CHAPTER 4714
MINNESOTA PLUMBING BOARD
PLUMBING CODE

4714.0050 TITLE; INCORPORATION BY REFERENCE.

Chapters 2 to 11, 16, and 17 of the 2018 edition of the Uniform Plumbing Code (UPC) as promulgated by the International Association of Plumbing and Mechanical Officials (IAPMO), Ontario, California, and UPC appendices A, B, and I, are incorporated by reference and made part of the Minnesota Plumbing Code except as qualified by the applicable provisions in chapter 1300, and as amended in this chapter. The UPC is not subject to frequent change and a copy of the UPC, with amendments for use in Minnesota, is available in the office of the commissioner of labor and industry. Portions of this chapter reproduce text and tables from the UPC, reproduced with permission.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0100 BASIC PLUMBING PRINCIPLES.

This code is founded upon certain basic principles of environmental sanitation and safety through properly designed, acceptably installed, and adequately maintained plumbing systems. Some of the details of plumbing construction may vary, but the basic sanitary and safety principles desirable and necessary to protect the health of the people are the same everywhere. As interpretations may be required, and as unforeseen situations arise that are not specifically covered in this code, the 23 principles in items A to W shall be used to define the intent.

A. All premises intended for human habitation, occupancy, or use shall be provided with a potable water supply that meets the requirements of the commissioner of health. The water supply shall not be connected with unsafe water sources nor shall it be subject to the hazards of backflow or back-siphonage.

B. Proper protection shall be provided to prevent contamination of food, water, sterile goods, and similar materials by backflow of sewage. When necessary, the fixtures, devices, or appliances shall be connected indirectly with the building drainage system.

C. Each family dwelling unit shall have at least one water closet, one lavatory, one kitchen-type sink, and one bathtub or shower to meet the basic requirements of sanitation and personal hygiene. All other structures for habitation shall be equipped with sufficient sanitary facilities.

D. The building sewer in every building with installed plumbing fixtures and intended for human habitation, occupancy, or use when located on premises where the Authority Having Jurisdiction has determined that a public sewer is available shall be connected to the public sewer.

E. The building drainage system shall be designed to provide adequate circulation of air in all pipes with no danger of siphonage, aspiration, or forcing of trap seals under conditions of ordinary use.

F. The drainage system shall be designed, constructed, and maintained to conduct the waste water with velocities that prevent fouling, deposition of solids, and clogging.

G. The drainage system shall be provided with an adequate number of cleanouts so arranged that in case of stoppage the pipes may be readily cleaned.

H. Where a building drainage system may be subjected to backflow of sewage, suitable provision shall be made to prevent overflow in the building.

I. Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building.

J. No substance that will clog or accentuate clogging of pipes, produce explosive mixtures, destroy the pipes or their joints, or interfere unduly with the sewage disposal process shall be allowed to enter the drainage system.

K. The piping of the plumbing system shall be of durable material free from defective construction and designed and constructed to give satisfactory service for its reasonable expected life.

L. The plumbing system shall be subjected to adequate tests and to inspections in a manner that will disclose all leaks and defects in the work or the material.

M. Plumbing systems shall be maintained in a safe and serviceable condition from the standpoint of both mechanics and health.

N. Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to the walls and other surfaces through fixture usage.

O. Plumbing fixtures shall be made of durable, smooth, nonabsorbent, and corrosion-resistant material and be free from concealed fouling surfaces.

P. Plumbing fixtures, devices, and appurtenances shall be supplied with water in sufficient volume and at pressures adequate to enable them to function properly and without undue noise under normal conditions of use.

Q. Plumbing fixtures shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning. Hot water shall be supplied to all plumbing fixtures which normally need or require hot water for their proper use and function.

R. All plumbing fixtures shall be installed with regard to spacing as to be accessible for their intended use and cleansing.

S. Each fixture shall be provided with a separate, accessible, self-scouring, reliable trap placed as near to the fixture as possible.

T. No water closet or similar fixture shall be located in a room or compartment that is not properly lighted and ventilated.

U. If water closets or other plumbing fixtures are installed in a building where there is no public sewer available as determined by the Authority Having Jurisdiction, suitable provisions shall be made for treatment of the building sewage by methods that meet the requirements of rules administered by the Pollution Control Agency.

V. Devices for heating and storing water shall be designed and installed to prevent all dangers from explosion and overheating.

W. Sewage or other waste shall not be discharged into surface or subsurface water unless it first has been subjected to an acceptable form of treatment approved by the Pollution Control Agency.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0101 CONFORMANCE WITH CODE.

Subpart 1. **Scope.** As provided in Minnesota Statutes, sections 326B.43 and 326B.52, this code applies to all new plumbing installations performed anywhere in the state, including additions, extensions, alterations, and replacements.

Subp. 2. **New buildings.** In new buildings, all plumbing materials and plumbing systems or parts thereof shall be installed to meet the minimum provisions of this code.

Subp. 3. **Existing buildings.** In existing buildings and premises in which plumbing systems, drainage systems, or other work regulated by this code are to be added, altered, renovated, or replaced, the new materials and work shall meet the provisions of this code. If the Authority Having Jurisdiction finds that the full performance of bringing the work into compliance with all requirements of this code would result in exceptional or undue hardship by reason of excessive structural or mechanical difficulty or impracticability, a deviation may be granted by the Authority Having Jurisdiction only to the extent the deviation can be granted without endangering the health and safety of the occupants and the public.

Subp. 4. **Changes in building occupancy.** A plumbing system that is a part of a building or structure undergoing a change in use or occupancy, as defined in the building code, shall be in accordance with the requirements of this code that are applicable to the new use or occupancy.

Subp. 5. **Moved buildings.** Plumbing systems that are part of buildings or structures moved into this jurisdiction shall be in accordance with this code for new installations. Parts of the plumbing systems of a building or part thereof that is moved from one foundation to another, or from one location to another, shall be completely tested as new work, except that walls or floors need not be removed during such tests where other equivalent means of inspection acceptable to the Authority Having Jurisdiction are provided.

Subp. 6. **Health and safety.** No provision of this code shall be deemed to require a change in a portion of a plumbing or drainage system or other work regulated by this code in or on an existing building or lot where the work was installed and is maintained in accordance with rule in effect before January 23, 2016. Where the plumbing or drainage system or other work regulated by this code is determined by the Authority Having Jurisdiction to be dangerous, unsafe, insanitary or a nuisance or a hazard to life, health, or property then the owner or owner's agent shall be responsible for bringing the existing plumbing installation within the provisions of this code. Where these conditions exist, the owner or owner's agent shall be responsible for installing additional plumbing or making such corrections as may be necessary to abate such nuisance or hazard and bring the existing plumbing installation within the provisions of this code.

Subp. 7. **Commissioner's authority.** The commissioner retains the ultimate authority to enforce this code and Minnesota Statutes, sections 326B.41 to 326B.59, regardless of whether the administrative authority is the commissioner or the governing body of a governmental subdivision.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *October 5, 2016*

4714.0203 TERMS DEFINED BEGINNING WITH A.

Subpart 1. **Added definitions.** UPC section 203.0 is modified by adding the following definition:

Administrative Authority - Means the commissioner.

Exception: When a governmental subdivision adopts and maintains a comprehensive plumbing enforcement program that is conducted by personnel who are knowledgeable about plumbing installation requirements, and includes enforcement of all code provisions including materials, methods, inspection, and testing, the administrative authority shall be the governing body of the adopting unit of government or a duly designated representative of the governing body who is either an employee of the governing body or a person working under contract with the governing body.

Subp. 2. **Amended definitions.** UPC section 203.0 is modified by amending the following definitions:

Approved - Means approval by the administrative authority, pursuant to the Minnesota Plumbing Code, by reason of inspection, investigation, or testing; accepted principles; computer simulations; research reports; or testing performed by a nationally recognized testing laboratory.

Authority Having Jurisdiction - Unless otherwise specified in this code, the term Authority Having Jurisdiction has the same meaning as administrative authority.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0204 TERMS DEFINED BEGINNING WITH B.

Subpart 1. **Added definition.** UPC section 204.0 is modified by adding the following definition:

Barometric Loop - Means a section of pipe in the shape of an inverted "u" located upstream and rising a minimum of 35 feet above the highest fixture it supplies.

