Draft 2009 Uniform Plumbing Code Ordinance

Section 33-1. Adopted.

The Uniform Plumbing Code 2009 ~~2003~~ edition, including Appendix A-Recommended Rules for Sizing the Water Supply System; Appendix B-Explanatory Notes on Combination Waste and Vent Systems; Appendix D-Sizing Stormwater Drainage Systems; Appendix E-Manufactured/Mobile Home Parks and Recreational Vehicle Parks; Appendix G-Graywater Systems for Single Family Dwellings; Appendix I- Installation Standards; Appendix K-Private Sewage Disposal Systems; Appendix L-Alternate Plumbing Systems published by the International Association of Plumbing and Mechanical Officials and amendments and additions thereto as provided in this chapter, are hereby adopted by the city for regulating and controlling design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use, or maintenance of any plumbing and providing for the performance of inspections and collection of fees therefore. The minimum plumbing standards referenced in the 2009 ~~2003~~ edition of the Uniform Plumbing Code shall be applied to any permit issued after March ~~March~~ 31, 2011 ~~2004~~.

A printed copy of the code as amended is on file with the city clerk.

Sec. 33-2. Amendments to code.

The following sections and subsection of the plumbing code adopted in this chapter shall be amended or added as follows. All other sections or subsection of the plumbing code as published shall remain the same.

101.4.1.4 Conflicts Between Codes. Not adopted by City. ~~When the requirements within the jurisdiction of this plumbing code conflict with the requirements of the mechanical code, this code shall prevail.~~

Commentary-City: This eliminates the language that makes the plumbing code prevail with the intention that where there are conflicts with other codes, the most restrictive provision of either code prevails. This is necessary because of the differences between the IAPMO published Uniform Plumbing Code and the ICC published International Mechanical and Fuel Gas Codes.

101.4.2 Additions, alterations, repairs, and replacement of plumbing systems shall comply with the provisions for new systems except as otherwise provided in Section 101.5 and the *International Existing Building Code.*

Commentary-City: For consistency, this ties the scoping provisions for additions, alterations and repairs into the International Existing Building Code which is applied to building, mechanical, electrical and plumbing systems in existing buildings.

101.5.1 Additions, Alterations, or Repairs. Additions, alterations, or repairs shall be

permitted to be made to any plumbing system without requiring the existing plumbing system to comply with all the requirements of this code and the *International Existing Building Code*, provided the addition, alteration, or repair conforms to that required for a new plumbing system. Additions, alterations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded.

Commentary-City: For consistency, this ties the scoping provisions for additions, alterations and repairs into the International Existing Building Code which is applied to building, mechanical, electrical and plumbing systems in existing buildings.

101.5.6 Moved Buildings. Plumbing systems that are part of buildings or structures moved into or within this jurisdiction shall comply with the provisions of this code for new installations, ~~except as provided for in Section 103.5.5.2.~~ and the *International Existing Building Code*.

Commentary-City: For consistency, this ties the scoping provisions for moved buildings into the International Existing Building Code which is applied to building, mechanical, electrical and plumbing systems in existing buildings that are moved into or within the City.

102.2.6 Liability. The Authority Having Jurisdiction charged with the enforcement of this code, acting in good faith and without malice in the discharge of the Authority Having Jurisdiction's duties, shall not thereby be rendered personally liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of duties. A suit brought against the Authority Having Jurisdiction or employee because of such act or omission performed in the enforcement of any provision of this code shall be afforded all of the protection provided by the city's insurance pool, immunities, and defenses provided by other applicable state and federal laws and be defended by legal counsel provided by this jurisdiction until final termination of such proceedings. The *building official* or any subordinate shall not be liable for cost in any action, suit, or proceeding that is instituted in pursuance of the provisions of this code.

This code shall not be construed to relieve or lessen the responsibility of any person owning, operating, or controlling any building or structure for any damages to persons or property caused by defects, nor shall the city, its officers and employees be held as assuming any such liability by reason of the inspections authorized by this code or any permits or certificates issued under this code.

Commentary-City: For consistency, this mirrors the same administrative provisions concerning liability that already exists for building, mechanical and electrical ordinances into the plumbing code.

Section 102.2.7. Plumbing board of appeal and examiners. In order to hear and decide appeals of orders, decisions or determinations made by the *plumbing official* relative to the application and interpretation of this code, to review all prospective changes to the respective codes and to submit recommendations to the responsible official and the city council, and to examine applicants for licensing and to investigate matters brought before the board, there shall be and is hereby created a plumbing board of appeals and examiners.

The Plumbing Board of Appeals and Examiners shall consist of a qualified representative of the public works department, a licensed engineer, two licensed master plumbers, and one licensed journeyman plumber who are qualified by experience and training to pass upon matters pertaining to plumbing design, construction and maintenance, and the public health aspects of plumbing systems and the Uniform Plumbing Code. Members shall be appointed by the mayor with the advice and consent of the city council and shall hold office for a term of three years. The board shall adopt rules and procedures for conducting its business. All decisions and findings shall be provided in writing to the appellant with a duplicate copy provided to the building services department.

Section 102.2.8 Limitation of authority. The plumbing board of appeals shall have no authority relative to interpretation of the administrative provisions of this code nor shall the board be empowered to waive requirements of this code.

Commentary-City: The administrative chapter of the Uniform Plumbing Code has no provision for an appeals process. For consistency, this inserts into ordinance the same language that establishes the Building, Mechanical, Electrical and Property Maintenance Boards of Appeals and Examiners for the Plumbing Board of Appeals and Examiners.

102.3.2 Penalties. If the notice of violation is not complied with promptly, the *plumbing official* is authorized to utilize the administrative provisions of the code enforcement system, or request the legal counsel of the jurisdiction to deem the violation as a strict liability offense and institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto. ~~Any person, firm, or corporation violating any provision of this code shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punishable by a fine and/or imprisonment set forth by the governing laws of the jurisdiction. Each separate day or any portion thereof, during which any violation of this code occurs or continues, shall be deemed to constitute a separate offense.~~

Commentary-City: The language for penalties in the Uniform Plumbing Code is not consistent with either the I-Codes and/or local ordinance for building, mechanical, electrical and property maintenance. This inserts consistent language for plumbing violations.

103.1.1 Permits Required. It shall be unlawful for any homeowner, person, firm, or corporation to make any installation, alteration, repair, replacement, or remodel any plumbing system regulated by this code except as permitted in Section 103.1.2, or to cause the same to be done without first obtaining a separate plumbing permit for each separate building or structure. Any regulation herein referring to permits shall also apply to inspections.

Commentary-City: This inserts "homeowners" for the permits that are issued to owner occupied dwelling owners who do their own work and obtain an actual plumbing permit. For licensed contractors, an actual inspection is referred to as a plumbing permit for billing purposes.

103.3.4 Expiration. Every permit issued by the Authority Having Jurisdiction under the provisions of this code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within one hundred and eighty (180) days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of one-hundred and eighty (180) days. Before such work can be recommenced, a new permit shall first be obtained to do so, and the fee therefore shall be one-half (1/2) the amount required for a new permit for such work, provided no changes have been made or will be made in the original plans and specifications for such work, and provided further that such suspensions or abandonment has not exceeded one (1) year.

Any permittee holding an unexpired permit shall be permitted to apply for an extension of the time within which work shall be permitted to commence under that permit when the permittee is unable to commence work within the time required by this section for good and satisfactory reasons. The Authority Having Jurisdiction shall be permitted to extend the time for action by the permittee for a period not exceeding one-hundred and eighty (180) days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. No permit shall be extended more than once. In order to renew action on a permit after expiration, the permittee shall pay a new full permit fee.

All homeowner mechanical permits shall expire in accordance with Section 33-12.

Commentary-City. For consistency with electrical and mechanical homeowner permits, this simply clarifies that plumbing homeowner permits expire after two years which is covered under a separate section of city ordinance.

103.4.2 Plan Review Fees. When a plan or other data is required to be submitted by SDCL 36-18 or when the building official requires the submittal of plans, computations, or specifications in accordance with Section 103.2.2, a plan review fee shall be paid at the time of submitting plans and specifications for review. The plan review fees for plumbing work shall be 25 percent of the building permit fee in Table 1-B in Section 11-20 of the Revised Ordinances of Sioux Falls, South Dakota~~determined and adopted by this jurisdiction~~.

The plan review fees specified in this subsection are separate fees from the permit fees specified in this section and are in addition to the permit fees.

Commentary-City: This inserts the charged fee for a plumbing plan review to be consistent with the same fee charged for building, mechanical and electrical plan reviews.

TABLE 1-1
Plumbing Permit Fees

The following fees shall be charged for plumbing permits and inspections.

