificate, or other approval issued under this code, or of any directive of the building official.

R113.2 Penalties and enforcement. Violations of this code are subject to enforcement through the penalties, procedures, and remedies specified in Article V, Chapter 5 and other applicable provisions of the Commerce City Revised Municipal Code, at the discretion of the city.

(k) Section R114, entitled "Stop Work Order," is deleted in its entirety and the following is added in lieu thereof:

SECTION R114 – STOP WORK ORDER

R114.1 General provisions. Where the building official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or in a manner that is dangerous or unsafe, the building official is authorized to issue a stop work order in accordance with the provisions of Section 5-5007 of the Commerce City Revised Municipal Code, as may be amended from time to time.

(l) Section R202, entitled "definitions," is amended to add new definitions as follows:

Manufactured housing hookup-sewer. That portion of drainage piping and fittings connecting a single point of drainage pipe discharge from the factory installed plumbing of a manufactured home to the sanitary sewer riser under the set home (more than a single connection to the home drainage piping shall be considered "plumbing" as defined in 12-58-102 C.R.S. and subject to provisions of Article 58, Title 12 C.R.S.)

Manufactured Housing Hookup-Water. That portion of piping and fittings connecting a single point of water supply from the factory installed water supply pipe of a manufactured home to the potable water riser under the set home.

Sleeping room. A habitable space that meets the minimum area requirements of the building code and contains a closet or an area that is readily convertible to a closet. An adjacent area fitted with permanently affixed floor to ceiling shelving and no clothes rod may be defined as a storage room in a non-sleeping room.

(m) Section R301.2, entitled "Climatic and geographic design criteria," is amended to include completion of Table R301.2(1)

TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW LOAD[o]		30 psf Reduction of snow load below 30 psf is not permitted without written approval of the building official and is only allowed for special conditions and supported by engineering analysis
WIND DESIGN	**Wind Speed[d] (mph)**	115
	Topographic Effects[k]	No
	Special Wind Region[l]	No
	Windborne Debris Zone[m]	No
SEISMIC DESIGN CATEGORY[t]		B
SUBJECT TO DAMAGE FROM	**Weathering[a]**	Severe
	Frost Line Depth[b]	36 inches
	Termite[c]	Slight to moderate
WINTER DESIGN TEMPERATURE[e]		1° F
ICE BARRIER UNDERLAYMENT REQUIRED[h]		No
FLOOD HAZARDS[g]		1978 (date of entry in NFIP) 2007/2017 (current FIRM map revision date)
AIR FREEZING INDEX[i]		≤1,500° F
MEAN ANNUAL TEMP[j]		50° F

MANUAL J DESIGN CRITERIA[n]

Elevation	5,160 feet
Latitude	39.81
Winter Heating	7° F
Summer Cooling	92° F
Altitude Correction Factor	0.84
Indoor Design Temperature Heating	70° F (72° maximum)
Design Temperature Cooling	75° F (minimum)
Heating Temperature Difference	63° F
Cooling Temperature Difference	17° F
Wind Velocity Heating	15 mph
Wind Velocity Cooling	7.5 mph
Coincident Wet Bulb	60° F
Daily Range	High
Winter Humidity	30 percent
Summer Humidity	50 percent

(n) Section R302.1, entitled "Exterior wall," is amended by the following revisions to Table R302.1.

TABLE R302.1(1)
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls[cd]	Fire-resistance rated	1 hour—tested in accordance with ASTM E 119, UL 263 or Section 703.3 of the *International Building Code* with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Not allowed	N/A	2 feet
	Fire-resistance rated	1 hour on the underside[ab]	≥2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	N/A	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm

N/A = Not applicable

a. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave if fire-blocking is provided from the wall top plate to the underside of the roof sheathing.

b. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave provided that gable vent openings are not installed.

c. For the purpose of determining when a wall is not required to be fire-resistive rated, the measurement shall be from the line used to determine the fire separation distance to the face of the vertical foundation provided the wall framing, wall sheathing and wall cladding together do not project more than 1-1/2 inches (38 mm) from the face of the vertical foundation. Where wall framing, wall sheathing and wall cladding together project more than 1-1/2 inches (38 mm) from the vertical foundation, measurement shall be from the vertical face of wall framing, sheathing and wall cladding closest to the line used to determine fire separation distance.

d. Fire separation distance of 3 feet (914 mm) can be used if the exterior wall cladding and trim is of non-combustible material. No fire-resistance-rating required

(o) Section R302.3.1, entitled "Two-family dwellings separated by lot lines," is a new section added to read as follows:

R302.3.1 Two-family dwellings separated by lot lines. Dwelling units in two-family dwellings separated by a lot line shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.2 for Townhouses.

(p) Section R302.3.1, entitled "Supporting construction," is amended to a new Section R302.3.1.1.

(q) Section 302.13, entitled "Fire protection of floors," is deleted in its entirety.

(r) Section R305.1.1, entitled "Basements," is deleted in its entirety.

(s) Section R310.1, entitled "Emergency escape and rescue opening required," is amended to read as follows:

R310.1 Emergency escape and rescue opening required. Habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. In unfinished basements, not less than 50 percent of windows provided shall be operable emergency escape and rescue openings, but in no case less than one. Emergency escape and rescue openings shall be evenly distributed around the perimeter of the basement. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exception: Storm shelters and basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.6 m^2) and having ceiling heights less than that required by Section 305.1.