Subp. 2. **Amended definition.** UPC section 204.0 is modified by amending the following definition:

Building Supply - Means the pipe carrying potable water from the municipal water supply or source of water supply to a building water meter, pressure tank, or other point of use or distribution on the lot.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0205 TERMS DEFINED BEGINNING WITH C.

Subpart 1. **Amended definitions.** UPC section 205.0 is modified by amending the following definitions:

Certified Backflow Assembly Tester - Has the same meaning as backflow prevention tester defined in Minnesota Statutes, section 326B.42, subdivision 1c.

Clear Water Waste - Uncontaminated water discharges, subsoil discharges, and similar discharges.

Code - For purposes of this chapter, "this code" or "the code" means the Minnesota Plumbing Code, Minnesota Rules, chapter 4714.

Subp. 2. **Added definitions.** UPC section 205.0 is modified by adding the following definition:

Commissioner - Means the commissioner of labor and industry or a duly designated representative of the commissioner who is either an employee of the Department of Labor and Industry or a person working under contract with the department.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0206 TERMS DEFINED BEGINNING WITH D.

UPC section 206.0 is modified by amending the following definition:

Drainage System - Includes all the piping within public or private premises that conveys sewage, rainwater, or other liquid wastes to a legal point of disposal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0207 TERMS DEFINED BEGINNING WITH E.

UPC section 207.0 is modified by adding the following definition:

Emergency Floor Drain - Means floor drains that do not serve as a receptor, are located in restrooms, are under emergency eyewash/shower equipment, or are in laundry rooms.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0210 TERMS DEFINED BEGINNING WITH H.

Subpart 1. **Amended definition.** UPC section 210.0 is modified by amending the following definition:

Hydromechanical Grease Interceptor - A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil, and grease (FOG) from a wastewater discharge and is identified by flow rate, and separation and retention efficiency. The design incorporates air entrainment, hydromechanical separation, interior baffling, or barriers in combination or separately, and one of the following:

A - External flow control, with air intake (vent), directly connected.

B - External flow control, without air intake (vent), directly connected.

C - Without external flow control, directly connected.

These interceptors comply with the requirements of Table 1014.2.1. Hydromechanical grease interceptors are generally installed inside.

Subp. 2. **Added definitions.** UPC section 210.0 is modified by adding the following definition:

Health Authority - Means the state health department or local public health agency that has authority established under law to enforce rules governing drinking water supply.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0214 TERMS DEFINED BEGINNING WITH L.

UPC section 214.0 is modified by adding the following definition:

Low Pressure Water Dispenser - Means a terminal fitting located downstream of a pressure-reducing valve that dispenses hot drinking water above 160 degrees Fahrenheit (71 degrees Celsius) or cold water or both at a pressure of 15 psi (105 kPa) or less.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0218 TERMS DEFINED BEGINNING WITH P.

UPC section 218.0 is modified by amending the following definitions:

Plumbing System - Includes all potable water, building supply, and distribution pipes; all plumbing fixtures and traps; all drainage and vent pipes; and all building drains and building sewers, including their respective joints and connections, devices, receptors, and appurtenances within the property

lines of the premises and shall include potable water piping, potable water treating or using equipment, and nonpotable water piping serving plumbing fixtures.

Potable Water - Water that is satisfactory for drinking, culinary, and domestic purposes and that meets the requirements of the Health Authority.

Private Sewage Disposal System - A subsurface sewage treatment system designed for use apart from a public sewer as regulated under the rules administered by the Pollution Control Agency.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0220 TERMS DEFINED BEGINNING WITH R.

UPC section 220.0 is modified by amending the following definition:

Registered Design Professional - For purposes of this code, "registered design professional," "engineer," or "registered professional engineer" means a person practicing professional engineering as described in Minnesota Statutes, section 326.02, subdivision 3, and who is licensed in the state of Minnesota as a professional engineer by the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design under Minnesota Statutes, section 326.10.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0221 TERMS DEFINED BEGINNING WITH S.

UPC section 221.0 is modified by amending the following definition:

Single-Family Dwelling - Has the meaning of dwelling, single-family, in Minnesota Rules, part 1309.0202, subpart 1.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0225 TERMS DEFINED BEGINNING WITH W.

UPC section 225.0 is modified by adding the following definition:

Water Conditioning Equipment or Water Treating Equipment - Means any appliance, appurtenance, or fixture, or any combination thereof, designed to treat potable water, so as to alter, modify, add, or remove any minerals, chemicals, or bacteria contained in the water. Water conditioning equipment and water treating equipment includes but is not limited to ion exchange water softeners, backwashing water filters, oxidizing water filters, cartridge filters, chemical feed

cartridges, ultraviolet lights, and equipment for reverse osmosis, ultrafiltration, nanofiltration, pH adjustment, nitrate and arsenic removal, and adsorption onto activated carbon.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
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4714.0301 SECTION 301.0 GENERAL.

Subpart 1. **Subsection 301.2.5 Existing Buildings.** UPC subsection 301.2.5 is deleted in its entirety.

Subp. 2. **Section 301.3.** UPC section 301.3 is amended to read as follows:

301.3 Alternate Materials and Methods of Construction Equivalency. Nothing in this code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this code. Prior to installation, technical documentation shall be submitted to the Authority Having Jurisdiction to demonstrate equivalency. Unless prohibited by this code or by law, the Authority Having Jurisdiction shall have the authority to approve or disapprove the system, method, or device for the intended purpose.

However, the exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of the Authority Having Jurisdiction. An alternate material or method of construction so approved shall not be considered as in accordance with the requirements, intent, or both of this Code for a purpose other than that granted by the Authority Having Jurisdiction where the submitted data does not prove equivalency.

UPC subsections 301.3.1, 301.3.1.1, and 301.3.1.2 are preserved without amendment.

Subp. 3. **Section 301.5.6.** UPC section 301.5.6 is amended to read as follows:

301.5.6 Inspection and Testing. The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this code. Prior to the final plumbing inspection, the registered professional engineer shall provide written certification to the administrative authority that the system has been visually inspected by the registered professional engineer or the registered professional engineer's designee, and the installation has been properly implemented according to the certified plans, calculations, and specifications.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0307 LOCATION.

UPC section 307.1 is amended to read as follows:

307.1 System. Except as otherwise provided in this code, no plumbing system, drainage system, building sewer, or part thereof shall be located in a lot other than the lot that is the site of the building, structure, or premises served by such facilities.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0311 INDEPENDENT SYSTEMS.

Subpart 1. **Section 311.0.** UPC section 311.0 title is amended to read as follows:

311.0 Use of Public Sewer and Water Systems Required.

Subp. 2. **Section 311.1.** UPC section 311.1 is amended to read as follows:

311.1 General. If a public sewer is available in a street or alley to a building or premises and the connection is feasible, liquid waste from any plumbing system in that building shall be discharged into the public sewer unless otherwise prohibited by this code or a local ordinance. If a public water supply is accessible, the water distribution system shall be connected to it unless otherwise permitted by the Authority Having Jurisdiction. A private water well taken out of service because of a connection to a public water supply shall be maintained pursuant to Minnesota Rules, chapter 4725, Wells and Borings.

Every building shall have its own independent water and sewer connection except that a group of buildings may be connected to one or more sewer manholes on the premises that are constructed to standards set by the Authority Having Jurisdiction.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0312 PROTECTION OF PIPING, MATERIALS, AND STRUCTURES.

Subpart 1. **Section 312.7.** UPC section 312.7 is amended to read as follows:

312.7 Fire-Resistant Construction. 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 State Building Code.

Subp. 2. **Section 312.9.** UPC section 312.9 is amended to read as follows:

312.9 Steel Nail Plates. Plastic and copper piping penetrating framing members to within 1 inch (25.4 mm) of the exposed framing shall be protected by steel nail plates not less than No. 18 gauge (0.0478 inches) (1.2 mm) in thickness. The steel nail plate shall extend along the framing member not less than 1-1/2 inches (38 mm) beyond the outside diameter of the pipe or tubing.