(1) *Permit Issuance*

(1.1) Homeowners Permit ……...…$20.00

(1.2) For each plumbing fixture on one trap or a set of fixtures on one trap (including water and drainage piping)……..……$4.00

(1.3) For each private sewage disposal system ……...$40.00

(1.4) For each water heater and/or vent…….$7.00

(1.5) For each gas piping system of one to five outlets…….$5.00

(1.6) For each additional gas piping system outlet, per outlet ……..$1.00

(1.7) For each industrial waste pretreatment interceptor including its trap and vent, excepting kitchen-type grease interceptors functioning as fixture traps……..$7.00

(1.8) For each installation, alteration, or repair of water piping and/or water treating equipment, each……...$7.00

(1.9) For each repair or alteration of drainage or vent piping, each fixture..$4.00

(1.10) For each lawn sprinkler on any one meter including backflow protection . ……..…...$4.00

(1.11) For atmospheric-type vacuum breakers not included in Item 12

1 to 5…….$5.00

Over 5, each……..$1.00

(1.12) For each backflow protective device other than atmospheric-type vacuum breakers:

2-inch and smaller…….$4.00

Over 2-inch diameter …….$15.00

(1.13) Roof drains……...……$7.00

(1.14) Minimum inspection fee…….$19.00

(2) *Other inspections and fees*

(2.1) Inspection outside normal business hours, per hour (minimum charge--one hour) ……...$70.00

(2.2) Reinspection fees assessed under the provisions of Section 103.5.6

Reinspections. (minimum charge--one hour)* ……..……$70.00

(2.3) Inspection for which no fee is specifically indicated, per hour (minimum charge--one-half hour) may be charged* ……..$70.00

(2.4) Additional plan review required by changes, additions, revisions to approved plans (minimum charge--one hour)* …….$70.00

(2.5) Appeals. Before any action is taken by the board, the party or parties requesting such hearing shall deposit with the secretary of the Board or his authorized agent, the sum of $65.00 to cover the approximate cost of the procedure. Under no condition shall such sum or any portion thereof be refunded for failure of said request to be approved.

(3) *Delinquent accounts.* The administrative authority may refuse to issue permits or conduct inspections for any plumbing contractor whose account is delinquent.

(4) Bond claims. An administrative fee shall be charged to cover the administrative cost of filing a claim ……$150.00

(5) Examination fees per examination……..$75.00

(6) Fee for late corrections. A $100 administrative fee may be charged for failure to correct violations within the time specified on a contractor's correction report.

(7) Fee for failure to request a required inspection. Where plumbing work is completed without a request for an inspection, an administrative of fee of $250.00 may be charged.

*Or the total hourly cost to the city, whichever is greater. This cost shall include supervision, overhead, equipment, hourly wages, and fringe benefits of the employees involved.

Commentary-City: This table defines the fees charged for plumbing inspections and permits. There is no increase in plumbing fees proposed.

Section 221.0 S add the following definition.

STRICT LIABILITY OFFENSE. An offense in which the prosecution in a legal proceeding is not required to prove criminal intent as a part of its case. It is enough to prove that the defendant either did an act which was prohibited, or failed to do an act which the defendant was legally required to do.

Commentary-City: For consistency, again this brings the plumbing ordinance in line with current legal terminology in regards the prosecution of violations. With this terminology, a

prosecutor is not required to prove that code violations were intended by a defendant or were ever due to negligence. It is difficult to prove such an intention or negligence in a court of law.

313.2 Piping in connection with a plumbing system shall be so installed that piping or connections will not be subject to undue strains or stresses, and provisions shall be made for expansion, contraction, and structural settlement. ~~No plumbing piping shall be directly embedded in concrete or masonry.~~ No structural member shall be seriously weakened or impaired by cutting, notching, or otherwise, as defined in the Building Code.

Commentary-State: For clarification, this does allow plumbing piping in certain instances to be embedded in concrete but does not alleviate other provisions of the code that would otherwise require wrapping or sleeve protection.

313.6 No ~~water,~~ soil~~,~~ or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing

No water piping shall be installed in an exterior wall or unheated attic. An exterior wall shall include any wall between a heated space and an unheated space. Water service piping must by installed with a minimum earth cover of 72 inches. Building sewers must be installed with a minimum earth cover or 42 inches. Building sewers in septic systems may be installed at a minimum depth of 30 inches if the length of the building sewer does not exceed 40 feet.

Commentary-State: To eliminate water lines from freezing in exterior walls, this defines that water lines are not allowed in an exterior wall located between a heated and unheated space or in an unheated attic. This also defines minimum earth coverings for water service piping, sewer lines and sewer lines served by septic systems.

313.7 Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the Building Code~~, applicable standards referenced in Table 14-1 and Chapter 15, "Firestop Protection."~~.

Commentary-State: The State Plumbing Commission eliminated fire stop provisions which locally is administered and enforced in the building code in any case.

313.10.1 Sleeves shall be provided to protect piping through concrete and masonry walls and concrete floors.

> **Exception:** Sleeves shall not be required where openings are drilled or bored, or wrapped.

Commentary-State: This includes wrapped piping from being exempted from being sleeved.

313.10.3 In exterior walls, annular space between sleeves and pipes shall be sealed and made

water-tight, as approved by the Authority Having Jurisdiction. Any penetration through fire-resistive construction shall be in accordance with the Building Code. ~~Section 313.7.~~

Commentary-State/City: The State Plumbing Commission eliminated fire stop provisions which locally is administered and enforced in the building code in any case.

313.12.3 In or on buildings where openings have been made in walls, floors, or ceilings for the passage of pipes, such openings shall be closed and protected by the installation of approved ~~metal~~ collars securely fastened to the adjoining structure.

Commentary-State: This is intended to allow alternate materials other than metal only as an approved collar for rat proofing.

314.1 Suspended piping shall be supported at intervals not to exceed those shown in Table 3-2 or per the manufacturer's instructions.

Commentary-State: This will the manufacturer's installation requirements to be an acceptable alternate to support suspended piping referenced in Table 3-2, Hangers and Supports.

316.1.3 Soldered Joints. Joints in copper tubing shall be made by the appropriate use of approved copper or copper alloy fittings. Surfaces to be joined by soldering shall be cleaned bright by manual or mechanical means. The joints shall be properly fluxed with an approved-type flux and made up with approved solder. Solder and fluxes shall be manufactured to approved standards. Solders and fluxes with a lead content that exceeds two-tenths (0.20) of one (1) percent shall be prohibited in piping systems used to convey potable water. Flux shall be of a water soluble type conforming to ASTM B813 or any flux conforming to NSF 61 is acceptable.

Commentary-State: This defines and allows a water soluble flux which is used for cleaning joints for soldering and defines the acceptable nationally recognized standards for such materials.

318.5 Not Adopted By City. ~~Where pipes are installed in ceilings above such areas, the ceiling shall be of the removable type, or shall be provided with access panels in order to form a ready access for inspection of piping.~~

Commentary-State: This code provision eliminated by the State would have otherwise eliminated any type of piping to be installed above a hard lid kitchen ceiling.

319.1 Required pressure tests of ten (10) psi (69 kPa) or less shall be performed with gauges of ¼ ~~one-tenth~~ of a pound (0.25 ~~0.10~~) (1.75 ~~0.7~~ kPa) incrementation or less.

Commentary-State: A ¼ pound incrementation makes it easier to test pressure losses in plumbing systems.

321.0 Boilers and Pressure Vessels. The following provisions shall govern the installation, alteration and repair of boilers and pressure vessels:

Chapter 10 Boilers of the *International Mechanical Code*
Section 631 Boilers of the *International Fuel Gas Code*
Part V-Mechanical, Section M2001 Boilers and Part VI-Fuel Gas, Section G2452 Boilers of the *International Residential Code*

322 Hydronic Piping. The following provisions shall govern the installation, alteration and repair of hydronic piping:

Chapter 12 Hydronic Piping of the *International Mechanical Code*
Part V-Mechanical, Chapter 21 of the *International Residential Code*

Commentary-City: The Uniform Plumbing Code does not have specific minimum standards for the installation of boilers or hydronic piping. Said standards are found in the International Mechanical, Fuel Gas, and the mechanical and fuel gas provisions of the International Residential Code as it relates to such installations in one and two family dwellings. Typically it is the plumbing trade that installs boilers and hydronic piping. This is to reference a plumbing contractor which installs boilers and hydronic piping to the mechanical and fuel gas provisions that actually regulates the installations of such piping and equipment, based on the fact that the UPC has no guidance.

402.4 Metered Faucets. Self-closing or self-closing metering faucets may ~~shall~~ be installed on lavatories intended to serve the transient public, such as those in, but not limited to, service stations, train stations, airports, restaurants, and convention halls. Metered faucets shall deliver a maximum of 0.26 gallons (1.0 liter) of water per use.

Commentary-State: This takes away the mandatory requirement for self-closing or self metering faucets, but will still allow hand closing manual faucets.

404.3 Continuous wastes and fixture tailpieces shall be constructed from the materials specified in Section 701.0 for drainage piping, provided, however, that such connections where exposed or accessible shall be permitted to be of seamless drawn brass not less than No. 20 B & S Gauge (0.032 inches) (0.8 mm) tubular PVC, or tubular ABS. Each such tailpiece, continuous waste, or waste and overflow shall be not less than one and one-half (1-1/2) inches (40 mm) O.D. for sinks, dishwashers, laundry tubs, bathtubs, urinals, and similar fixtures, and not less than one and one-quarter (1-1/4) inches (32 mm) for lavatories, drinking fountains, and similar small fixtures.