(t) Section R310.2.3, entitled "Window wells," is amended to read as follows:

R310.2.3 Window wells. The horizontal area of the window well shall not be less than 9 square feet (0.84 m^2) with a horizontal projection and width not less than 36 inches (914 mm). The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

Exceptions:

1. The ladder or steps required by Section R310.2.3.1 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimension of the window well.
2. In existing basements with existing window wells, the minimum horizontal area of the window well shall be 8 square feet (0.74 m^2), with a minimum horizontal projection of 24 inches (610 mm), and a minimum width of 48 inches (1,220 mm). The ladder or steps required by Section R310.2.3.1 shall be installed on the fixed window glazing side of the window well and shall be permitted to encroach a maximum of 6 inches (152 mm) into the required dimensions of the window well.

(u) Section R311.2, entitled "Egress door," is amended to read as follows:

R311.2 Egress door. At least one egress door shall be provided for each dwelling unit. The egress door, and other exterior doors including the door from the dwelling to an attached garage and exterior doors in attached and detached garages, shall be side-hinged, and shall provide a minimum clear width of 32 inches (813 mm) when measured between the face of the door and the stop, with the door open 90 degrees. The minimum clear height of the door opening shall not be less than 80 inches (2,032 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort.

Exception: Sliding glass doors located in an exterior wall may be less than 32 inches (813 mm) minimum clear width but must be a minimum of 80 inches (2,032 mm) in height provided it is not the dwellings only egress door.

(v) Section R312.1.1, entitled "Where required," is amended to read as follows:

R312.1.1 Where required. Guards shall be provided for those portions of open sided walking surfaces, including stairs, ramps, landings and window wells, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.

(w) Section R312.2.1, entitled "Where required," is amended to read as follows:

R312.2.1 Window sills. In dwelling units, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor, furred wall, bench, seat, step, or similar and greater than 72 inches (1,829 mm) above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable window openings will not allow a 4-inch (102-mm) diameter sphere to pass through where the openings are in their largest opened position.
2. Operable windows are provided with window fall prevention devices that comply with ASTM F2090.
3. Operable windows are provided with window opening control devices that comply with Section R312.2.2.

(x) Section R313.1, entitled "Townhouse automatic fire sprinkler systems," is amended to read as follows:

R313.1 Townhouse automatic fire sprinkler systems. An automatic fire sprinkler may be installed in townhouses.

Exception: An automatic fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic fire sprinkler system installed.

(y) Section R313.1.1, entitled "Design and installation," is amended to read as follows:

R313.1.1 Design and installation. When provided, automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.

(z) Section R313.2, entitled "One- and two-family dwellings automatic sprinkler systems," is amended to read as follows:

R313.2 One- and two-family dwelling automatic sprinkler systems. An automatic residential fire sprinkler system may be installed in one- and two-family dwellings.

Exception: An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential sprinkler system.

(aa) Section R313.2.1, entitled "Design and installation," is amended to read as follows:

R313.2.1 Design and installation. When provided, automatic residential fire sprinkler systems for one- and two-family dwellings shall be designed and installed in accordance with Section P2904 or NFPA 13D.

(bb) Section R315.1, entitled "General," is amended to read as follows:

R315.1 General. Carbon monoxide alarms shall be installed and maintained as required by and in compliance with C.R.S. § 38-45-101, et seq., as amended. If C.R.S. § 38-45-101, et seq., as amended is more restrictive than any Section of R315 then the provisions of C.R.S. § 38-45-101, et seq., as amended shall be controlling. If any Section of R315 is more restrictive than provisions of C.R.S. § 38-45-101, et seq., as amended than provisions of the Section of R315 shall be controlling.

(cc) Section R401.3.1, entitled "Grading performance certification," is added to read as follows:

R401.3.1 Grading performance certification. Prior to issuance of a certificate of occupancy or temporary certificate of occupancy, a grading performance certificate shall be provided to the building official. The document shall be prepared by a Colorado licensed professional land surveyor or professional engineer and shall contain the land surveyor's or engineer's seal and signature and date through the seal. The grading performance certificate shall indicate and affirm the following:

1. Lot grading type as depicted in the city approved grading and drainage plan for the lot or site.
2. Top of foundation (not top of finished floor) elevation.
3. Direction of storm-water flows using directional icons or indicators.
4. Final/finished lot grade elevations at lot corners and all sides of the building envelope.
5. All final/finished lot grading high points.
6. Swales constructed in accordance with the city approved grading and drainage plan for the lot or site.
7. Percent slopes within the first 10 feet (3,048 mm) of the building envelope and on all sides of the building indicating conformance with Section R401.3 or the Exception to Section R401.3.
8. Other surface drainage improvements constructed or installed to comply with Section R401.3 or the Exception to Section R401.3.
9. A certification statement that the lot or site has been inspected by the professional land surveyor or professional engineer who prepared the grading performance certificate or a person under their responsible charge and direct supervision.
10. A certification statement the lot grading and drainage is in conformance with the city approved grading and drainage plan for the lot or site.

(dd) Section R403.1, entitled "General," is amended to read as follows:

R403.1 General All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, crushed stone footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads according to R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils or engineered fill. Concrete footing shall be designed and constructed in accordance with the provisions of Section R403 or in accordance with ACI 332.