Exception: See Minnesota Rules, chapter 1346, Minnesota Mechanical and Fuel Gas Codes.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*

Published Electronically: *January 25, 2016*

4714.0313 HANGERS AND SUPPORTS.

Subpart 1. **Section 313.** Table 313.3 is amended to read as follows:

TABLE 313.3			
HANGERS AND SUPPORTS			
MATERIALS	**TYPES OF JOINTS**	**HORIZONTAL**	**VERTICAL**
Cast	Lead and Oakum	5 feet, except 10 feet where 10 foot lengths are installed[1,2,3]	Base and each floor, not to exceed 15 feet
	Compression Gasket	Every other joint, unless over 4 feet then support each joint[1,2,3]	Base and each floor, not to exceed 15 feet
Cast-Iron Hubless	Shielded Coupling	Every other joint, unless over 4 feet then support each joint[1,2,3,4]	Base and each floor, not to exceed 15 feet
Copper & Copper Alloys	Soldered, Brazed, Threaded, or Mechanical	1-1/2 inches and smaller, 6 feet; 2 inches and larger, 10 feet	Each floor, not to exceed 10 feet[5]
Steel Pipe for Water or DWV	Threaded or Welded	3/4 inch and smaller, 10 feet; 1 inch and larger, 12 feet	Every other floor, not to exceed 25 feet[5]
Steel Pipe for Gas	Threaded or Welded	1/2 inch, 6 feet; 3/4 inch and 1 inch, 8 feet; 1-1/4 inches and larger, 10 feet	1/2 inch, 6 feet; 3/4 inch and 1 inch, 8 feet; 1-1/4 inches every floor level
Schedule 40 PVC and ABS DWV	Solvent Cemented	All sizes, 4 feet; allow for expansion every 30 feet[3,6]	Base and each floor; provide mid-story guides; provide for expansion every 30 feet[6]
CPVC	Solvent Cemented	1 inch and smaller, 3 feet; 1-1/4 inches and larger, 4 feet	Base and each floor; provide mid-story guides
CPVC-AL-CPVC	Solvent Cemented	1/2 inch, 5 feet; 3/4 inch, 65 inches; 1 inch, 6 feet	Base and each floor; provide mid-story guides
Lead	Wiped or Burned	Continuous Support	Not to exceed 4 feet

Steel	Mechanical	In accordance with standards acceptable to the Authority Having Jurisdiction	
PEX	Cold Expansion, Insert, and Compression	1 inch and smaller, 32 inches; 1-1/4 inches and larger, 4 feet	Base and each floor; provide mid-story guides
PEX-AL-PEX	Metal Insert and Metal Compression	1/2 inch; 3/4 inch; 1 inch All sizes 98 inches	Base and each floor; provide mid-story guides
PE-AL-PE	Metal Insert and Metal Compression	1/2 inch; 3/4 inch; 1 inch All sizes 98 inches	Base and each floor; provide mid-story guides
PE-RT	Insert and Compression	1 inch and smaller, 32 inches; 1-1/4 inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion Weld (socket, butt, saddle, electrofusion), Threaded (metal threads only), or Mechanical	1 inch and smaller, 32 inches; 1-1/4 inches and larger, 4 feet	Base and each floor; provide mid-story guides

For SI units: 1 inch = 25.4 mm, 1 foot = 304.8 mm

Notes:

[1] Support adjacent to joint, not to exceed 18 inches (457 mm).

[2] Brace not to exceed 40-foot (12,192 mm) intervals to prevent horizontal movement.

[3] Support at each horizontal branch connection.

[4] Hangers shall not be placed on the coupling.

[5] Vertical water lines shall be permitted to be supported in accordance with recognized engineering principles with regard to expansions and contraction, where first approved by the Authority Having Jurisdiction.

[6] For expansion joints, see Table 313.3.1.

Subp. 2. **Section 313.** Table 313.3.1 is added to read as follows:

TABLE 313.3.1

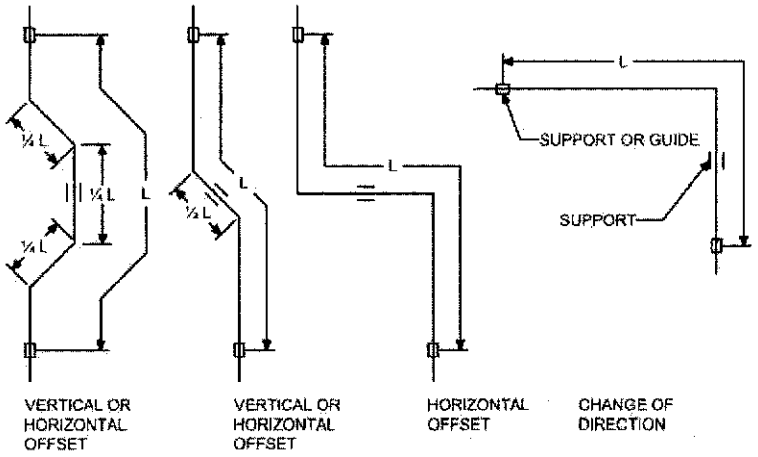
Schedule 40 PVC and ABS DWV and Storm Pipe Expansion Table

Inside the building thermal envelope

	Length of Run (ft.)		
	10[1]	20[1]	30
Pipe Size	Expansion joint length (in.) = L		
1.5"	20	28	34
2"	22	31	38
3"	27	38	46
4"	30	43	52
6"	37	52	63
8"	42	59	72
10"	47	66	80
12"	51	72	88

Outside the building thermal envelope

	Length of Run (ft.)		
	10[1]	20[1]	30
Pipe Size	Expansion joint length (in.) = L		
1.5"	26	36	44
2"	29	41	50
3"	35	49	60
4"	40	56	68
6"	48	68	83
8"	55	77	94
10"	61	86	105
12"	66	94	114



[1] Multiple offsets shall be allowed to provide expansion for each 30-foot developed length of run.

Subp. 3. **Section 313.7.** UPC section 313.7 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
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4714.0314 [Repealed, 45 SR 1007]
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4714.0315 JOINTS AND CONNECTIONS.

UPC section 315.1 is amended to read as follows:

315.1 Unions. Approved unions shall be permitted to be used in drainage piping where accessibly located in the trap seal or between a fixture and its trap in the vent system, except underground or in wet vents, at a point in the water supply system.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0317 FOOD-HANDLING ESTABLISHMENTS.

UPC section 317.1 is amended to read as follows:

317.1 General. Soil or drain pipes installed over areas where food or drink will be stored, prepared, or displayed shall be installed with the minimum number of joints necessary and connected to the nearest adequately sized vertical stack with the following provisions:

(1) Plumbing openings through floors over such areas shall be sealed watertight to the floor construction.

(2) Floor and shower drains installed above such areas shall be equipped with integral seepage pans.

(3) Cleanouts shall be extended through the floor construction above.

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

(5) 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.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
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4714.0319 MEDICAL GAS AND VACUUM SYSTEMS.

UPC sections 319.0 to 319.1 are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
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4714.0403 [Renumbered 4714.0412]
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4714.0405 PROHIBITED FIXTURES.

UPC section 405.3 is deleted in its entirety.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0406 [Renumbered 4714.0405]
Published Electronically: *September 27, 2021*

4714.0407 LAVATORIES.

Subpart 1. **UPC section 407.3.** UPC section 407.3 is amended as follows:

407.3 Limitation of Hot Water Temperature for Public Lavatories. Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 110 degrees Fahrenheit (43 degrees Celsius). The maximum temperature shall be regulated by one of the following means:

(1) a limiting device conforming to ASSE 1070/ASME A112.1070 /CSA B125.70; or

(2) a water heater conforming to ASSE 1084.

Subp. 2. UPC section 407.4 is deleted in its entirety.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0408 SHOWERS.

UPC section 408.7 is amended to read as follows:

408.7 Lining for Showers and Receptors. Shower receptors built on site shall be watertight and shall be constructed from approved-type dense, nonabsorbent, and noncorrosive materials. Each such receptor shall be adequately reinforced; shall be provided with an approved flanged floor drain designed to make a watertight joint on the floor; and shall have smooth, impervious, and durable surfaces. Unless the shower receptor is poured on the ground as part of a slab, an approved shower liner must be provided in accordance with the requirements of this section.

Shower receptors shall have the subfloor and rough side of walls to a height of not less than 3 inches (76 mm) above the top of the finished dam or threshold shall be first lined with sheet plastic, lead, or copper, or shall be lined with other durable and watertight materials. Showers that are provided with a built-in place, permanent seat, or seating area that is located within the shower enclosure shall be first lined with sheet plastic, lead, or copper, or shall be lined with other durable and watertight materials that extend not less than 3 inches (76 mm) above horizontal surfaces of the seat or the seating area.