Commentary-State: Tubular PVC and tubular ABS is included as alternative materials for drainage piping.

408.1 Water closet bowls for public use shall be of the elongated type except for guest rooms in motels, hotels, dormitories, boarding houses and similar occupancies which may be round bowl. In nurseries, schools, and other similar places where plumbing fixtures are provided for the use of children less than six (6) years of age, water closets may ~~shall~~ be of a size and height suitable

Commentary-State: This takes away the mandatory requirement for elongated water closet bowls in guest rooms of transient occupancies to still allow round bowl water closets. This also gives the option of using regular type water closets in occupancies frequented by children.

408.2.2 Water closet seats, for public use, shall be of the elongated type and either of the open front type or have an automatic seat cover dispenser.

> **Exception:** Closed front seats shall be permitted in hotel and motel guest rooms, dormitories, boarding houses, and similar occupancies.

Commentary-State: This takes away the mandatory requirement for elongated water closet bowls in guest rooms of transient occupancies to still allow round bowl water closets.

408.3 Securing Floor-Mounted, Back-Outlet Water Closet Bowls. Floor-mounted, back-outlet water closet bowls shall be set level with an angle of ninety (90) degrees (1.57 rad) between the floor and wall at the centerline of the fixture outlet. The floor and wall shall have a flat mounting surface not less than five (5) inches (127 mm) to the right and left of the fixture outlet centerline. The fixture shall be secured to the wall outlet flange or drainage connection and to the floor by corrosion-resistant screws or bolts. The closet flange shall be secured to a firm base. Where floor-mounted, back-outlet water closets are used, the soil pipe shall be not less than three (3) inches (80 mm) in diameter. Offset, eccentric, or reducing floor flanges that obstructs or retards the flow shall not be used.

Commentary-State: Instead of eliminating offset, eccentric or reducing floor flanges for water closet drainage, such offsets are allowed as long as the offset does not obstruct or restrict the drainage.

408.4.3 Closet rings (closet flanges) shall be burned or soldered to lead bends or stubs, shall be caulked to cast-iron soil pipe, shall be solvent cemented to ABS and PVC, and shall be screwed or fastened in an approved manner to other materials. The top of the closet flange shall be installed above the finished floor not to exceed 3/8".

Commentary-State: This defines a maximum height of 3/8's inch above the floor for a water closet flange to prevent rocking of the water closet.

411.2.3 Laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings and in all mechanical rooms or the lowest level of a structure, the floor shall slope toward the floor drain.

Commentary-State: This provision additionally requires floor drains in mechanical rooms, due to condensate lines, and additionally at the lowest elevation of any structure.

412.0 Minimum Number of Required Fixtures. Plumbing fixtures shall be provided for the type of occupancy and in the minimum number in accordance with Chapter 29 and Table 2902.1 of the *International Building Code.*

412.1 Fixture Count. **Not adopted by City.** ~~Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number shown in Table 4-1.~~

412.2 Access to Fixtures. **Not adopted by City.**

~~412.2.1 In multi-story buildings, accessibility to the required fixtures shall not exceed one (1) vertical story.~~

~~**412.2.2** Fixtures accessible only to private offices shall not be counted to determine compliance with this section.~~

412.3 Separate Facilities. **Not adopted by City.** ~~Separate toilet facilities shall be provided for each sex.~~

~~**Exceptions:** (1) Residential installations.~~

~~(2) In occupancies serving ten (10) or fewer people, one (1) toilet facility, designed for use by no more than one (1) person at a time, shall be permitted for use by both sexes.~~

~~(3) In business and mercantile occupancies with a total floor area of fifteen-hundred (1,500) square feet (139.4 m2) or less, one (1) toilet facility, designed for use by no more than one (1) person at a time, shall satisfy the requirements for serving customers and employees of both sexes.~~

412.4 Fixture Requirements for Special Occupancies. **Not adopted by City.**

~~**412.4.1** Additional fixtures may be required when unusual environmental conditions or referenced activities are encountered.~~

~~**412.4.2** In food preparation areas, fixture requirements may be dictated by health codes.~~

~~**412.4.3** Types of occupancy not shown in Table 4-1 shall be considered individually by the Authority Having Jurisdiction.~~

412.5 Facilities in Mercantile and Business Occupancies Serving Customers. **Not adopted by City.**

~~**412.5.1** Requirements for customers and employees shall be permitted to be met with a single set of restrooms accessible to both groups. The required number of fixtures shall be the greater of the required number for employees or the required number for customers.~~

~~**412.5.2** Fixtures for customer use shall be permitted to be met by providing a centrally located facility accessible to several stores. The maximum distance from entry to any store to this facility shall not exceed five-hundred (500) feet (152.4 m).~~

~~**412.5.3** In stores with a floor area of one hundred and fifty (150) square feet (13.9 m2) or less, the requirement to provide facilities for employees shall be permitted to be met by providing a centrally located facility accessible to several stores. The maximum distance from entry to any store to this facility shall not exceed three-hundred (300) feet (91.4 m).~~

Commentary-City: Chapter 4 of the Uniform Plumbing Code defines the required number of plumbing fixtures based on occupant load and occupancy. The table in the UPC is more restrictive and is not consistent with Chapter 29 and Table 29-A-Minimum Number of Required Plumbing Fixtures of the International Building Code. These ordinance modifications are intended to eliminate the fixture table in the UPC. Ordinarily, a mechanical engineer or a plumber does not define the minimum number of plumbing fixtures, the architect or the building designer does, and references the building code, not the plumbing code to determine numbers of fixtures.

507.4.3 Alternate Combustion Air Sizing (IFGC) Outdoor *combustion air* shall be provided through opening(s) to the outdoors. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

> **Exception*:*** When all air is taken from the outdoors for appliances and the total input of the appliances is less than 300,000 Btu/hr (1,704,000 W/ meters squared K), one outside air duct may be used and shall terminate below the draft hood. An exterior opening may be used in place of a duct provided that it is located at least one foot below the draft hood.

As an alternate to the above-referenced combustion air openings, the net free area of openings, ducts, or plenums supplying air to an area containing gas-burning appliances shall be as specified in Table 7-B.

Table No. 7-B—Combustion Air Requirements for Appliances Requiring an Outside Air Opening in Areas with 5,000 degrees Fahrenheit (2,777 degrees Celsius) or Greater Heating Degree Days

Total Input of Appliances[1] Thousand of Btu/h	Required Free Area of Air Supply Opening or Duct, Square Inches[2]
25 (26.4 KJ/h)	7 (4,516 mm^2)
50 (52.8 KJ/h)	7 (4,516 mm^2)
75 (79.1 KJ/h)	11 (7,097 mm^2)
100 (106 KJ/h)	14 (9,032 mm^2)
125 (132 KJ/h)	18 (11,610 mm^2)
150 (158 KJ/h)	22 (14,190 mm^2)
175 (185 KJ/h)	25 (16,130 mm^2)
200 (211 KJ/h)	29 (18,710 mm^2)
225 (237 KJ/h)	32 (20,650 mm^2)

250 (264 KJ/h)	36 (23,230 mm^2)
275 (290 KJ/h)	40 (25,810 mm^2)
300 (317 KJ/h)	43 (27,740 mm^2)

1. For total inputs that fall between the listing figures, use the next largest listed input.

2. These figures are based on the maximum equivalent duct length of 20 feet (6.1 m). For equivalent duct lengths in excess of 20 feet (6.1 m) to and including a maximum of 50 feet (15.2 m), increase the round duct diameter by one size. A square or rectangular duct may be considered only where the required duct size is 9 $inches^2$ (5,800 mm^2) or larger and the smaller dimension must be not less than 3 inches (76.2 mm).

3. The combustion air duct is required to be upsized one diameter size when a dryer is installed in the same room as the combustion air .

Commentary-City: This inserts the same alternative sizing method for combustion air for plumbers. This is consistent with what is in the mechanical and fuel gas ordinance.

507.9 Combustion Air Ducts. Combustion air ducts shall comply with the following:

(1) Ducts shall be of galvanized steel or a material having equivalent corrosion resistance, strength, and rigidity. [NFPA 54:9.3.8.1]

Exception: Within dwelling units, unobstructed stud and joist spaces shall not be prohibited from conveying combustion air, provided that not more than one (1) fireblock is removed.

(2) Ducts shall terminate in an unobstructed space, allowing free movement of combustion air to the appliances. [NFPA 54:9.3.8.2]

(3) Ducts shall serve a single space. [NFPA 54:9.3.8.3]

(4) Ducts shall not service both upper and lower combustion air openings where both such openings are used. The separation between ducts serving upper and lower combustion air openings shall be maintained to the source of combustion air. [NFPA 54:9.3.8.4]

(5) Ducts shall not be screened where terminating in an attic space. [NFPA 54:9.3.8.5]

(6) Intakes for combustion air ducts located exterior to the building shall have the lowest side of the combustion air intake openings located at least twelve (12) inches (300 mm) vertically from the adjoining finished grade level.

