311.1.2 Addition, Alterations or Repairs. Alterations, repairs, and replacement of plumbing fixtures and fixture fittings for private or public use shall comply with the maximum water flow rates and flush volumes in accordance with the applicable provisions in Chapter 4 for new systems.

311.1.3 Changes in Building Occupancy. Plumbing fixtures and fixture fittings that are part of any building or structure undergoing a change in use or occupancy shall comply with the maximum water flow rates and flush volumes in accordance with the applicable provisions in Chapter 4 for new use or occupancy.

312.0 Independent Systems.

The drainage system of each new building and of new work installed in any existing building shall be separate and independent from that of any other building, and, when available and permitted by the Authority Having Jurisdiction, every building shall have an independent connection with a public or private sewer.

Exception: Where one building stands in the rear of another building on an interior lot, and no private sewer is available or can be constructed to the rear building through an adjoining court, yard, or driveway, the building drain from the front building shall be permitted to be extended to the rear building.

313.0 Protection of Piping, Materials, and Structures.

313.1 Pipes Passing Through or Under Walls. Piping passing under or through walls shall be protected from breakage. Piping passing through concrete, under cinders, walls, or other corrosive materials shall be protected from external corrosion by a protective coating, wrapping, or by other means that withstand the corrosive material. The material shall have a wall thickness of not less than 0.6mm (0.025 in.). Approved provisions shall be made for expansion of hot water pipes. Voids around piping passing through concrete floors on the ground shall be appropriately sealed.

313.2 Stress and Strain. 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 as defined in the Building Code.

313.3 Location of Building Sewer. No building sewer or other drainage piping or part thereof, constructed of materials other than those approved for use under or within a building, shall be installed under or within 60cm (2 ft.) of any building or structure, or less than 30cm (1 ft.) below the surface of the ground.

313.4 Protection Against Corrosion or Physical Damage. Piping subject to corrosion, erosion, or mechanical damage shall be protected in an approved manner.

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 corrosion, erosion, and mechanical damage.

313.5 Protectively Coated Pipe. Protectively coated pipe shall be inspected and tested, and any visible void, damage, or imperfection to the pipe coating shall be repaired to comply with Section 313.0.

313.6 Condensation. Piping subject to operation at temperatures that will form condensation on the exterior of the pipe shall be thermally insulated.

313.7 Insulation and Location. All hot water piping, except when serving an internal fixture, shall be installed in an exterior wall and insulated throughout the developed length of pipe. Such insulation shall have not less than an R-4 value and be approved by the Authority Having Jurisdiction. All cold water shall be installed in an interior wall, except when serving a fixture, and shall not be grouped together with the hot water piping at any point within the system. Hot water pipe should be set at a minimum distance of 20cm (8 in.) from the cold water pipe.

313.8 Exposure. Plastic pipe and fittings shall not be exposed to direct sunlight and shall be stored in an approved manner as to prevent sagging or bending. Tubing and fittings exposed to UV light shall be protected by wrapping with an opaque covering.

313.9 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 applicable Building Codes, applicable standards referenced in Table 14-1 or equivalent International Standard(s) approved by the Authority Having Jurisdiction, and Chapter 15, "Firestop Protection."

313.10 Waterproofing of Openings. Joints at the roof around pipes, ducts, or other appurtenances shall be made water-tight by the use of lead, copper, galvanized iron, or other approved flashings or flashing material. Exterior wall openings shall be made water-tight. Counterflashing shall not restrict the required internal cross-sectional area of the vent.