Lining materials shall be pitched 1/4 inch per foot (20.8 mm/m) to weep holes in the subdrain of a smooth and solidly formed subbase. Such lining materials shall extend upward on the rough jambs of the shower opening to a point not less than 3 inches (76 mm) above the horizontal surfaces of the seat or the seating area, the top of the finished dam or threshold and shall extend outward over the top of the permanent seat, permanent seating area, or rough threshold and be turned over and fastened on the outside face of both the permanent seat, permanent seating area, or rough threshold and the jambs.

Nonmetallic shower subpans or linings shall be permitted to be built up on the job site of not less than three layers of standard-grade 15-pound (6.8 kg) asphalt-impregnated roofing felt. The bottom layer shall be fitted to the formed subbase and each succeeding layer thoroughly hot-mopped to that below. Corners shall be carefully fitted and shall be made strong and watertight by folding or lapping, and each corner shall be reinforced with suitable webbing hot-mopped in place.

Folds, laps, and reinforcing webbing shall extend not less than 4 inches (102 mm) in all directions from the corner, and webbing shall be of approved type and mesh, producing a tensile strength of not less than 50 pounds per square foot (lb/ft^2) (244 kg/m^2) in either direction. Nonmetallic shower subpans or linings shall be permitted to consist of multilayers of other approved equivalent materials suitably reinforced and carefully fitted in place on the job site as elsewhere required in this section.

Linings shall be properly recessed and fastened to the approved backing so as not to occupy the space required for the wall covering, and shall not be nailed or perforated at a point that is less

than 1 inch (25.4 mm) above the finished dam or threshold. An approved type subdrain shall be installed with a shower subpan or lining. Each such subdrain shall be of the type that sets flush with the subbase and shall be equipped with a clamping ring or other device to make a tight connection between the lining and the drain. The subdrain shall have weep holes into the waste line. The weep holes located in the subdrain clamping ring shall be protected from clogging.

UPC subsections 408.7.1 through 408.7.5 are maintained without amendment.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0409 BATHTUBS AND WHIRLPOOL BATHTUBS.

Subpart 1. UPC section 409.1 is amended to read as follows:

409.1 Application. Bathtubs shall comply with ASME A112.19.1/CSA B45.2, ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, CSA B45.5/IAPMO Z124, or CSA B45.12 /IAPMO Z402. Whirlpool bathtubs shall comply with ASME A112.19.7/CSA B45.10. Pressure sealed doors within bathtubs or whirlpool bathtub enclosures shall comply with ASME A112.19.15. Whirlpool pedicure tubs shall comply with general requirements and water retention sections of ASME A112.19.7/CSA B45.10, Hydromassage Bathtub Systems.

Subp. 2. UPC section 409.4 is amended to read as follows:

409.4 Limitation of Hot Water Temperature in Bathtubs and Whirlpool Bathtubs. The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120 degrees Fahrenheit (49 degrees Celsius). The maximum temperature shall be regulated by one of the following means:

(1) a limiting device conforming to either ASSE 1070/ASME A112.1070 /CSA B125.70 or CSA B125.3; or

(2) a water heater conforming to ASSE 1084.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0410 BIDETS.

UPC section 410.3 is amended to read as follows:

410.3 Limitations of Water Temperature in Bidets. The maximum hot water temperature discharging from a bidet shall be limited to 110 degrees Fahrenheit (43 degrees Celsius). The maximum temperature shall be regulated by one of the following means:

(1) a limiting device conforming to either ASSE 1070/ASME A112.1070 /CSA B125.70 or CSA B125.3; or

(2) a water heater conforming to ASSE 1084.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0412 URINALS.

UPC subsection 412.1.1 is amended to read as follows:

412.1.1 Nonwater Urinals. Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where a nonwater urinal is installed, a water-supplied fixture shall be installed upstream of the nonwater urinal at the end of that same drainage branch.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0414 DISHWASHING MACHINES.

UPC section 414.3 is amended to read as follows:

414.3 Drainage Connection. Domestic dishwashing machines shall discharge indirectly in accordance with section 807.3 into a waste receptor, a wye branch fitting on the tailpiece of a kitchen sink, or the dishwasher connection of a food waste disposer. Commercial dishwashing machines shall discharge indirectly through an air break or direct connection. The indirect discharge for commercial dishwashing machines shall be in accordance with section 807.1, and the direct discharge shall be in accordance with section 704.3.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0415 DRINKING FOUNTAINS.

UPC section 415.2 is amended to read as follows:

415.2 Public Use Fountains. Installation of a combined cold water faucet and drinking fountain is prohibited for public use. If a drinking fountain is provided at a public use sink, it shall have at least an 18-inch separation from any other faucet spout.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0416 EMERGENCY EYEWASH AND SHOWER EQUIPMENT.

UPC section 416.2 is amended to read as follows:

416.2 Water Supply. Emergency eyewash and shower equipment shall not be limited in the water supply flow rates. Where hot and cold water is supplied to an emergency shower or eyewash station, the temperature of the water supply shall be controlled by a temperature actuated mixing valve complying with ASSE 1071. Where water is supplied directly to an emergency shower or eyewash station from a water heater, the water heater shall comply with ASSE 1085. Flow rate, discharge pattern, and temperature of flushing fluids shall be provided in accordance with ISEA Z358.1 based on the hazardous material.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0417 FAUCETS AND FIXTURE FITTINGS.

UPC section 417 is amended by adding subsection 417.6 to read as follows:

417.6 Low-Pressure Water Dispenser. Beverage faucets shall comply with ASME A112.18.1/CSA B125.1. Low-pressure water dispensers that dispense electrically heated water and have a reservoir vented to the atmosphere shall comply with ASSE 1023. Electric devices that heat water shall comply with UL 499.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0418 FLOOR DRAINS.

Subpart 1. **Section 418.4.** UPC section 418.4 is amended to read as follows:

418.4 Food Storage Areas. Where drains are provided in storerooms, walk-in freezers, walk-in coolers, refrigerated equipment, or other locations where food is stored, the drains shall have indirect waste piping. Separate waste pipes shall be run from each food storage area, each with an indirect connection to the building sanitary drainage system. Traps shall be provided in accordance with section 801.3.2 and shall be vented.

Indirect drains shall be permitted to be located in freezers or other spaces where freezing temperatures are maintained, provided that traps, where supplied, shall be located where the seal will not freeze. Otherwise, the floor of the freezer shall be sloped to a floor drain located outside of the storage compartment.

Subp. 2. **Section 418.** UPC section 418 is amended by adding the following subsections.

418.6 Elevator Pit Drain. An elevator pit drain shall discharge to the sanitary sewer using an indirect connection that precludes the possibility of sewage backup into the pit. If a sump is used, it shall be outside the pit with a dry pan drain flowing to it.

418.7 Garage and Parking Area Floor Drains. Floor area drains in open parking areas, including open areas of parking ramps, shall discharge to the storm sewer or to a place of disposal satisfactory to the sewer authority. Floor drains in parking areas that are enclosed, and floor drains in areas open or enclosed that are used for maintenance or as vehicle wash bays, shall discharge to the sanitary sewer if a municipal sewer is available. An oil and flammable liquid interceptor shall comply with section 1017 and shall be provided if required by sections 1009.1, 1011.1, and 1017.1.

Exception: Floor drains in private garages serving one- and two-family dwellings may discharge to daylight if approved by the administrative authority.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0420 SINKS.

UPC section 420.4 is amended to read as follows:

420.4 Waste Outlet. Kitchen and laundry sinks shall have a waste outlet and fixture tailpiece not less than 1-1/2 inches (40 mm) in diameter, except commercial pot and scullery sinks shall be provided with waste outlets not less than 2 inches (50 mm) in diameter. Service sinks shall have a waste outlet and fixture tailpiece not less than 2 inches (50 mm) in diameter. Fixture tailpieces shall be constructed from the materials specified in section 701.2 for drainage piping, provided, however, that the 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) (0.81 mm). Waste outlets shall be provided with an approved strainer.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0421 [Repealed, 45 SR 1007]
Published Electronically: *September 27, 2021*

4714.0422 MINIMUM NUMBER OF REQUIRED FIXTURES.

Subpart 1. **Section 422.1.** UPC section 422.1 is amended to read as follows:

422.1 Required Minimum Number of Fixtures. For all premises subject to Minnesota Rules, chapter 4714, plumbing fixtures shall be provided for the type of building occupancy and in the minimum number listed in Minnesota Rules, chapter 1305, Minnesota Building Code.