(7) Horizontal upper combustion air ducts shall not slope downward toward the source of combustion air. [NFPA 54:9.3.8.6]

(8) The remaining space surrounding a chimney liner, gas vent, special gas vent, or plastic piping installed within a masonry chimney flue, metal or factory-built chimney, shall not be used to supply combustion air [NFPA 54:9.3.8.7], unless it is listed and shown in the manufacturer's installation instructions.

9. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.2.1.

Commentary-City: For consistency with the mechanical and fuel gas codes this local amendment defines that combustion air is required to be located a certain distance from certain hazardous or noxious contaminant sources.

602.1 No installation of potable water supply piping or part thereof shall be made in such a manner that it will be possible for used, unclean, polluted, or contaminated water, mixtures, or substances to enter any portion of such piping from any tank, receptor, equipment, or plumbing fixture by reason of back siphonage, suction, or any other cause, either during normal use and operation thereof, or when any such tank, receptor, equipment, or plumbing fixture is flooded or subject to pressure exceeding the operating pressure in the hot or cold water piping. A dual check backflow preventer which conforms to ASSE 1024 shall be installed on the building side immediately downstream of the water meter where the water service enters the building.

Commentary-State: This provision clarifies that the dual check backflow preventer is required to be located immediately downstream of the water meter where the water service enters the building.

603.3.3 The premise owner or responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often when required by the Authority Having Jurisdiction. The periodic testing shall be performed in accordance with the procedures referenced in Table 14-1 by a tester qualified in accordance with those standards. Copies of testable backflow preventer test reports for the initial installation shall be sent to the Authority Having Jurisdiction and the water supplier. Copies of annual testable backflow preventer test reports shall be sent to the water supplier. A testable device is a device with atmospheric vents, test ports, or both.

Commentary-State: This specifies that tests of backflow devices are to be sent to the water supplier and it also defines that testable devices are those with atmospheric vents, test ports, or both.

603.4.4.1 Heat exchangers used for heat transfer, heat recovery, or solar heating shall protect the potable water system from being contaminated by the heat-transfer medium. Single-wall heat

exchangers used in indirect- fired water heaters shall meet the requirements of Section ~~506.4.2~~ L.3.0 to L3.3, inclusive. Double-wall heat exchangers shall separate the potable water from the heat-transfer medium by providing a space between the two (2) walls that are vented to the atmosphere. Water-to-water heat exchangers that return the water back to the public system of waterworks shall not be allowed on a public water system unless approved by the Authority Having Jurisdiction.

Commentary-State: The provisions concerning indirect fired water heaters are referenced back to Appendix L, Alternative Plumbing Systems to Sections L3.0 to 3.3, Water Heater Exchangers. This also clarifies that if any water to water heat exchangers return water back to the public water system, that such approval is required from the water supplier.

603.4.14 Backflow preventers shall not be located in any area containing fumes that are toxic, poisonous, or corrosive. Backflow preventers with atmospheric vents, test ports, or both shall not be installed in pits, vaults, or similar potential submerged locations.

Commentary-State: This does not allow a backflow preventer to be located in an area that could be submerged by water or any other flowage.

603.4.16.5 Residential Sprinkler Systems. When residential sprinkler systems are installed using the potable water system, they shall be installed in accordance with the standards listed in Table 14-1. Combination domestic water systems and fire sprinkler systems shall be designed by a registered professional engineer or a fire system manufacturer as an engineered design and installers of combination domestic water systems and fire sprinkler systems shall be certified by the fire sprinkler system manufacturer.

Commentary-State: This defines who can design and install residential sprinkler systems if it is proposed to install a sprinkler system in a dwelling.

603.4.19 Combination stop-and-waste valves or cocks shall not be installed underground unless they are installed above the known groundwater table, they are installed at least 10 feet away from any sewer line or any other source of contamination, and they are installed only on seasonal-use facilities.

Commentary-State: This allows stop and waste valves or cocks for water supply protection to be located underground under certain conditions.

603.4.20 Pure Water Process Systems. The water supply to a pure water process system, such as dialysis water systems, semiconductor washing systems, and similar process piping systems, shall be protected from back-pressure and back-siphonage by a reduced-pressure principle backflow preventer.

Drip pans shall be installed under storage-type water heaters to prevent tank leakage from

causing property damage.

Exceptions: 1. The lowest level of buildings, provided that the floor is concrete or other material that will not be damaged or deteriorated by water leakage from the tank;

2. Crawl spaces;

3. Spaces having floor drainage that will collect leakage from the tank; and

4. Locations where tank leakage will not damage the building or its contents.

Drip pans shall be watertight and constructed of corrosion-resistant materials. Metallic pans shall be 24 gauge minimum. Non-metallic pans shall be .0625 inches minimum thickness. Pans shall be not less than 1½ inches deep and shall be of sufficient size to hold the heater without interfering with drain valves, burners, controls, and any required access. High impact plastic pans shall be permitted under gas-fired water heaters where the heater is listed for zero clearance for combustible floors and the application is recommended by the pan manufacturer. Drip pans shall have drain outlets not less than 1 inch size, with indirect drain pipes extending to an approved point of discharge

Commentary-State: This calls for drip pans to be installed under storage type water heaters if the water heater is not located in a room with a concrete floor and a drain, in a crawl space or where the tank leakage will not damage the building or contents. This additionally defines the standards for drip pans.

604.2 Copper tube for water piping shall have a weight of not less than Type L.

Exception: Type M copper tubing shall be permitted to be used for water piping when piping is above ground in, or on, a building ~~or underground outside of structures~~.

Commentary-State: This provision eliminates Type M copper piping from being buried underground outside of a structure. Type M is not thick enough for underground and is not recommended for underground locations.

TABLE 6-4
Materials for Building Supply and Water Distribution Piping and Fittings

Material	Building Supply Pipe and Fittings	Water Distribution Pipe and Fittings	Referenced Standard(s) Pipe	Referenced Standard(s) Fittings
Asbestos-Cement	X[1]		ASTM C296, AWWA C400	
Brass	X	X	ASTM B43, ASTM B135	
Copper	X	X	ASTM B42, ASTM B75, ASTM B88, ASTM B251, ASTM B302, ASTM B447	ASME B16.15, ASME B16.18, ASME B16.22, ASME B16.26
CPVC	X	X	ASTM D2846, ASTM F441, ASTM F442	ASTM D2846, ASTM F437, ASTM F438, ASTM F439, ASTM F1970
Ductile-Iron	X	X	AWWA C151	ASME B16.4, AWWA C110, AWWA C153
Galvanized Steel	X	X	ASTM A53	
Malleable Iron	X	X		ASME B16.3
PE	X[1]		ASTM D2239, ASTM D2737, ASTM D3035, AWWA C901, CSA B137.1	ASTM D2609, ASTM D2683, ASTM D3261, ASTM F1055, CSA B137.1
PE-AL-PE	X	X	ASTM F1282, CSA B137.9	ASTM F1282, ASTM F1974, CSA B137.9
PEX	X	X	ASTM F876 , ASTM F877, CSA B137.5	ASTM F877, ASTM F1807, ASTM F1960, ASTM F1961, ASTM F2080, ASTM F2159, CSA B137.5
PEX-AL-PEX	X	X	ASTM F1281, CSA B137.10, ASTM F2262	ASTM F1281, ASTM F1974, ASTM F2434, CSA B137.10
PVC	X[1]		ASTM D1785, ASTM D2241, AWWA C900	ASTM D2464, ASTM D2466, ASTM D2467, ASTM F1970
Stainless Steel	X	X	ASTM A269, ASTM A312	

~~1 For Building Supply or cold water applications.~~

Commentary-State: The building supply or cold water application footnote is eliminated. PVC, PE and Asbestos cement piping is not allowed for water distribution.

604.11.2 Water Heater Connections. PEX tubing shall not be installed within the first eighteen (18) inches (457 mm) of piping connected to a water heater. This does not apply to electric water heaters.

Commentary-City: PEX piping is not allowed within 18 inches of the connection to the water heater due to the discharge of the heat of the flue is too hot for the PEX piping. This clarifies that PEX piping is allowed within 18 inches of an electric water heater.

605.2 A fullway valve controlling outlets shall be installed on the inlet ~~discharge~~ side of each water meter and on each unmetered water supply. Water piping supplying more than one (1) building on any one (1) premises shall be equipped with a separate fullway valve to each building, so arranged that the water supply can be turned on or off to any individual or separate building provided; however, that supply piping to a single-family residence and building accessory thereto shall be permitted to be controlled on one (1) valve. Such shutoff valves shall

be accessible at all times. A fullway valve shall be installed on the discharge piping from water supply tanks at or near the tank. A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater.

Commentary-State: This clarifies that a full flow valve needs to be installed on the inlet instead of the discharge side of the water meter to accommodate meter maintenance.

605.5 A control valve shall be installed immediately ahead of each water-supplied appliance and immediately ahead of each slip joint or appliance supply.

Parallel water distribution systems shall provide a control valve either immediately ahead of each fixture being supplied or installed at the manifold and shall be identified with the fixture being supplied.

Individual shutoff valves shall be installed on each plumbing fixture and each exterior hose bib.

> **Exception:** In single-family dwellings, individual valves are not required on tub valves, shower valves, and exterior hose bibs.