Exception: One-story, detached, unheated accessory structures used as tool and storage sheds, playhouses and similar uses but not including garages or similar structures for the parking of motor vehicles, provided the floor area does not exceed 400 square feet (37.2 m^2). These buildings and structures may be supported on 4-inch by 4-inch (102-mm by 102-mm) "skids" of treated wood or wood of natural resistance to decay incorporated into the floor's supporting system at intervals not exceeding 4 feet (1,219 mm) on center. Such structures shall be anchored to the ground with approved materials to resist all applicable loads.

(ee) Section R905.2.8, entitled "Drip edge," is amended to read as follows:

R905.2.8 Drip edge. A corrosion-resistant metal drip edge of a minimum nominal 0.019-inch (0.5-mm) shall be provided at eaves and rake edges of shingle roofs. Adjacent segments of drip edge shall be overlapped not less than 2 inches (51 mm). Drip edges shall extend not less than 1/4 inch (6 mm) below the roof sheathing and extend up back onto the roof deck not less than 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof deck at not more than 12 inches (305 mm) on center with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves and under the drip edge along rake edges.

(ff) Section R908.1, entitled "General," is amended to read as follows:

R908.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 9.

Exceptions:

1. Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section R905 for roofs that provide positive roof drainage and have been evaluated by a registered design professional for the increase in loading due to potential ponding of water.
2. For roofs that provide positive drainage, re-covering or replacing an existing roof covering shall not require the secondary (emergency overflow) drains or scuppers of Section R903.4.1 to be added to an existing roof.

(gg) Section R908.1.1, entitled "Extent of replacement," is added to read as follows:

R908.1.1 Extent of replacement. When more than one square of asphalt shingles is required to be replaced over the aggregate area of the roof and a permit is required, every slope containing damaged shingles shall be replaced in its entirety. The interface of different types of shingles shall only occur at a ridge, hip or open valley.

(hh) Section R1004.1, entitled "General," is amended to read as follows:

R1004.1 General. Factory-built fireplaces shall be listed and labeled and shall be installed in accordance with the conditions of the listing. Factory-built fireplaces shall be tested in accordance with UL 127. Every new or altered solid fuel burning factory-built fireplace shall have permanently installed either:

1. Approved gas logs.
2. Other approved gas or alcohol specific appliances.
3. A phase III certified device as defined in the Colorado Department of Public health and Environment, Air Quality Control Commission, Regulation Number 4 "Sale and Installation of Wood-Burning Appliances and the Use of Certain Wood-Burning Appliances during High Pollution Days," or other solid fuel burning device meeting the most stringent emission standards for wood stoves established under state statute and/or regulations promulgated by the Colorado Air Quality Control Commission existing at the time of installation of the factory-built fireplace, as demonstrated by a test by an Environmental Protection Agency accredited laboratory and which is safety tested to Underwriter's Laboratory standards.

(ii) Section R1004.4, entitled "Unvented gas log heaters," is amended to read as follows:

R1004.4 Unvented gas log heaters. An unvented gas log heater shall not be installed in a factory-built fireplace.

(jj) Section N1101.14, entitled "Certificate (Mandatory)," is amended to read as follows:

N1101.14 (R401.3) Certificate (Mandatory). A permanent certificate shall be completed by the builder or other approved party and posted on a wall in the space where the furnace is located, a utility room or an approved location inside the building. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall indicate the predominant R-values of insulation installed in or on ceilings, roofs, walls, foundation components such as slabs, basement walls, crawl space walls and floors, and ducts outside conditioned spaces; U-factors of fenestration and the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing performed on the building. Where there is more than one value for each component, the certificate shall indicate the value covering the largest area. The certificate shall indicate the types and efficiencies of heating, cooling and service water heating equipment. Where electric furnace, or baseboard electric heater is installed in the residence, the certificate shall indicate "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be indicated for room heaters, electric furnaces and electric baseboard heaters.

(kk) Section N1103.3.3 (R403.3.3), entitled "Duct testing (Mandatory)," is amended to read as follows:

N1103.3.3 (R403.3.3) Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by a rough-in test. The total leakage shall be measured with a pressure differential of 0.1-inch water gauge (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. The total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.3 m^2) 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 3 cubic feet per minute (85 L/min) per 100 square feet (9.3 m^2) of conditioned floor area.

Exception: A duct air-leakage test shall not be required for ducts serving heat or energy recovery ventilators that are not integrated with ducts serving heating or cooling systems.

(ll) Section N1103.3.4 (R403.3.4), entitled "Duct leakage (Prescriptive)," is deleted in its entirety.

(mm) Section M1401.1, entitled "Installation," is amended to read as follows:

M1401.1 Installation. Heating and cooling equipment and appliances shall be installed in accordance with the manufacturer's installation instructions and the requirements of this code. Unvented heating appliances and equipment shall not be installed in dwellings, dwelling units and other habitable buildings.