Subp. 2. **Sections 422.1.1 to 422.5.** UPC sections 422.1.1 to 422.5, including tables, are deleted in their entirety.

Subp. 3. **Table 422.1.** UPC Table 422.1 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0423 TRENCH DRAINS.

Section 423 is added as follows:

423.0 Trench Drains.

423.1 Trench Drains. Trench drains shall comply with ASME A112.6.3 or ASME A112.3.1 or be constructed of watertight material and watertight joints, and be tested for watertightness by filling with water to the level of the flood rim of the trench drain.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0501 GENERAL.

UPC section 501.1 is amended to read as follows:

501.1 Applicability. The regulations of this chapter shall govern the construction, location, and installation of fuel-burning and other water heaters heating potable water. The minimum capacity for storage water heaters shall be in accordance with the first hour rating listed in Table 501.1(2). No water heater shall be hereinafter installed that does not comply with the type and model of each size thereof approved by the Authority Having Jurisdiction. A list of accepted water heater appliance standards is referenced in Table 501.1(1). Listed appliances shall be installed in accordance with the manufacturer's installation instructions. Unlisted water heaters shall be permitted in accordance with section 504.3.2.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0503 INSPECTION.

UPC sections 503.0 to 503.2 are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0504 WATER HEATER REQUIREMENTS.

Subpart 1. **Sections 504.1 to 504.2.** UPC sections 504.1 to 504.2 are deleted in their entirety.

Subp. 2. **Section 504.6.** UPC section 504.6 is amended to read as follows:

504.6 Temperature, Pressure, and Vacuum Relief Devices. The installation of temperature, pressure, and vacuum relief devices, or combinations thereof, shall be installed in accordance with the terms of their listings and the manufacturer's installation instructions. A shutoff valve shall not be placed between the relief valve and the water heater or on discharge pipes between the valves and the atmosphere. The hourly British thermal units (Btu) (kW h) discharge capacity or the rated steam relief capacity of the device shall be not less than the input rating of the water heater. Discharge piping shall be installed in accordance with section 608.5.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0505 OIL-BURNING AND OTHER WATER HEATERS.

UPC section 505.4.1 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0506 AIR FOR COMBUSTION AND VENTILATION.

UPC sections 506.0 to 506.9, including all figures, are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0507 OTHER WATER HEATER INSTALLATION REQUIREMENTS.

Subpart 1. **Sections 507.6 to 507.11 and 507.14 to 507.23.** UPC sections 507.6 to 507.11 and 507.14 to 507.23 are deleted in their entirety.

Subp. 2. [Repealed, 45 SR 1007]

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0508 APPLIANCES ON ROOFS.

UPC sections 508.1 to 508.3.3 are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0509 VENTING OF APPLIANCES.

UPC sections 509.0 to 509.15, including all tables and figures, are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0510 SIZING OF CATEGORY I VENTING SYSTEMS.

UPC sections 510.0 to 510.2, including all tables and figures, are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0511 [Repealed, 45 SR 1007]
Published Electronically: *September 27, 2021*

4714.0601 HOT AND COLD WATER REQUIRED.

UPC section 601.2 is amended to read as follows:

601.2 General. Each plumbing fixture shall be provided with an adequate supply of potable running water piped to it in an approved manner, so arranged as to flush and keep the fixture in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

Exception: Listed fixtures that do not require water for their operation and are not connected to the water supply.

601.2.1 Hot Water Required. In occupancies where plumbing fixtures are installed for private use, hot water shall be required for bathing, washing, laundry, cooking purposes, dishwashing, and maintenance. In occupancies where plumbing fixtures are installed for public use, hot water shall be required for bathing and washing purposes. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories, bidets, bathtubs, whirlpool bathtubs, and shower control valves.

601.2.2 Hot Water Recirculation. Hot water supply systems in four-story buildings or higher, or buildings where the developed length of hot water piping from the source of hot water supply to the farthest fixture supplied exceeds 100 feet, shall be of the return circulation type.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0602 UNLAWFUL CONNECTIONS.

Subpart 1. **Section 602.2.** UPC section 602.2 is amended to read as follows:

602.2 Cross-Contamination. Unless there is provided a backflow prevention device approved for the potential hazard and maintained in accordance with this code, no person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by a public or private building supply system, and (1) pipes, conduits, or fixtures containing or carrying water from any other source or containing or carrying water that has been used for any purpose whatsoever, or (2) any piping carrying chemicals, liquids, gases, or substances whatsoever.

Each point of use shall be separately protected where potential cross-contamination of individual units exists. Water used for cooling or heating of equipment or other purposes shall not be returned to the potable water system. Such water shall be discharged into the drainage system through an air-gapped indirect waste or other approved method of disposal.

Subp. 2. **Section 602.4.** UPC section 602.4 is amended to read as follows:

602.4 Approval by Authority. No water piping supplied by a private water supply system shall be connected to any other source of supply without the approval of the Authority Having Jurisdiction.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0603 CROSS-CONNECTION CONTROL.

Subpart 1. **Section 603.2.** UPC section 603.2 is amended to read as follows:

603.2 Approval of Devices or Assemblies. Before a device or an assembly is installed for the prevention of backflow, it shall have first been approved. Devices or assemblies shall be tested in accordance with recognized standards or other approved standards. Backflow prevention devices and assemblies shall comply with Table 603.2, except for specific applications and provisions as stated in sections 603.5.1 through 603.5.23.

Devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. The devices or assemblies shall be tested at the time of installation, repair, or relocation and not less than on an annual schedule thereafter, or more often where required by the Authority Having Jurisdiction. Where found to be defective or inoperative, the device or assembly shall be repaired or replaced. No device or assembly shall be removed from use or relocated, or other device or assembly substituted, without the approval of the Authority Having Jurisdiction.

Testing shall be performed by a certified backflow assembly tester in accordance with ASSE Series 5000.

UPC Table 603.2 is not amended.

Subp. 2. **Section 603.5.4.** UPC section 603.5.4 is amended to read as follows:

603.5.4 Heat Exchangers. 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.

603.5.4.1 Single-Wall Heat Exchanger. Installation of a single-wall heat exchanger shall meet all of the following requirements:

(1) Connected to:

(a) a low-pressure hot water boiler limited to a maximum of 30 pounds-force per square inch gauge (psig) (207 kPa) by an approved safety or relief valve; or

(b) a steam system limited to a maximum of 15 psig (103 kPa).

(2) The heat-transfer medium is either potable water or contains fluids having a toxicity rating or Class of 1.

(3) Bear a label with the word "Caution," followed by the following statements:

(a) The heat-transfer medium shall be water or other nontoxic fluid having a toxicity rating or Class of 1 as listed in Clinical Toxicology of Commercial Products, 5th edition.

(b) The pressure of the heat-transfer medium shall be limited to a maximum of 30 psig (207 kPa) by an approved safety or relief valve.

The word "Caution" and the statements in letters shall have an uppercase height of not less than 0.120 inch (3.048 mm). The vertical spacing between lines of type shall be not less than 0.046 inch (1.168 mm). Lowercase letters shall be compatible with the uppercase letter size specifications.

603.5.4.2 Double-Wall Heat Exchanger. Double-wall heat exchangers shall separate the potable water from the heat-transfer medium by providing a space between the two walls that are vented to the atmosphere.

Subp. 3. **Section 603.5.12.** UPC section 603.5.12 is amended to read as follows:

603.5.12 Beverage Dispensers. Potable water supply to beverage dispensers, carbonated beverage dispensers, or coffee machines shall be protected by an air gap or a vented backflow preventer in accordance with ASSE 1022. For carbonated beverage dispensers, piping materials installed downstream of the backflow preventer shall not be made of copper and not be affected by carbon dioxide gas.

Subp. 4. **Section 603.5.17.** UPC section 603.5.17 is amended to read as follows:

603.5.17 Potable Water Outlets and Valves. Potable water outlets, freeze-proof yard hydrants, combination stop-and-waste valves, or other fixtures that incorporate a stop-and-waste feature that drains into the ground shall not be installed underground except for a freeze-proof yard

hydrant that is located at least two feet above the water table and at least ten feet from any sewer or similar source of contamination.