Commentary-State: Individual shut off valves are required on exterior hose bibs for every occupancy other than single family dwellings.

606.2.1 Copper Water Tube. Joints in copper tubing shall be made by the appropriate use of approved fittings properly soldered or brazed together as provided in Section 316.1.3 or 316.1.7 or by means of approved flared or compression fittings in Sections 606.1.1 or 316.1.5 except that underground joints may not be soldered . Solder and soldering flux shall conform to the requirements of Section 316.1.3. Mechanically formed tee fittings shall be made by brazing only and shall conform to the requirements of Sections 316.1.7 and 606.1.3.

Commentary-State: Underground joints can be brazed, but not soldered. Solder deteriorates when located below ground.

608.5 Relief valves located inside a building shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard-drawn copper piping and fittings, CPVC or listed relief valve drain tube with fittings that will not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall extend from the valve to within not more than six (6) inches (152 mm) nor less than two (2) inches (50.7 mm) above the floor~~ the outside of the building, with the end of the pipe not more than two (2) feet (610 mm) nor less than six (6) inches (152 mm) above ground or the flood level of the area receiving the discharge and pointing downward~~. Such drains shall be permitted to terminate at other approved locations. Relief valve drains shall not terminate in a building's crawl space. No part of such drain pipe shall be trapped or subject to freezing. The terminal end of the drain pipe shall not be threaded. Other approved points of disposal shall include mop sinks, floor sinks and standpipe receptors.

Commentary-State: This is intended for discharges from relief valves which are not allowed to extend to the outside, but the amendment defines the discharge to be at least 2 but not less

than 6 inches above a floor. This also defines that other point of discharge are allowed in mop sinks, floor sinks and standpipe receptors.

609.2.2 The water pipe shall be placed on a solid shelf excavated at one (1) side of the common trench with a clear horizontal distance of not less than twelve (12) inches (305 mm) from the sewer or drain line.

Water pipes crossing sewer or drainage piping constructed of clay or materials that are not approved for use within a building shall be laid not less than twelve (12) inches (305 mm) above the sewer or drain pipe.

Potable water service piping shall not be located in, under, or above cesspools, septic tanks, septic tank drainage fields, or drainage pits. A separation of 25 feet shall be maintained from such systems.

Commentary-State: This clarifies that the proper location of potable water service piping has to be located minimum distances from drainage piping.

609.4 Testing. Upon completion of a section or of the entire hot and cold water supply system, it shall be tested and proved tight under a water pressure not less than the working pressure under which it is to be used. The water used for tests shall be obtained from a potable source of supply. ~~Except for plastic piping, a~~ A fifty (50) lb./in.2 (345 kPa) air pressure shall be permitted to be substituted for the water test. In either method of test, the piping shall withstand the test without leaking for a period of not less than fifteen (15) minutes.

Commentary-State: A fifty pound air test is an allowable for plastic pipe as an alternative to water pressure testing.

609.5 Unions. Not Adopted By City. ~~Unions shall be installed in the water supply piping not more than twelve (12) inches (305 mm) of regulating equipment, water heating, conditioning tanks, and similar equipment that requires service by removal or replacement in a manner that will facilitate its ready removal.~~

Commentary-City: Unions have a tendency for leaking and therefore are not allowed in concealed spaces.

609.10 Water Hammer. Building water supply systems where quick-acting valves are installed shall be provided with water hammer arrester(s) to absorb high pressures resulting from the quick closing of these valves. Water hammer arrestors shall be approved mechanical devices in accordance with the applicable standard(s) referenced in Table 14-1 and shall be installed as close as possible to quick-acting valves. Dwelling units are exempt from this requirement.

Commentary-State: Water hammer is not a problem in the vast majority of dwelling units and is exempted by the state.

610.1 The size of each water meter and each potable water supply pipe from the meter or other

source of supply to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlined in this section. Water piping systems shall be designed to ensure that the maximum velocities allowed by the code and the applicable standard are not exceeded. The minimum size water service allowed is one (1) inch (25.4 mm) except to travel trailer or mobile home sites, which shall be not less than three quarter (3/4) inch (19.1 mm).

Commentary-State: Simply a clarification that the minimum size of water service allowed is one inch except for travel trailer and mobile home sites.

610.4 Systems within the range of Table 6-6 shall be permitted to be sized from that table or by the method set forth in Section 610.5. Not more than 1 fixture may be served by a one-half (1/2) inches (12.7 mm) outlet on a manifold system.

Listed parallel water distribution systems shall be installed in accordance with their listing, but at no time shall any portion of the system exceed the maximum velocities allowed by the code.

Commentary-State: Table 6-6 is used to determine water pipe and meter sizes. This provision clarifies that not more than one fixture may be served a ½ inch outlet on a manifold system. This is because of the water volume to the fixture is limited restricted flow of a PEX fitting.

701.1.2 ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 14-1 and ~~Chapter 15 "Firestop Protection."~~ The *Building Code.* Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame spread index of a maximum of twenty-five (25) and a smoke-developed index of a maximum fifty (50), when tested in accordance with the *Test for Surface-Burning Characteristics of the Building Materials*. (See the Building Code standards based on ASTM E84 and UL 723).

Commentary-State/City: The state took out fire stop provisions and this inserts back that the building code is the reference for fire stops by the City.

704.3 Pot sinks, scullery sinks, dishwashing sinks, silverware sinks, ~~commercial dishwashing machines,~~ silverware-washing machines, and other similar fixtures shall be connected directly to the drainage system. A floor drain shall be provided adjacent to the fixture, and the fixture shall be connected on the sewer side of the floor drain trap, provided that no other drainage line is connected between the floor drain waste connection and the fixture drain. The fixture and floor drain shall be trapped and vented as required by this code. Commercial dishwashing machines shall be provided with indirect wastes.

Commentary-State: This mandates that commercial dishwashing machines be provided with indirect waste to eliminate drainage contamination back into the dishwasher that could otherwise occur with a direct connection.

TABLE 7-5
Maximum Unit Loading and Maximum Length of Drainage and Vent Piping

Size of Pipe, inches (mm)	1-1/4 (32)	1-1/2 (40)	2 (50)	2-1/2 (65)	3 (80)	4 (100)	5 (125)	6 (150)	8 (200)	10 (250)	12 (300)
Maximum Units Drainage Piping[1]											
Vertical	1	2[2]	16[3]	32[3]	48[4]	256	600	1,380	3,600	5,600	8,400
Horizontal	1	1	8[3]	14[3]	35[4]	216[5]	428[5]	720[5]	2,640[5]	4,680[5]	8,200[5]
Maximum Length Drainage Piping											
Vertical, feet	45	65	85	148	212	300	390	510	750		
(m)	(14)	(20)	(26)	(45)	(65)	(91)	(119)	(155)	(228)		
Horizontal (unlimited)											
Vent Piping (See note) Horizontal and Vertical											
Maximum Units	1	8[3]	24	48	84	256	600	1,380	3,600		
Maximum Lengths, feet	45	60	120	180	212	300	390	510	750		
(m)	(14)	(18)	(37)	(55)	(65)	(91)	(119)	(155)	(229)		

1 Excluding trap arm.
2 Except sinks, urinals, and dishwashers – exceeding one (1) fixture unit.
3 Except six-unit traps or water closets.
4 Only four (4) water closets or six-unit traps allowed on any vertical pipe or stack; and not to exceed three (3) water closets or six-unit traps on any horizontal branch or drain.
5 Based on one-fourth (1/4) inch per foot (20.8 mm/m) slope. For one-eighth (1/8) inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of eight-tenths (0.8).

Note: The diameter of an individual vent shall be not less than one and one-fourth (1-1/4) inches (32 mm) nor less than one-half (1/2) the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Tables 7-3 and 7-4. ~~Not to exceed one-third (1/3) of the total permitted length of any vent may be installed in a horizontal position.~~ When vents are increased one (1) pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table complies with the requirements of Section 901.2.

Commentary-State: This eliminates the restriction of not allowing more than 1/3 of the length of a drain to be located in a horizontal position. Venting is not compromised by increasing the 1/3 horizontal distance.

706.1 Changes in direction of drainage piping shall be made by the appropriate use of approved fittings and shall be of the angles presented by a one sixteenth (1/16) bend, one-eighth (1/8) bend, or one sixth (1/6) bend, or other approved fittings of equivalent sweep.

> **Exception:** One-quarter (1/4) bends may be used on individual fixture drains, horizontal to vertical changes in direction of drainage piping, and vertical to horizontal changes in directions for more than one fixture.

Commentary-State: For cost effective purposes, this allows a ¼ bend for individual fixture drains if going from horizontal to vertical, and vertical to horizontal changes in direction.