(nn) Section M1503.3, entitled "Exhaust discharge," is amended to read as follows:

M1503.3 Exhaust discharge. Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct shall have a smooth interior surface, shall be installed with positive slope towards the appliance connected to the duct or otherwise be installed in a manner preventing accumulations of grease, shall be air-tight, shall be equipped with a backdraft damper and shall be independent of all other exhaust systems. Ducts serving domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

Exception: Where installed in accordance with the manufacturer's instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

(oo) Section M1602.2, entitled "Return air openings," is amended to read as follows:

M1602.2 Return air openings. Return air openings for heating, ventilation and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3,048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturer's installation instructions, Manual D or the design of the registered design professional.
4. Return air opening shall be provided on each floor or level of the dwelling. Dilution of return air with outdoor air is allowed.
5. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only and are located not less than 10 feet (3,048 mm) from the cooking appliances.
   2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
6. For other than dedicated HVAC systems, return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where the air in such spaces is dehumidified.
7. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.

8. Return air from one dwelling unit shall not be discharged into another dwelling unit.

(pp) Section M1801.1, entitled "Venting required," is amended to read as follows:

M1801.1 Venting required. Fuel-burning appliances shall be vented to the outdoors in accordance with their listing and label and manufacturer's installation instructions. Venting systems shall consist of approved chimneys or vents, or venting assemblies that are integral parts of labeled appliances. Gas-fired appliances shall be vented in accordance with Chapter 24.

(qq) Section G2406.2, entitled "Prohibited locations," is amended to read as follows:

G2406.2 Prohibited locations. Appliances shall not be located in sleeping rooms, bathrooms, toilet rooms, storage closets or surgical rooms, or in a space that opens only into such rooms or spaces, except where the installation complies with one of the following:

1. The appliance is a direct-vent appliance installed in accordance with the conditions of the listing and the manufacturer's instructions.
2. Vented room heaters, wall furnaces, vented decorative appliances, vented gas fireplaces, vented gas fireplace heaters and decorative appliances for installation in vented solid fuel-burning fireplaces that are installed in rooms that meet the required volume criteria of Section G2407.5.
3. The appliance is installed in a room or space that opens only into a bedroom or bathroom, and such room or space is used for no other purpose and is provided with a solid weather-stripped door equipped with an approved self-closing device. Combustion air shall be taken directly from the outdoors in accordance with Section G2407.6.
4. A clothes dryer is installed in a residential bathroom or toilet room having a permanent opening with an area of not less than 100 square inches (0.06 m^2) that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet.

(rr) Section G2415.12 (404.12), entitled "Minimum burial depth," is amended to read as follows:

G2415.12 (404.12) Minimum burial depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. Underground plastic piping systems shall be installed a minimum depth of 18 inches (457 mm) below grade.

(ss) Section G2415.12.1 (404.12.1), entitled "Individual outdoor appliances," is deleted in its entirety.

(tt) Section G2417.4.1 (406.4.1), entitled "Test pressure," is amended to read as follows:

G2417.4.1 (406.4.1) Test pressure. The test pressure to be used shall be not less than 1-1/2 times the proposed maximum working pressure, but not less than 20 psig (138 kPa) for 15 minutes irrespective of design pressure. Low pressure gas shall be defined as 14 inches of water column (0.35 kPa) or less. Where the test pressure exceeds 125 psig (862 kPa), the test pressure shall be noted on the construction documents and shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe. The minimum test pressure for any other gas system shall be 60 pounds (414 kPa) per square inch for 30 minutes.

(uu) Section G2417.4.2 (406.4.2), entitled "Test duration," is deleted in its entirety.

(vv) Section G2425.8 (505.8), entitled "Appliances not required to be vented," is amended to read as follows:

G2425.8 (501.8) Appliances not required to be vented. The following appliances shall not be required to be vented:

1. Ranges.
2. Built-in domestic cooking units listed and marked for optional venting.

3. Hot plates and laundry stoves.
4. Type 1 clothes dryers (Type 1 clothes dryers shall be exhausted in accordance with the requirements of Section G2439).
5. Refrigerators.
6. Counter appliances.

Where the appliances listed in Items 5 and 6 are installed so that the aggregate input rating exceeds 20 Btu per hour per cubic foot (207 W/m^3) of volume of the room or space in which such appliances are installed, one or more shall be provided with venting systems or other approved means for conveying the vent gases to the outdoor atmosphere. Where the room or space in which the appliance is installed is directly connected to another room or space by a doorway, archway or other opening of comparable size that cannot be closed, the volume of such adjacent room or space shall be permitted to be included in the calculations.

(ww) Section G2431.2, entitled "Prohibited appliances," is a new section added to read as follows:

G2431.2 Prohibited appliances. Unvented room heaters, unvented gas logs, unvented decorative appliances and/or unvented appliances other than those described in Section G2425 shall not be installed in any dwelling, dwelling unit, or other habitable building.

(xx) G2445 (621), entitled "Unvented room heaters," is deleted in its entirety.

(yy) Section P2503.5.1, entitled "Rough plumbing," is amended to read as follows:

P2503.5.1 Rough plumbing. DWV systems shall be tested on completion of the rough piping installation by water or, for piping systems by air, without evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough-in piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 5 feet (1,524 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. The portion under test shall be maintained at a gauge pressure of 5 psi (34.5 kPa) or 10 inches of mercury column.

This pressure shall be held without introduction of additional air for a period of 15 minutes.

(zz) Section P2503.6 entitled "Shower liner test," is deleted in its entirety.