Subp. 5. **Section 603.5.** UPC section 603.5 is amended by adding the following subsections:

603.5.22 Barometric Loop. A barometric loop is an acceptable method of protection of water connections where an actual or potential backsiphonage hazard exists that is not subject to backpressure.

603.5.23 Installation of Testable Backflow Prevention Assembly. Testable backflow prevention assemblies meeting ASSE Standard 1013, 1015, 1020, 1047, 1048, or 1056 shall be installed, tested, maintained, and removed in accordance with sections 603.5.23.1 through 603.5.23.4.

603.5.23.1 Notification of Installation. The administrative authority shall be notified before installation of a testable backflow prevention assembly. The public water supplier shall be notified of the installed testable backflow preventer assembly within 30 days following installation on a community public water system.

603.5.23.2 Testing and Maintenance. The installation of a testable backflow prevention assembly is permitted only when a periodic testing and inspection program conducted by qualified personnel is provided by an agency acceptable to the administrative authority. Inspection intervals shall not exceed one year. The administrative authority may require more frequent testing if deemed necessary to ensure protection of the potable water. A testable backflow prevention assembly shall be inspected after initial installation to ensure that it has been properly installed and that debris resulting from the piping installation has not interfered with the functioning of the assembly.

603.5.23.3 Inspection and Records. A test and inspection tag shall be affixed to the testable backflow prevention assembly. The tester shall date and sign the tag and include the tester's backflow prevention tester certification number. Written records of testing and maintenance shall be maintained and submitted to the administrative authority, and to the public water supplier, within 30 days of testing if installed on a community public water system.

603.5.23.4 Notification of Removal. The Authority Having Jurisdiction, in addition to the public water supplier, shall be notified within 30 days following removal of a testable backflow prevention assembly from a community public water system.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0604 [Repealed, 45 SR 1007]
Published Electronically: *September 27, 2021*

4714.0607 POTABLE WATER SUPPLY TANKS.

Subpart 1. **Section 607.3.** UPC section 607.3 is amended to read as follows:

607.3 Venting. Tanks used for potable water shall be tightly covered and vented in accordance with manufacturer's installation instructions. The vent shall open downward and be screened with a corrosion-resistant material of not less than number 24 mesh. The vent opening shall not be located in an environment that can contaminate the water supply.

Subp. 2. **Section 607.4.** UPC section 607.4 is amended to read as follows:

607.4 Overflow. Tanks shall have an overflow that opens downward and is screened with a corrosion-resistant material of not less than number 24 mesh. The overflow pipe shall be of sufficient diameter to permit waste of water in excess of the maximum filling rate. The overflow pipe shall discharge through an air gap.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0608 WATER PRESSURE, PRESSURE REGULATORS, PRESSURE RELIEF VALVES, AND VACUUM RELIEF VALVES.

UPC section 608.5 is amended to read as follows:

608.5 Discharge Piping. The discharge piping serving a temperature relief valve, pressure relief valve, or combination of both shall have no valves, obstructions, or means of isolation and shall:

(1) be equal to the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down;

(2) consist of materials rated at not less than the operating temperature of the system and shall be approved for such use or comply with ASME A112.4.1;

(3) discharge independently by gravity through an air gap to a safe place of disposal or within 18 inches of the floor. Relief valve drains shall not terminate in a building's crawl space;

(4) discharge in such a manner that does not cause personal injury or structural damage;

(5) not consist of any part that may be trapped or subject to freezing;

(6) not consist of a threaded terminal end of the pipe; and

(7) not discharge from a relief valve into a water heater pan.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0609 INSTALLATION, TESTING, UNIONS, AND LOCATION.

Subpart 1. [Renumbered subp 2]

Subpart 1. **Section 609.1.** UPC section 609.1 is amended to read as follows:

609.1 Installation. Water piping shall be adequately supported in accordance with Table 313.3. Burred ends shall be reamed to the full bore of the pipe or tube. Changes in directions shall be made by the appropriate use of fittings, except that changes in direction in copper or copper alloy tubing shall be permitted to be made with bends, provided that such bends are made with bending equipment that does not deform or create a loss in the cross-sectional area of the tubing. Changes in direction are allowed with flexible pipe and tubing without fittings in accordance with the manufacturer's instructions. Provisions shall be made for expansion in hot-water piping. Piping, equipment, appurtenances, and devices shall be installed in a workmanlike manner in accordance with the provisions and intent of this code. Building supply and yard piping shall be located not less than 12 inches (305 mm) below the maximum local frost depth, in accordance with section 312.6, or an alternative approved by the Authority Having Jurisdiction. The cover shall be not less than 12 inches (305 mm) below finish grade.

Subp. 2. [Renumbered subp 4]

Subp. 2. **Section 609.6.** UPC section 609.6 is amended to read as follows:

609.6 Location. Except as provided in section 609.7, no building supply shall be located in a lot other than the lot that is the site of the building or structure served by the building supply.

609.6.1 Water Supply Near Sources of Contamination. Potable water supply pipes shall not be located in, under, or above cesspools, septic tanks, septic tank drainage fields, seepage pits, soil treatment systems, contaminated soil, sewer manholes, catch basins, storm water storage tanks, buried tanks containing chemicals or petroleum products, or any other source of contamination that in the judgment of the administrative authority might contaminate the potable water supply. A horizontal separation of ten feet shall be maintained between the outer edge of the water supply pipe and the outer edge of the contamination source.

Subp. 3. **Section 609.10.** UPC section 609.10 is amended to read as follows:

609.10 Water Hammer. Building supply systems where water hammer occurs shall be provided with water hammer arrestors to absorb the resulting high pressures. Water hammer arrestors shall be approved mechanical devices that comply with ASSE 1010 or PDI-WH-201 and shall be installed as close as possible to quick-acting valves.

Subsection 609.10.1 Mechanical Devices is not amended.

Subp. 4. **Section 609.** UPC section 609.11 is amended to read as follows:

609.11 Water Meters. Water meters shall be located in an approved location inside a building as close as possible to the point of entrance of the potable water supply pipe, installed at least 12 inches above the finished floor, and readily accessible. All water meter installations shall be rigidly supported with a permanent support in order to prevent the meter from vibrating when the water is passing through it.

Exceptions: Where installation inside a building is not possible, the water meter may be installed in an enclosed structure not subject to flooding, high groundwater, or surface drainage runoff, provided the meter is protected from freezing. Provisions shall be made to install the meters

above grade when possible. When installed below grade, the top of the structure shall be located at least 12 inches above the finished grade, be secured, and be accessible. This structure shall not be connected to any storm or sanitary sewer system.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007; 46 SR 857*

Published Electronically: *February 2, 2022*

4714.0610 SIZE OF POTABLE WATER PIPING.

UPC section 610, Table 610.3, is amended to read as follows:

TABLE 610.3

Water Supply Fixture Units (WSFU) and Minimum Fixture Branch Pipe Sizes[3]

Appliances, Appurtenances, or Fixtures[2]	Minimum Fixture Branch Pipe Size[1,4] (inches)	Private	Public	Assembly[6]
Bathtub or Combination Bath/Shower (fill)	1/2	4.0	4.0	--
3/4-inch Bathtub Fill Valve	3/4	10.0	10.0	--
Bidet	1/2	1.0	--	--
Clothes Washer	1/2	4.0	4.0	--
Dental Unit, cuspidor	1/2	--	1.0	--
Dishwasher, domestic	1/2	1.5	1.5	--
Drinking Fountain or Water Cooler	1/2	0.5	0.5	0.75
Hose Bibb	1/2	2.5	2.5	--
Hose Bibb, each additional[8]	1/2	1.0	1.0	--
Lavatory (each basin), or hand sink	1/2	1.0	1.0	1.0
Lawn sprinkler, each head[5]	--	1.0	1.0	--
Mobile Home, each (minimum)	--	12.0	--	--
Sinks	--	--	--	--
Bar	1/2	1.0	2.0	--
Clinic Faucet	1/2	--	3.0	--

Clinic Flushometer Valve with or without faucet	1	--	8.0	--
Kitchen, domestic with or without dishwasher	1/2	1.5	1.5	--
Laundry	1/2	1.5	1.5	--
Service or Mop Basin	1/2	1.5	3.0	--
Washup, each set of faucets	1/2	--	2.0	--
Shower, per head	1/2	2.0	2.0	--
Urinal, 1.0 GPF Flushometer Valve	3/4	See Footnote[7]		--
Urinal, greater than 1.0 GPF Flushometer Valve	3/4	See Footnote[7]		--
Urinal, flush tank	1/2	2.0	2.0	3.0
Wash Fountain, circular spray	3/4	--	4.0	--
Water Closet, 1.6 GPF Gravity Tank	1/2	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Tank	1/2	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Valve	1	See Footnote[7]		--
Water Closet, greater than 1.6 GPF Gravity Tank	1/2	3.0	5.5	7.0
Water Closet, greater than 1.6 GPF Flushometer Valve	1	See Footnote[7]		--

For SI units: 1 inch = 25 mm

Notes:

[1] Size of the cold branch pipe, or both the hot and cold branch pipes.