706.2 Horizontal drainage lines, connecting with a vertical stack, shall enter through 45 degree (0.79 rad) wye branches, 60 degree (1.05 rad) wye branches, combination wye and one-eighth (1/8) bend branches, sanitary tee or sanitary tapped tee branches, or other approved fittings of equivalent sweep. No fitting having more than one (1) inlet at the same level shall be used unless

such fitting is constructed so that the discharge from one (1) inlet cannot readily enter any other inlet. Double or single sanitary tees with side inlet may be used if the side inlet flow line is above the flow line of the largest horizontal inlet. ~~Double sanitary tees shall be permitted to be used when the barrel of the fitting is not less than two (2) pipe sizes larger than the largest inlet, (pipe sizes recognized for this purpose are 2 in., 2-1/2 in., 3 in., 3-1/2 in., 4 in., 4-1/2 in., 5 in., 6 in., etc.) (50, 65, 80, 90, 100, 115, 125, 150 mm, etc.).~~ When a double sanitary tee is serving back-to-back water closets that are less than 30 inches from the soil stack, the stack shall be four (4) inches (101.6 mm).

Commentary-State: This allows double or single sanitary tees with a side outlet as long as the side outlet is above the flow line of the largest horizontal inlet. This requires a 4 inch stack where the double sanitary tee serves back to back water closets.

707.4 Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal, and each run of piping, that is more than one-hundred (100) feet (30,480 mm) in total developed length, shall be provided with a cleanout for each one-hundred (100) feet (30,480 mm), or fraction thereof, in length of such piping. An additional cleanout shall be provided in a drainage line for each aggregate horizontal change of direction exceeding 135 degrees (2.36 rad).

Exceptions:(1) Cleanouts shall be permitted to be omitted on a horizontal drain line less than five (5) feet (1,524 mm) in length unless such line is serving sinks or urinals.

(2) Cleanouts shall be permitted to be omitted on any horizontal drainage pipe installed on a slope of 72 degrees (1.26 rad) or less from the vertical angle (one-fifth (1/5) bend).

(3) Excepting the building drain and its horizontal branches, a cleanout shall not be required on any pipe or piping that is above the floor level of the lowest floor of the building.

(4) An approved type of two-way cleanout fitting, installed inside the building wall near the connection between the building drain and the building sewer or installed outside of a building at the lower end of a shall be permitted to be substituted for an upper terminal cleanout.

5. Where the piping is concealed, a fixture trap or a fixture with an integral trap, readily removable without disturbing concealed rough-in work, shall be accepted as a cleanout equivalent.

Commentary-State: This allows an accessible fixture trap or a fixture with an integral trap opening to be accepted as a cleanout.

707.9 Each cleanout in piping two (2) inches (50 mm) or less in size shall be so installed that there is a clearance of not less than twelve (12) inches (305 mm) in front of the cleanout. Cleanouts in piping exceeding two (2) inches (50 mm) shall have a clearance of not less than eighteen (18) inches (457 mm) in front of the cleanout. Cleanouts in under-floor building sewer piping shall be extended to or above the finished floor or shall be extended outside the building

when there is less than eighteen (18) inches (457 mm) vertical overall, allowing for obstructions such as ducts, beams, and piping, and thirty (30) inches of (762 mm) horizontal clearance from the means of access to such cleanout. ~~No under-floor cleanout shall be located exceeding twenty (20) feet (6,096 mm) from an access door, trap door, or crawl hole.~~

Commentary-State: This eliminates the 20 foot maximum distance for under floor cleanouts from an access door.

708.0 Grade of Horizontal Drainage Piping. Horizontal drainage piping shall be run in practical alignment and a uniform slope of not less than one fourth (1/4) inch per foot (20.8 mm/m) or 2 percent toward the point of disposal provided that, where it is impractical due to the depth of the street sewer, to the structural features, or to the arrangement of any building or structure to obtain a slope of one-fourth (1/4) of an inch per foot (20.8 mm/m) or 2 percent, any such pipe or piping four (4) inches (100 mm) or larger in diameter may have a slope of not less than one-eighth (1/8) of an inch per foot (10.4 mm/m) or 1 percent~~, when first approved by the Authority Having Jurisdiction~~.

Commentary-State: This eliminates the specific approval for the allowance of using a 1% slope where the piping is increase to 4 inch in diameter.

710.1 Whenever required by the administrative authority, ~~W~~where a fixture is installed on a floor level that is lower than the next upstream manhole cover of the public or private sewer, serving such drainage piping, shall be protected from backflow of sewage by installing an approved type of backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve. Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating “backwater valve downstream”.

Commentary-State/City: The state eliminates the mandatory requirement for backwater valves in all cases where a fixture on a floor level is installed lower than the next upstream manhole cover. The City inserted the provision back in to be able to require sewer backflow devices in those areas that have a higher likelihood of sewer backup such as in a flood plain location.

710.3.2 In single dwelling units, the ejector or pump shall be capable of passing a one and one half (1-1/2) inch (38 mm) diameter solid ball, and the discharge piping of each ejector or pump shall have a backwater valve ~~and gate valve~~, and be not less than of two (2) inches (50 mm) in diameter.

Commentary-State: This simply eliminates the use of a gate valve for a sewage pump or ejector in single family dwellings.

710.4 The discharge line from such ejector, pump, or other mechanical device shall be provided with an accessible backwater or swing check valve ~~and gate or ball valve~~. If the gravity drainage line to which such discharge line connects is horizontal, the method of connection shall be from the top through a wye branch fitting. The gate or ball valve shall be located on the discharge side of the backwater or check valve.

Gate or ball valves, when installed in drainage piping, shall be full way type with working parts of corrosion-resistant metal. Sizes four (4) inches (100 mm) or more in diameter shall have cast-iron bodies, and sizes less than four (4) inches (100 mm), cast-iron or brass bodies.

Commentary-State: This clarifies that a backwater or swing check valve is required on the discharge line from an ejector, pump or other mechanical device. Gate and ball valves are not allowed.

Section 710.14 Subsoil Drainage Systems. When subsoil drainage systems are installed, such systems shall be discharged into an approved sump or receiving tank and shall be discharged in a manner satisfactory to the Authority Having Jurisdiction.

The sump pit shall be at least 15 inches (381 mm) in diameter, 18 inches (457 mm) in depth, and provided with a fitted cover. A one and one-half inch (38 mm) diameter rigid line within 36 inches (914 mm) of the sump pit shall be installed with the opposite end terminating to the outside.

Commentary-City: This clarifies that subsoil drainage shall be discharged per the water reclamation standards and defines the size of the sump pit and the size of piping serving the sump.

712.0 Testing. Where the Administrative Authority, due to practical difficulties or hardships, finds that a water or air test cannot be performed, a smoke or peppermint test shall be substituted in lieu thereof. A smoke test shall be made by introducing into the entire system a pungent, thick smoke proceeded by one or more smoke machines. When the smoke appears at stack openings on the roof, they shall be closed and at a pressure equivalent to a one-inch water column shall be developed and maintained for the period of the inspection. A peppermint test shall be conducted by the introduction of two ounces of oil of peppermint into the roof terminal of every line or stack to be tested. The oil of peppermint shall be followed at once by 10 quarts of hot water whereupon all roof vent terminals shall be sealed. A positive test which reveals leakage shall be the detection of the odor of peppermint at any trap or other point on the system. Oil of peppermint of persons whose person or clothes have come in contact with oil of peppermint shall be excluded from the test area.

Commentary-State: Provides for an alternative form of testing for waste and venting.

712.1 Media. The piping of the plumbing, drainage, and venting systems shall be tested with water or air ~~except that plastic pipe shall not be tested with air~~. The Authority Having Jurisdiction shall be permitted to require the removal of any cleanouts, etc., to ascertain whether the pressure has reached all parts of the system. ~~After the plumbing fixtures have been set and their traps filled with water, they shall be submitted to a final test~~.

Commentary-State: This will allow the testing of piping, drain and venting to be accomplished by for plastic plumbing systems.

713.6 On every lot or premises hereafter connected to a public sewer, all plumbing and drainage systems or parts thereof on such lot or premises shall be connected with such public sewer where the public sewer is within 200 feet of the structure.

~~**Exception:** Single-family dwellings and buildings or structures accessory thereto, existing and connected to an approved private sewage disposal system prior to the time of connecting the premises to the public sewer shall be permitted, when no hazard, nuisance, or insanitary condition is evidenced and written permission has been obtained from the Authority Having Jurisdiction, remain connected to such properly maintained private sewage disposal system when there is insufficient grade or fall to permit drainage to the sewer by gravity.~~

Commentary-State: This mandates that a dwelling on a private sewage disposal system is mandated to connect into the public sewer and the provision for 200 feet is inserted for clarification.

719.6 For underground piping over seven (7) inches, manholes shall be provided and located at every change of size, alignment, grade, or elevation and at intervals of not more than five hundred (500) feet. When total length is less than one hundred fifty (150) feet, cleanouts may be provided at one hundred (100) foot intervals. ~~Approved manholes shall be permitted to be installed in lieu of cleanouts, when first approved by the Authority Having Jurisdiction. The maximum distance between manholes shall not exceed three hundred (300) feet (91.4 m).~~

The inlet and outlet connections shall be made by the use of a flexible compression joint not less than twelve (12) inches (305 mm) and not exceeding three (3) feet (914 mm) from the manhole. No flexible compression joints shall be embedded in the manhole base.

Commentary-State: This redefines when manholes can be used to accommodate cleanouts.