(aaa) Section P2503.7 entitled "Water supply system testing," is amended to read as follows:

P2503.7 Water supply system testing. Upon completion of the water-supply system or a section of it, the system or portion completed shall be tested and proved tight under a water pressure of not less than the working pressure of the system by an air test of not less than 50 psi (345 kPa). This pressure shall be held for not less than 15 minutes. The water used for tests shall be obtained from a potable water source.

Exception: For PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by the manufacturer's instructions for the PEX pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws or regulations outside of this code.

(bbb) Section P2503.8.2, entitled "Testing," is deleted in its entirety.

(ccc) P2601.2 entitled "Connection to drainage system," is deleted in its entirety.

(ddd) Section P2603.3 entitled "Protection against corrosion," is amended to read as follows:

P2603.3 Protection against corrosion. Piping, except for cast iron, ductile iron and galvanized steel, shall not be placed in direct contact with steel framing members, concrete or masonry. Piping shall not be placed in direct contact with corrosive soil. Where sheathing is used to prevent direct contact, the sheathing material thickness shall be not less than 0.008 inch (0.2 mm) and shall be made of plastic.

Where sheathing protects piping that penetrates concrete or masonry walls or floors, the sheathing shall be installed in a manner that allows movement of the piping within the sheathing.

(eee) Section P2603.5, entitled "Freezing," is amended to read as follows:

P2603.5 Freezing. In localities having a winter design temperature of 32°F (0°C) or lower as shown in Table R301.2 (1) of this code, a water, soil or waste pipe shall not be installed outside of a building, in exterior walls, in attics or crawl spaces, or in any other place subjected to freezing temperature unless adequate provision is made to protect it from freezing by insulation or heat or both. Water service pipe shall be installed not less than 48 inches (1,220 mm) below finish grade.

(fff) Section P2603.5.1, entitled "Sewer depth," is amended to read as follows:

P2603.5.1 Sewer depth. Building sewers shall be not less than 12 inches (305 mm) below grade.

(ggg) Section P2705.1 entitled "General," is amended to read as follows: SECTION 2705 - INSTALLATION

P2705.1 General. The installation of fixtures shall conform to the following:

1. Floor-outlet or floor-mounted fixtures shall be secured to the drainage connection and to the floor, where so designed, by screws, bolts, washers, nuts and similar fasteners of copper, copper alloy or other corrosion resistant material.
2. Wall-hung fixtures shall be rigidly supported so that strain is not transmitted to the plumbing system.
3. Where fixtures come in contact with walls and floors, the contact area shall be watertight.
4. Plumbing fixtures shall be usable.
5. Water closets, lavatories and bidets. A water closet, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition or vanity or closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall be a clearance of not less than 21 inches (533 mm) in front of a water closet, lavatory or bidet to any wall, fixture or door.
6. The location of piping, fixtures or equipment shall not interfere with the operation of windows or doors.
7. In flood hazard areas as established by Table R301.2(1), plumbing fixtures shall be located or installed in accordance with Section R322.1.6.
8. Integral fixture-fitting mounting surfaces on manufactured plumbing fixtures or plumbing fixtures constructed on site, shall meet the design requirements of ASME A112.19.2/CSA B45.1 or ASME A112.19.3/CSA B45.4.

Exception: Lavatory clearance from its center to any sidewall or partition may be reduced to a minimum of 12 inches (305 mm).

(hhh) Section P2708.3, entitled "Water supply riser," is amended to read as follows:

P2708.3 Water supply riser. Water supply risers from the shower valve to the shower head outlet, whether exposed or concealed, shall be attached to the structure using support devices designed for use with the specific piping material or fittings anchored with screws. The rough-in height shall be not less than 75 inches (1,905 mm) above the shower or tub drain.

(iii) Section P2708.6, entitled "Shower head location," is added to read as follows:

P2708.6 Shower head location. Shower heads shall be so located on the sidewall of shower compartments or be arranged so the shower head does not discharge directly at the entrance to the compartment and the bather can adjust the valve prior to stepping into the shower spray.

(jjj) Section P2717.3, entitled "Dishwasher drain," is added to read as follows:

P2717.3 Dishwasher drain. Dishwashers may drain into a standpipe complying with Section P2706.1.2 as shown in the Figure 2717.3. The standpipe shall be provided with an air break.

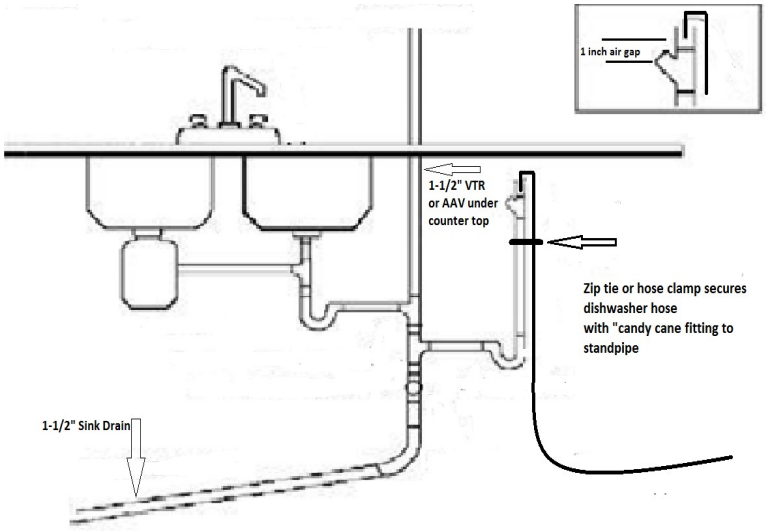

FIGURE P2717.3
DISHWASHER DRAIN

(kkk) Section P2801.6, entitled "Required pan," is amended to read as follows:

P2801.6 Required pan. Where a storage tank-type water heater or a hot water storage tank is installed in a location where water leakage from the tank will cause damage, the tank shall be installed in a pan constructed of one of the following:

1. Galvanized steel or aluminum of not less than 0.0236 inch (0.6 mm) in thickness.
2. Plastic not less than 0.036 inch (0.9 mm) in thickness.
3. Other approved materials.