[2] Appliances, appurtenances, or fixtures not referenced in this table shall be permitted to be sized by reference to fixtures having a similar flow rate and frequency of use.

[3] The listed fixture unit values represent their load on the cold water building supply. The separate cold water and hot water fixture unit value for fixtures having both hot and cold water connections shall be permitted to be each taken as three-quarters of the listed total value of the fixture.

[4] The listed minimum supply branch pipe sizes for individual fixtures are the nominal (I.D.) pipe size.

[5] For fixtures or supply connections likely to impose continuous flow demands, determine the required flow in gallons per minute (gpm) (L/s), and add it separately to the demand in gpm (L/s) for the distribution system or portions thereof.

[6] Assembly [Public Use]. See Minnesota Rules, chapter 1305, International Building Code.

[7] Where sizing flushometer systems, see section 610.10.

[8] Reduced fixture unit loading for additional hose bibbs is to be used where sizing total building demand and for pipe sizing where more than one hose bibb is supplied by a segment of water distribution pipe. The fixture branch to each hose bibb shall be sized on the basis of 2.5 fixture units.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*

Published Electronically: *January 25, 2016*

4714.0611 WATER CONDITIONING EQUIPMENT.

Subpart 1. **Section 611.** UPC sections 611.0 to 611.3 are amended to read as follows:

611.0 Water Conditioning Equipment.

611.1 Application. Water conditioning equipment shall comply with the requirements in this section.

611.1.1 Manufacture and Assembly. Water conditioning equipment shall: (1) be manufactured as a complete system; or (2) be assembled as a complete system by a licensed plumbing contractor or licensed water conditioning contractor, using various types of water conditioning equipment. Wetted surface materials used in water conditioning equipment shall comply with ANSI/NSF 61 standards, or the equipment shall comply with the applicable NSF standards as listed in Table 1701.1.

Exception: Water conditioning equipment that treats water for nonpotable uses that are protected by an approved backflow device, assembly, or method as required in Chapter 6, as amended.

611.1.2 Labeling. All conditioning equipment shall be labeled by:

(1) the manufacturer of equipment manufactured as a complete system; or

(2) the licensed plumbing contractor or licensed water conditioning contractor who assembled the complete system

so as to clearly identify the type of equipment and the name and address of the manufacturer, licensed plumbing contractor, or licensed water conditioning contractor.

611.2 Airgap Discharge. Any discharge from water conditioning equipment shall enter the drainage system through an airgap in accordance with Table 603.3.1 or an airgap device in accordance with Table 603.2, NSF 58, or IAPMO PS 65.

611.3 Connection Tubing. The tubing to and from water conditioning units shall be of a size and material as recommended by the manufacturer. The tubing shall comply with the requirements of NSF 14, NSF 42, NSF 44, NSF 53, NSF 55, NSF 58, NSF 62, or the appropriate material standards referenced in Table 1701.1.

Subp. 2. **Section 611.5.** Section 611.5 is added.

611.5 Isolation and Bypass. Every water conditioning installation shall include the installation of isolation valves and a bypass valve that would allow the equipment to be serviced or removed without the need for shutting off the water service completely.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0612 MULTIPURPOSE POTABLE WATER PIPING SYSTEMS.

UPC section 612.0 is amended to read as follows:

612.0 Multipurpose Potable Water Piping Systems.

612.1 General. A multipurpose potable water piping system as defined in Minnesota Statutes, chapter 299M, shall meet the requirements of this code.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0701 MATERIALS.

UPC section 701.2 is amended to read as follows:

701.2 Drainage Piping. Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.2 except that:

(1) Galvanized wrought-iron and galvanized steel pipe shall not be used underground and shall be kept not less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 701.2.

(3) No vitrified clay pipe or fittings shall be used aboveground or where pressurized by a pump or ejector. They shall be kept not less than 12 inches (305 mm) belowground.

(4) Copper tube for drainage and pipe venting shall have a weight of not less than that of copper drainage tube type DWV.

(5) Stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground.

(6) Cast-iron soil pipe and fittings shall be listed and tested in accordance with standards referenced in Table 701.2. Such pipe and fittings shall be marked with country of origin and identification of the original manufacturer in addition to markings required by referenced standards.

UPC Table 701.2 is not amended.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0702 FIXTURE UNIT EQUIVALENTS.

UPC section 702, Table 702.1, is amended to read as follows:

TABLE 702.1

Drainage Fixture Unit Values (DFU)

Plumbing Appliances, Appurtenances, or Fixtures	Minimum Size Trap and Trap Arm[6] (inches)	Private	Public	Assembly[7]
Bathtub or Combination Bath/Shower	1-1/2	2.0	2.0	--
Bidet	1-1/4	1.0	--	--
Bidet	1-1/2	2.0	--	--
Clothes Washer, Domestic, Standpipe[5]	2	3.0	3.0	3.0
Dental Unit, Cuspidor	1-1/4	--	1.0	1.0
Dishwasher, Domestic, with Independent Drain[2]	1-1/2	2.0	2.0	2.0
Drinking Fountain or Water Cooler	1-1/4	0.5	0.5	1.0
Food Waste Grinder, Commercial	2	--	3.0	3.0
Floor Drain, Emergency	2	--	0.0	0.0
Floor Drain (for Additional Sizes see section 702.0)	2	2.0	2.0	2.0

Shower, Single-Head Trap	2	2.0	2.0	2.0
Shower, Multi-Head, Each Additional	2	1.0	1.0	1.0
Lavatory, Single	1-1/4	1.0	1.0	1.0
Lavatory, in Sets of Two or Three	1-1/2	2.0	2.0	2.0
Washfountain	1-1/2	--	2.0	2.0
Washfountain	2	--	3.0	3.0
Mobile Home, Trap	3	12.0	--	--
Receptor, Indirect Waste[1,3]	1-1/2		See footnote[1,3]	
Receptor, Indirect Waste[1,4]	2		See footnote[1,4]	
Receptor, Indirect Waste[1]	3		See footnote[1]	
Sinks	--	--	--	--
Bar	1-1/2	1.0	--	--
Bar[2]	1-1/2	--	2.0	2.0
Clinical	3	--	6.0	6.0
Commercial With Food Waste[2]	1-1/2	--	3.0	3.0
Commercial Pot or Scullery	2	--	4.0	4.0
Special Purpose[2]	1-1/2	2.0	3.0	3.0
Special Purpose	2	3.0	4.0	4.0
Special Purpose	3	--	6.0	6.0
Kitchen, Domestic[2] (with or without food waste grinder, dishwasher, or both)	1-1/2	2.0	2.0	--
Laundry[2] (with or without discharge from a clothes washer)	1-1/2	2.0	2.0	2.0
Service or Mop Basin	2	--	3.0	3.0
Service or Mop Basin	3	--	3.0	3.0
Service, Flushing Rim	3	--	6.0	6.0
Wash, Each Set of Faucets	--	--	2.0	2.0
Urinal, Integral Trap 1.0 GPF[2]	2	2.0	2.0	5.0

Urinal, Integral Trap Greater Than 1.0 GPF	2	2.0	2.0	6.0
Urinal, Exposed Trap[2]	1-1/2	2.0	2.0	5.0
Water Closet, 1.6 GPF Gravity Tank	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Tank	3	3.0	4.0	6.0
Water Closet, 1.6 GPF Flushometer Valve	3	3.0	4.0	6.0
Water Closet, Greater Than 1.6 GPF Gravity Tank[6]	3	4.0	6.0	8.0
Water Closet, Greater Than 1.6 GPF Flushometer Valve	3	4.0	6.0	8.0

For SI units: 1 inch = 25 mm

Notes:

[1] Indirect waste receptors shall be sized based on the total drainage capacity of the fixtures that drain therein to, in accordance with UPC Table 702.2(b).