801.3 Bar and Fountain Sink Traps. Where the sink in a bar, soda fountain, or counter is so located that the trap serving the sink cannot be vented, the sink drain shall discharge through an airgap or airbreak (see Section 801.2.3) into an approved receptor that is vented. The developed length from the fixture outlet to the receptor shall not exceed fifteen (15) feet (4572 mm). ~~five (5) feet (1,524 mm)~~

Commentary-State: This increased the developed length from 5 feet to 15 feet, to accommodate venting in bar areas.

807.4 The discharge from a residential kitchen sink and dishwasher may discharge through a single 1-1/2 inch trap. The discharge line from the dishwasher shall be not less than ½ inch nominal size and shall either be looped up and securely fastened to the underside of the counter or be connected to a deck-mounted dishwasher air gap fitting. The discharge shall than be connected to a wye fitting between the sink waste outlet and the trap inlet or to the disposal.

~~No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher airgap fitting on the discharge side of~~

~~the dishwashing machine. Listed airgaps shall be installed with the flood-level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher.~~

Commentary-State: Clarifies drainage systems for residential dishwashers and eliminates the otherwise mandatory air gap fittings for dishwahers.

903.1.2 ABS and PVC DWV piping installations shall be in accordance with the applicable standards referenced in the *Building Code*, the *Residential Code*, Table 14-1 and Chapter 15 "Firestop Protection." Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flamespread index of a maximum of twenty-five (25) and a smoke-developed index of not more than fifty (50) when tested in accordance with the *Test for Surface-Burning Characteristics of the Building Materials* (see the Building Code standards based on ASTM E84 and UL 723).

Commentary-City: The state eliminated fire stop provisions. This inserts back into the plumbing code that the building code is the reference for fire stop provisions.

904.2 Not Adopted By City. ~~No more than one-third (1/3) of the total permitted length, per Table 7-5, of any minimum sized vent shall be installed in a horizontal position.~~

> ~~**Exception:** When a minimum-sized vent is increased one (1) pipe size for its entire length, the maximum length limitation does not apply.~~

Commentary-State: This again allows a horizontal vent to exceed more than 1/3 the distance.

905.3 Unless prohibited by structural conditions, each vent shall rise vertically to a point not less than six (6) inches (152 mm) above the flood-level rim of the fixture served before offsetting horizontally, and whenever two (2) or more vent pipes converge, each such vent pipe shall rise to a point not less than six (6) inches (152 mm) in height above the flood-level rim of the plumbing fixture it serves before being connected to any other vent. Vents less than six (6) inches (152 mm) above the flood-level rim of the fixture shall be installed with approved drainage fittings, material, and grade to the drain. A sanitary tee is acceptable in lieu of an approved drainage fitting.

Commentary-State: A sanitary tee is an allowable alternative to an approved drainage fitting.

906.7 Frost or Snow Closure. Each vent extension through a roof shall be at least 3 inches in diameter except kitchen sink vents in single-family dwellings, which shall be at least 2 inches in diameter. The change shall be made inside the building at least 1 foot below the roof with an approved fitting. ~~Where frost or snow closure is likely to occur in locations having minimum design temperature below 0°F (-17.8°C), vent terminals shall be not less than two (2) inches (50 mm) in diameter, but in no event smaller than the required vent pipe. The change in diameter shall be made inside the building not less than one (1) foot (305 mm) below the roof in an insulated space and terminate not less than ten (10) inches (254 mm) above the roof, or as required by the Authority Having Jurisdiction.~~

Commentary-State: A kitchen sink is allowed to be terminated by itself with a 2 inch vent as long as there are no other fixtures attached.

908.2.1 Where Permitted. Single Bathroom or Single Toilet Room. One (1) or two (2) vented lavatories shall be permitted to serve as the wet vent for one (1) water closet and/or one (1) bathtub or shower stall, or one (1) water closet and/or one (1) bathtub/shower combination if all of the following conditions are met:

(1) The wet vent, and the dry vent extending from the wet vent, shall be two (2) inch minimum pipe size;
(2) The wet vent pipe opening shall not be below the weir of the trap that it serves. Vent sizing, grades, and connections shall comply with Sections 904.0 and 905.0;
(3) The horizontal branch drain serving both the lavatory and the bathtub or shower stall shall be two (2) inch minimum size;
(4) The length of the trap arm from the bathtub or shower stall complies with the limits in Table 10-1;
(5) The distance from the outlet of the water closet to the connection of the wet vent complies with the limits in Table 10-1;
(6) The horizontal branch drain serving the lavatory and the bathtub or shower stall shall connect to the horizontal water closet branch above its center line. When the bathroom or toilet room is the top-most load on a stack, the horizontal branch serving lavatory and the bathtub or shower stall shall be permitted to connect to the stack below the water closet branch;

No fixture other than those listed in this section shall discharge through a single bathroom or single toilet room wet-vented system.

~~Water closets, bathtubs, showers and floor drains within one (1) or two (2) bathroom groups located on the same floor level and for private use shall be permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain or trap arm connection to the horizontal branch drain. Each wet vented fixture drain or trap arm shall connect independently to the wet vented horizontal branch drain. Each individual fixture drain or trap arm shall connect horizontally to the wet vented horizontal branch drain or shall be provided with a dry vent. The trap to vent distance shall be in accordance with Table 10-1. Only the fixtures within the bathroom groups shall connect to the wet vented horizontal branch drain. The water closet fixture drain or trap arm connection to the wet vent shall be downstream of any fixture drain or trap arm connections. Any additional fixtures shall discharge downstream of the wet vent system and be conventionally vented.~~

Commentary-State: This reverts horizontal wet venting for bathrooms back to the 2003 UPC provisions and maintains the status quo.

908.2.2 Vent Connection. Double Bathtubs, Bathtub/Shower Combinations, Shower Stalls, and Lavatories. Two (2) lavatories, each rated at 1.0 drainage fixture unit (DFU), and two (2) bathtubs, bathtub/shower combinations, or shower stalls, installed in adjacent bathrooms, shall

be permitted to drain to a horizontal drain branch that is two (2) inch minimum pipe size, with a common vent for the lavatories and no individual vents for the bathtubs, bathtub/shower combinations, or shower stalls, provided that the wet vent from the lavatories and their dry vent is two (2) inch minimum pipe size and the length of all trap arms comply with the limits in Table 10-1.

~~The dry vent connection to the wet vent shall be an individual vent or common vent for the lavatory, urinal, bidet, shower, or bathtub. Only one (1) wet vented fixture drain or trap arm shall discharge upstream of the dry-vented fixture drain connection.~~

Commentary-State: This reverts horizontal wet venting for double bathtubs/shower combinations back to the 2003 UPC provisions and maintains the status quo.

908.2.3 Vent Washdown. Lavatories or sinks other than kitchen sinks or food waste grinders may wash down an individual vent if not more than two (2) dfu are drained to a two (2) inch vent and the fixture trap arm lengths comply with Table 10-1. All fixtures shall be on the same floor level.

~~**Size.** The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall be not less than two (2) inches (50 mm) in diameter for four (4) dfu or less, and not less than three (3) inches (80 mm) in diameter for five (5) dfu or more. The dry vent shall be sized in accordance with Tables 7-3 and 7-5 based on the total fixtures units discharging into the wet vent.~~

Commentary-State: This reverts horizontal wet venting for bathrooms back to the 2003 UPC provisions and maintains the status quo.

909.0 Special Venting for Island Fixtures. Traps for island sinks and similar equipment shall be roughed in above the floor and shall be permitted to be vented by extending the vent as high as possible, but not less than the drain board height and then returning it downward and connecting it to the horizontal sink drain immediately downstream from the vertical fixture drain. The return vent shall be connected to the horizontal drain through a wye branch fitting and shall, in addition, be provided with a foot vent taken off the vertical fixture vent by means of a wye branch immediately below the floor and extending to the nearest partition and then through the roof to the open air, or shall be permitted to be connected to other vents at a point not less than six (6) inches (152 mm) above the flood-level rim of the fixtures served. Drainage fittings shall be used on all parts of the vent below the floor level, and a slope of not less than one-fourth (1/4) inch per foot (20.8 mm/m) back to the drain shall be maintained. The return bend used under the drain board shall be a one (1) piece fitting or an assembly of a 45 degree (0.79 rad), a 90 degree (1.6 rad), and a 45 degree (0.79 rad) elbow in the order named. Pipe sizing shall be as elsewhere required in this code. The island sink drain, upstream of the returned vent, shall serve no other fixtures. An accessible cleanout shall be installed in the vertical portion of the foot vent.

Alternate island sink installations require a minimum of a 3 inch diameter drain undiminished in size which shall rise up through the sink cabinet and capped off as high as possible. The vent shall connect no further than 15 feet from the vertical section of the drain and shall be a

minimum of 1½ inch in diameter. A 3x3x1½ inch sanitary tee is required for connection to the trap.

Commentary-State: This reverts alternate venting for island sink installation back to the 2003 UPC provisions and maintains the status quo.

910.1 Combination waste and vent systems shall be permitted only where structural conditions preclude the installation of conventional systems as otherwise prescribed by this code.