A plastic pan beneath a gas-fired water heater shall be constructed of material having a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

Exception: Where the building official deems it impractical to install a pan for a replacement water heater due to space restrictions, a water alarm device may be used in lieu of the pan.

(lll) Section P2804.6.2, entitled "Collection of relief valve discharge," is added to read as follows:

P2804.6.2 Collection of relief valve discharge. A means shall be provided to capture the discharge from a relief valve and convey it to the sanitary drainage system or exterior of the structure either by gravity or a pumped discharge.

Exceptions:

1. Replacements for existing water heaters.
2. Where a water sensing device wired to a normally closed solenoid valve installed in the water supply piping to the heater, is placed within the water heater drain pan.

(mmm) Section P2804.6.2.1, entitled "Pumped discharge of relief valve collection," is added to read as follows:

P2804.6.2.1 Pumped discharge of relief valve collection. Pumps used to discharge the clear water collection of relief valves shall have an operating temperature equal to or exceeding that of the relief valve discharge temperature and shall have a gallons per minute (L/min) rating equal to or greater than the discharge of the relief valve.

(nnn) Section P2901.1, entitled "Potable water required," is amended to read as follows:

P2901.1 Potable water required. Potable water shall be supplied to plumbing fixtures and plumbing appliances except where treated rainwater, treated gray water or municipal reclaimed water is supplied to water closets, urinals and trap primers.

(ooo) Section P2901.2.1, entitled "Signage required," is amended to read as follows:

P2901.2.1 Signage required. Plumbing fixtures flushed with non-potable water shall be identified with signage that reads as follows: "Non-potable water is used to flush this fixture. CAUTION: NON-POTABLE WATER – DO NOT DRINK." and the pictograph shown in figure P2901.2.1 shall appear on the required signage.

(ppp) Section P2901.2.2, entitled "Distribution pipe labeling and marking," is amended to read as follows:

P2901.2.2 Distribution pipe labeling and marking. Non-potable distribution piping shall be purple in color or the piping shall be installed with a purple identification tape or wrap the entire length of the piping and shall be embossed, or integrally stamped or marked with the words: "CAUTION: NONPOTABLE WATER – DO NOT DRINK."

(qqq) Section P2901.2.3, entitled "Gray water for toilet and urinal flushing," is added to read as follows:

P2901.2.3 Gray water for toilet and urinal flushing. Graywater used for toilet and urinal flushing shall be dyed with blue or green food grade vegetable dye and be visibly distinct from potable water.

(rrr) Section P2902.5.6, entitled "Connection to graywater system," is added to read as follows:

P2902.5.6 Connection to graywater system. The potable water system connection to a graywater system must be protected against backflow by an air gap or reduced pressure principle backflow prevention assembly.

(sss) Section P2903.3.1, entitled "Maximum pressure," is amended to read as follows:

P2903.3.1 Maximum pressure. The maximum static water pressure shall be not greater than 80 psi (552 kPa). An approved pressure-reducing valve conforming to ASSE 1003 shall be installed on all domestic water branch mains or risers at the connection to the water-service pipe.

(ttt) Section P2904.1, entitled "General," is amended to read as follows:

P2904.1 General. Where installed, residential fire sprinkler systems, or portions thereof, shall be in accordance with NFPA 13D or Section P2904, which shall be considered equivalent to NFPA 13D. Section P2904 shall apply to multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall supply domestic water to both fire sprinklers and plumbing fixtures. A backflow preventer shall not be required to separate the sprinkler system from the water distribution system.

(uuu) Table P2906.4, entitled "the copper or copper-alloy tubing row," is amended to read as follows:

Copper or copper-alloy tubing (Type K, WK, L, or WL)[a]	ASTM B75/B75M; ASTM B88; ASTM B251; ASTM B447

a. When using copper or copper–alloy tubing below grade, Type K or WK shall be used.

(vvv) Table P2906.5 entitled "the copper or copper-alloy tubing row" is amended to read as follows:

Copper or copper-alloy tubing (Type K, WK, L, or WL,)[a]	ASTM B75/B75M; ASTM B88; ASTM B251; ASTM B447

a. When using copper or copper–alloy tubing below grade, Type K or WK shall be used.

(www) Section P2910 is amended to add new Figure 2910.4 "Typical Graywater Collection System:"

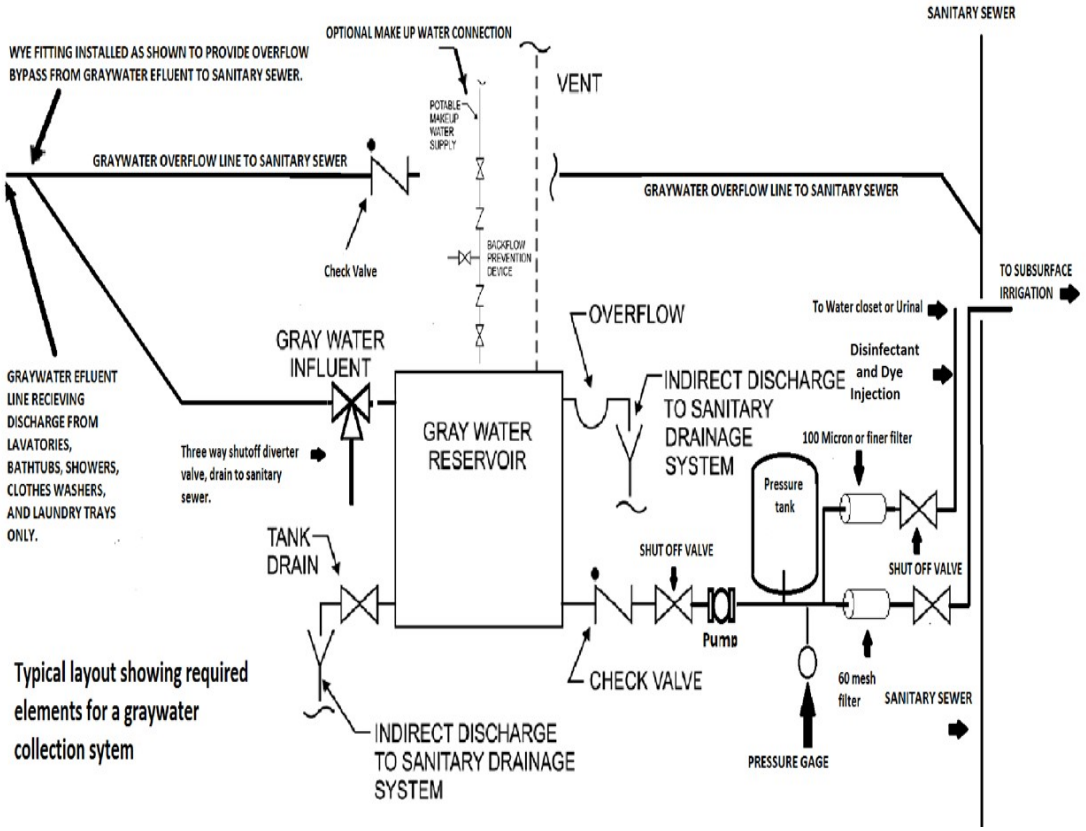

FIGURE P2910.4
TYPICAL GRAYWATER COLLECTION SYSTEM

(xxx) Section P2910.1, entitled "Scope," is amended to read as follows:

P2910.0 Scope. The provisions of this section shall govern the materials, design, construction and installation of systems for the collection, storage, treatment and distribution of non-potable water. The use and application of non-potable water shall comply with laws, rules and ordinances applicable in the jurisdiction. All plumbing systems utilizing non-potable water reuse systems shall have a double check valve installed at the water service entrance immediately downstream of the building water service shut off valve.

(yyy) Section 2911.5, entitled "Filtration," is amended to read as follows:

P2911.5 Filtration. Graywater used for dispersed subsurface irrigation system requires a cartridge filter. The cartridge filter must be a minimum of 60 mesh located between the storage tank and the irrigation system. If a pump is being used to pressurize the graywater distribution system the filter must be located after the pump. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to provide indication when a filter requires servicing or replacement. Filters shall be installed with shutoff valves immediately upstream and downstream to allow for isolation during maintenance.

(zzz) Section P2911.7.4, entitled "Overflow," is added to read as follows:

P2911.7.4 Overflow. Storage tank for on-site non-potable systems must include an overflow line without a shut off valve. The overflow line shall be connected to the sanitary sewer either directly or indirectly. The overflow line must be the same or larger diameter line than the tank influent line. The overflow line connected indirectly must be trapped to prevent the escape of gas vapors from the tank.

(aaaa) Section P2911.7.5, entitled "Venting," is added to read as follows:

P2911.7.5 Venting. Storage tank for on-site non-potable systems must be vented to the atmosphere or connected to the plumbing system vent piping.

(bbbb) Section P2911.7.6, entitled 'Draining of tanks," is added to read as follows:

P2911.7.6 Draining of tanks. Storage tanks for on-site non-potable systems must include a valved drain. The drain line shall be connected to the sanitary sewer either directly or indirectly. The tank drain line must be the same or larger diameter line than the tank influent line.

(cccc) Section P2911.8.1, entitled "System bypass," is amended to read as follows:

P2911.8.1 System bypass. One three-way diverter valve listed and labeled to NSF 50 or other approved device shall be installed on collection piping upstream of any graywater treatment equipment, as applicable, to divert untreated on-site reuse sources to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be marked to indicate the direction of flow, connection and storage tank or drainfield connection. Bypass valves shall be installed in accessible locations. Two shutoff valves shall not be installed to serve as a bypass valve. In addition to the bypass valve a series of drainage fittings shall be installed in the collection piping upstream of the bypass valve in a configuration that will allow the graywater from the plumbing fixtures to automatically flow directly into the sanitary sewer system in the event the filter or other parts of the collection system become clogged to the point of not allowing the effluent free flow through the system. The overflow line connected to the sanitary sewer shall be equipped with a backwater valve.