> **Exception:** In single family dwellings the maximum length for a floor drain connected to a uniformly sized building drain vented on both the upstream and downstream side of the connection to the floor drain is fifteen (15) feet. The minimum trap seal shall be 4 inches.

Commentary-State: This allows a 15 foot floor drain in single family dwellings instead of 5 feet otherwise required by the UPC.

1001.1 Each plumbing fixture, excepting those having integral traps or as permitted in Section 1001.2, shall be separately trapped by an approved type of water seal trap. Not more than one (1) trap shall be permitted on a trap arm.

> **Exception:** Up to 3 lavatories may be permitted on a 2-inch trap arm.

Commentary-State: This allows 3 lavatories on a 2 inch trap arm.

1003.1 Each trap, except for traps within an interceptor or similar device shall be self-cleaning. Traps for bathtubs, showers, lavatories, sinks, laundry tubs, floor drains, urinals, drinking fountains, dental units, and similar fixtures shall be of standard design, weight and shall be of ABS, cast brass, cast iron, lead, PP, PVC, or other approved material. An exposed and readily accessible drawn-brass tubing trap, not less than 20 B&S Gauge (0.053 inch) (1.3 mm ~~17 B & S Gauge (0.045 inch) (1.1 mm)~~, shall be permitted to be used on fixtures discharging domestic sewage.

> **Exception:** Drawn-brass tubing traps shall not be used for urinals. Each trap shall have the manufacturer's name stamped legibly in the metal of the trap, and each tubing trap shall have the gauge of the tubing in addition to the manufacturer's name. Every trap shall have a smooth and uniform interior waterway.

Commentary-State: Allows 20 gauge in lieu of 17 gauge for drawn brass tubing traps.

1003.2 A maximum of one (1) approved slip joint fitting shall be permitted to be used on the outlet side of a trap, and no tubing trap shall be installed without a listed tubing trap adapter. Listed plastic trap adapters shall be permitted to be used to connect listed metal tubing traps. Slip joint extensions with a 45-degree slip joint offsets are allowed.

Commentary-State: Allows slip joint offsets with a 45 degree slip joint to accommodate drainage connections.

1003.3 The size (nominal diameter) of a trap for a given fixture shall be sufficient to drain the fixture rapidly, but in no case less than nor more than one (1) pipe size larger than given in Table 7-3. ~~The trap shall be the same size as the trap arm to which it is connected.~~

Commentary-State: Eliminates the requirement for the trap to be the same size of the trap arm.

1009.5 Location. Each interceptor (clarifier) cover shall be readily accessible for servicing and maintaining the interceptor (clarifier) in working and operating condition. ~~The use of ladders or t~~ The removal of bulky equipment in order to service interceptors (clarifiers) shall constitute a violation of accessibility. Location of all interceptors (clarifiers) shall be shown on the approved building plan.

Commentary-State: The use of ladders to remove interceptor equipment is eliminated to maintain accessibility to interceptors or clarifiers.

1016.2 Construction and Size. Sand interceptors shall be built of brick or concrete, prefabricated coated steel, or other watertight material. The interceptor shall have an interior baffle for full separation of the interceptor into two (2) sections. The outlet pipe shall be the same size as the inlet pipe of the sand interceptor, the minimum being three (3) inches (80 mm), and the baffle shall have two (2) openings of the same diameter as the outlet pipe and at the same invert as the outlet pipe. These openings shall be staggered so that there cannot be a straight line flow between any inlet pipe and the outlet pipe. The invert of the inlet pipe shall be no lower than the invert of the outlet pipe.

The sand interceptor shall have a minimum dimension of two (2) feet square (0.19 m2) for the net free opening of the inlet section and a minimum depth under the invert of the outlet pipe of two (2) feet (610 mm).

For each five (5) gallons (18.9 L) per minute flow or fraction thereof over twenty (20) gallons (75.7 L) per minute, the area of the sand interceptor inlet section is to be increased by one (1) square foot (0.09 m2). The outlet section shall at all times have a minimum area of fifty (50) percent of the inlet section.

The outlet section shall be covered by a solid removable cover, set flush with the finished floor, and the inlet section shall have an open grating, set flush with the finished floor and suitable for the traffic in the area in which it is located.

Floor drains in garages serving dwelling units for parking purposes that are connected to a building sanitary sewer shall have a means of collecting sediment and shall be provided with a removable and accessible water trap seal.

Commentary-State: This references a water trap seal instead of a double trap compartment in garages serving dwelling units.

1101.3 Material Uses. Rainwater piping placedwithin the interior of a building or run within a vent or shaft shall be of cast-iron, galvanized steel, wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, stainless steel 304 or 316L (stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than six (6) inches (152 mm) above ground), or other approved materials, and changes in direction shall conform to the requirements of Section 706.0. ABS and PVC DWV piping installations shall be installed in accordance with of the *Building Code*. ~~IS 5, IS 9, and Chapter 15 "Firestop Protection."~~ Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of twenty-five (25) and a smoke-developed index of a maximum of fifty (50), when tested in accordance with the *Test for Surface-Burning Characteristics of the Building Materials* (see the Building Code standards based on ASTM E84 and UL 723.).

Commentary-State/City: References to the building code for fire stops. The state eliminated any reference to fire stops.

1103.1 Where Required. Leaders and storm drains are required to be attached to the storm drain or shall be discharged to the outside. ~~, when connected to a combined sewer, shall be trapped. Floor and area drains connected to a storm drain shall be trapped.~~

~~**Exception:** Traps shall not be required where roof drains, rain leaders, and other inlets are at locations allowed under Section 906.0, Vent Termination~~.

Commentary-City: This clarifies that any storm drains on a building are required to discharge to the outside or to an approved storm drain sewer.

1103.4 Method of Installation of Combined Sewer. Not adopted by the City. ~~Individual storm-water traps shall be installed on the storm-water drain branch serving each storm-water inlet, or a single trap shall be installed in the main storm drain just before its connection with the combined building sewer. Such traps shall be provided with an accessible cleanout on the outlet side of the trap.~~

Commentary-City: This clarifies that any storm drains on a building are required to discharge to the outside or to an approved storm drain sewer.

1104.3 Combining Storm with Sanitary Drainage. The sanitary and storm drainage system of a building shall be entirely separate. ~~, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through single wye fittings to the combined building sewer not less than ten (10) feet (3,048 mm) downstream from any soil stack.~~

Commentary-State: This clarifies that any storm drains on a building are required to discharge to the outside or to an approved storm drain sewer.

1109.2 Methods of Testing Storm Drainage Systems. Except for outside leaders and perforated

or open-jointed drain tile, the piping of storm drain systems shall be tested upon completion of the rough piping installation by water or air~~, except that plastic pipe shall not be tested with air,~~ and proved tight. The Authority Having Jurisdiction shall be permitted to require the removal of any cleanout plugs to ascertain whether the pressure has reached parts of the system. One (1) of the following test methods shall be used:

Commentary-State: This will allow plastic rain leaders to be tested with air.

1209.2 Provision for Location of Point of Delivery. The location of the point of delivery shall be acceptable to the serving gas supplier. [NFPA 54:5.2]

The piping located on the exterior extending from the gas meter to the inside of the structure shall be a metallic pipe in compliance with Section 1209.5.2. The entrance into the structure shall be provided with the appropriate transition flange where an alternate gas piping material is utilized on the inside of the structure.

Commentary-City: The state eliminated any reference to fuel gas piping. This mandates hard piping from the meter to the entrance to the structure and eliminates CSST at this location which is more susceptible to breakage.

Table L-3
Building Drains and Building Sewers[a]

Diameter of Pipe, in. (mm)	Maximum Number of Drainage Fixture Units for Sanitary Building Drains and Runouts From Stacks			
	Slope, in./ft (mm/m)			
	1/16 (5.2)	1/8 (10.4)	1/4 (20.8)	1/2 (41.6)
2 (50)			21	26
2 1/2 (65)			24	31
3 (80)		~~20~~	42[b]	50[b]
4 (100)		180	216	250
5 (125)		390	480	575
6 (150)		700	840	1,000
8 (200)	1400	1600	1,920	2,300
10 (250)	2500	2900	3,500	4,200
12 (300)	2900	4600	5,600	6,700
15 (380)	7000	8300	10,000	12,000

SI: 1 inch = 25.4 mm, 1 inch per foot = 83.3 mm/m

a On-site sewers that serve more than one building may be sized according to the current standards and specifications of the administrative authority for public sewers.

b A maximum of two water closets or two bathroom groups, except in single-family dwellings, where a maximum of three water closets or three bathroom groups may be installed.

L 8.1 Circuit Vent Permitted. ~~Circuit venting shall be designed by a registered professional engineer as an engineered design.~~ A maximum of eight (8) fixtures connected to a horizontal branch drain shall be permitted to be circuit vented. Each fixture drain shall connect horizontally to the horizontal branch being circuit vented. The horizontal branch drain shall be classified as a vent from the most downstream fixture drain connection to the most upstream fixture drain connection to the horizontal branch.

Commentary-State: This simply eliminates an engineered design for circuit vent in an alternative venting system referenced in Appendix L.