(dddd) Table 3005.1, entitled "Fittings for changes in direction," is amended as follows:

Delete footnotes a. and b. from the table and re-letter footnote c. to footnote a.

(eeee) Section P3005.1.1, entitled "Horizontal to vertical (multiple connection fittings)," is amended to read as follows:

P3005.1.1 Horizontal to vertical (multiple connection fittings). Double fittings such as double sanitary tees and tee-wyes or approved multiple connection fittings and back-to-back fixture arrangements that connect two or more branches at the same level shall be permitted as long as directly opposing connections are the same size and the discharge into directly opposing connections is from similar fixture types or fixture groups. Double sanitary tee patterns shall not receive the discharge of back-to-back water closets and fixtures or appliances with pumping action discharge.

(ffff) Section P3103.2, entitled "Frost closure," is deleted in its entirety.

(gggg) Section P3108.1, entitled "Horizontal wet vent permitted," is amended to read as follows:

Section P3108.1 Horizontal wet vent permitted. Any combination of fixtures within two bathroom groups located on the same floor level shall be permitted to be vented by a horizontal wet vent. The wet vent shall be considered to be the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drainpipe to the most downstream fixture drain connection. Each fixture drain shall connect horizontally to the horizontal branch being wet vented or shall have a dry vent. Each wet-vented fixture drain shall connect independently to the horizontal wet vent. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch drain. Any additional fixtures shall discharge downstream of the horizontal wet vent.

Exception: Fixtures other than those considered to be bathroom group fixtures, of equivalent drainage fixture units, may be included in the wet vented section provided the total number of drainage fixture units does not exceed the total number included in two bathroom groups.

(hhhh) Table P3201.7, entitled "Size of traps for plumbing fixtures," is amended to read as follows:

TABLE P3201.7
SIZE OF TRAPS FOR PLUMBING FIXTURES

PLUMBING FIXTURE	TRAP SIZE MINIMUM (inches)
Bathtub (with or without shower head and/or whirlpool attachments)	1½
Bidet	1¼
Clothes washer standpipe	2
Dishwasher (on separate trap)	1½
Floor drain	2
Kitchen sink (one or two traps, with or without dishwasher and garbage grinder)	1½
Laundry tub (one or more compartments)	1½
Lavatory	1¼
Shower (based on the total flow rate through showerheads and body sprays) Flow rate: 5.7 gpm and less More than 5.7 gpm up to 12.3 gpm More than 12.3 gpm up to 25.8 gpm More than 25.8 gpm up to 55.6 gpm	 2 2 3 4

(iiii) Section P3302.1, entitled "Subsoil drains," is amended to read as follows:

P3302.1 Subsoil drains. Subsoil drains shall be open-jointed, horizontally split or perforated pipe conforming to one of the standards listed in Table P3302.1. Such drains shall be not less than 4 inches in diameter. Where the building is subject to backwater, the subsoil drain shall be protected by an accessibly located backwater valve. Subsoil drains shall discharge to a trapped area drain, sump, dry well or approved location above ground. Discharge into the sanitary sewer drainage system is prohibited. The subsoil sump shall not be required to have either a gas-tight cover or a vent. The sump and pumping system shall comply with Section P3303.

(jjjj) Chapters 34 through 43 (Sections E3401 through E4304), are deleted in their entirety and replaced with the following:

Installations of electrical systems, equipment and components for one- and two-family dwellings shall comply with the 2020 National Electrical Code® (NEC®) (NFPA 70®-2020).

(kkkk) Section AM101 entitled "Site address," is added to read as follows:

AM101.2 Site address. Dwellings used for day-care operations shall be provided with a site address in accordance with Section R319.

(llll) Section AM105, entitled "Basements must be habitable space," is added to read as follows:

SECTION AM105 – BASEMENTS MUST BE HABITABLE SPACE

AM105.1 General. If a dwelling basement is to be used for day-care operations, all rooms, spaces and areas of the basement to be utilized in whole or in part for day-care operations must be finished as habitable space in accordance with the definition in Section R202 and other applicable provisions of this code.

AM105.2 Light, ventilation and heating. All habitable rooms, spaces and areas of basements shall be provided with light, ventilation and heating in accordance with Section R303.

AM105.3 Minimum room areas. All habitable rooms, spaces and areas of basements shall conform to minimum room areas in accordance with Section R304.

AM105.4 Ceiling heights. All habitable rooms, spaces and areas of basements shall conform to minimum ceiling height requirements in accordance with Section R305.

AM105.5 Guards. Guards shall be provided in basements in accordance with Section R312.

AM105.6 Carbon monoxide alarms. Carbon monoxide alarms shall be provided in basements in accordance with C.R.S. § 38-45-101, et seq., as amended.

AM105.7 Foam plastic. Foam plastic in basements shall conform to provisions of Section R316.

AM105.8 Access prohibited to unfinished, uninhabitable areas, hazardous areas, mechanical rooms and storage rooms. Access by children to unfinished or uninhabitable rooms, spaces and areas, hazardous spaces and areas, mechanical and storage rooms, spaces or areas or similar is prohibited.

AM105.9 Operations prohibited in floodplains. In home day-care operations are prohibited in any existing dwelling or dwelling unit located within the designated 100-year floodplain.