[2] Provide a 2-inch (50 mm) minimum drain.

[3] For refrigerators, coffee urns, water stations, and similar low demands.

[4] For commercial sinks, dishwashers, and similar moderate or heavy demands.

[5] Buildings having a clothes-washing area with clothes washers in a battery of three or more clothes washers shall be rated at 6-fixture units each for purposes of sizing common horizontal and vertical drainage piping.

[6] Trap sizes shall not be increased to the point where the fixture discharge is capable of being inadequate to maintain their self-scouring properties.

[7] Assembly [See Minnesota Rules, chapter 1305, International Building Code].

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*

Published Electronically: *January 25, 2016*

4714.0704 FIXTURE CONNECTIONS (DRAINAGE).

UPC section 704.3 is amended to read as follows:

704.3 Commercial Dishwashing Machines and Sinks. Pot sinks, scullery sinks, commercial kitchen sinks, beverage service 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 constructed without backwater valves shall be provided adjacent

to the fixture. The fixture shall be connected on the sewer side of the floor drain trap and no other drainage line shall be connected between the floor drain waste connection and the fixture drain. The fixture and floor drain shall be trapped and vented in accordance with this code.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0705 [Repealed, 45 SR 1007]
Published Electronically: *September 27, 2021*

4714.0707 CLEANOUTS.

UPC section 707.4 is amended to read as follows:

707.4 Location. Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal and each run of piping that is more than 100 feet (30,480 mm) in total developed length shall be provided with a cleanout for each 100 feet (30,480 mm), or fraction therof, in length of such piping. An additional cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad). A cleanout shall be installed above the fixture connection fitting serving each urinal, regardless of the location of the urinal in the building.

Exceptions:

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

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

(3) Excepting the building drain, its horizontal branches, kitchen sinks, and urinals, a cleanout shall not be required on a 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 building drain and extended to grade, shall be permitted to be substituted for an upper terminal cleanout.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0710 DRAINAGE OF FIXTURES LOCATED BELOW THE NEXT UPSTREAM MANHOLE OR BELOW THE MAIN SEWER LEVEL.

Subpart 1. [Renumbered subp 2]

Subpart 1. **Section 710.10.** UPC section 710.10 is amended to read as follows:

710.10 Sump and Receiving Tank Covers and Vents. Sumps and receiving tanks shall be provided with substantial covers having a bolt-and-gasket-type manhole or equivalent opening to permit access for inspection, repairs, and cleaning. The top shall be provided with a vent pipe that shall extend separately through the roof or, where permitted, be combined with other vent pipes. The vent pipe shall be large enough to maintain atmospheric pressure within the sump under normal operating conditions and in no case shall be less in size than that required by Table 703.2 for the number and type of fixtures discharging into the sump, nor less than 1-1/2 inches (40 mm) in diameter. Where the preceding requirements are met and the vent, after leaving the sump, is combined with vents from fixtures discharging into the sump, the size of the combined vent need not exceed that required for the total number of fixtures discharging into the sump. No vent from an air-operating sewage ejector shall combine with other vents.

Exception: Vents serving sumps connected to elevator pit drains or swimming pool deck drains need not extend through the roof and must not connect to any other vent pipe.

Subp. 2. [Renumbered subp 3]

Subp. 2. **Section 710.12.** UPC section 710.12 is amended to read as follows:

710.12 Grinder Pump Ejector. Grinder pumps shall be permitted to be used. The sump basin storage volume and the pump capacity shall be sized adequately to prevent overloading and shall at a minimum accommodate water demand peak flow from all fixtures.

710.12.1 Discharge Piping. The discharge piping shall be sized in accordance with the manufacturer's installation instructions and shall be not less than 1 1/4 inches (32 mm) in diameter. A check valve and fullway-type shutoff valve shall be located within the discharge line.

Subp. 3. **Section 710.13.** UPC section 710.13 is amended to read as follows:

710.13 Macerating Toilet Systems. Listed macerating toilet systems shall be permitted as an alternate to a sewage pump system only in one- or two-family dwellings when gravity flow is not possible. Not more than one bathroom group is permitted to discharge into a macerating toilet system. One bathroom group consists of: a toilet; a lavatory; and a shower or bathtub. Components of macerating toilet systems shall be accessible.

710.13.1 Sumps. The sump shall be watertight and gastight.

710.13.2 Discharge Piping. The discharge piping shall be sized in accordance with the manufacturer's instructions and shall be not less than 3/4 inch (20 mm) in diameter. The developed length of the discharge piping shall not exceed the manufacturer's instructions. A check valve and fullway-type shutoff valve shall be located within the discharge line or internally within the device.

710.13.3 Venting. The plumbing fixtures that discharge into the macerating device shall be vented in accordance with this code. The sump shall be vented in accordance with the manufacturer's instructions and the vent shall be permitted to connect to the fixture venting.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0712 TESTING.

Subpart 1. **Section 712.1.** UPC section 712.1 is amended to read as follows:

712.1 Media. The piping of the plumbing, drainage, and venting systems shall be tested with water or air. The Authority Having Jurisdiction shall be permitted to require the necessary points of access to ascertain whether the pressure has reached all parts of the system.

Subp. 2. **Section 712.** UPC section 712 is amended by adding subsections to read as follows:

712.4 Negative Test. Concrete manholes and sewer lines shall be tested by negative pressure in accordance with ASTM Standards C1214-19 and C1244-17 or the Hydrostatic Test Method in section 1107.2(B).

712.5 Finished Plumbing. After the plumbing fixtures have been set and their traps filled with water, their connections shall be tested and proven gastight and watertight by plugging the stack openings on the roof and the building drain where it leaves the building, and air introduced into the system equal to the pressure of a 1 inch water column. Such pressure shall remain constant for 15 minutes or the duration of the inspection without the introduction of additional air.

712.6 Test Plugs or Caps. Test plugs or caps for roof terminals shall extend above or outside the end of the vent pipe to provide a visible indication for removal after the test has been completed.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007; 46 SR 857*
Published Electronically: *February 2, 2022*

4714.0713 SEWER REQUIRED.

Subpart 1. **Section 713.1.** UPC section 713.1 is amended to read as follows:

713.1 Where Required. A building in which plumbing fixtures are installed and premises having drainage piping thereon shall have a connection to a public or private sewer, except as provided in sections 713.2 and 713.4 and Minnesota Rules, part 4714.0101, subpart 6.

Subp. 2. **Section 713.5.** UPC section 713.5 is deleted in its entirety.

Subp. 3. **Section 713.7.** UPC section 713.7 is amended to read as follows:

713.7 Installation. In cities, counties, or both where the installation of building sewers is under the jurisdiction of a municipal utility easement, the provisions of this code relating to building sewers do not apply.

Exception: Single-family and two-family dwellings and buildings or structures accessory thereto, when connected to an approved private sewage disposal system prior to the time of connecting the premises to the public sewer need not connect to the public sewer when there is insufficient grade or slope to permit drainage to the public sewer by gravity and the following conditions are met:

(1) no hazard, nuisance, or unsanitary condition is evidenced from the private sewage disposal system;

(2) the private sewage system is maintained properly; and

(3) written permission has been obtained from the Authority Having Jurisdiction.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0714 DAMAGE TO PUBLIC SEWER OR PRIVATE SEWAGE DISPOSAL SYSTEM.

UPC section 714.5 is amended to read as follows:

714.5 Tanks. An approved-typed, watertight sewage or wastewater holding tank, the contents of which, due to their character, shall be periodically removed and disposed of at some approved off-site location, shall be installed where required by the Authority Having Jurisdiction to prevent anticipated surface or subsurface contamination or pollution, damage to the public sewer, or other hazardous or nuisance conditions.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0715 BUILDING SEWER MATERIALS.

UPC section 715.3 is amended to read as follows:

715.3 Existing Sewers. Replacement of existing building sewer and building storm sewers using cured-in-place pipe lining trenchless methodology and materials shall be installed in accordance with ASTM F 1216. Replacement using cured-in-place pipe liners shall not be used on collapsed piping or when the existing piping is compromised to a point where the installation of the liners will not eliminate hazardous or insanitary conditions.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0717 SIZE OF BUILDING SEWERS.

UPC section 717, Table 717.1, is amended to read as follows:

TABLE 717.1

Maximum/Minimum Fixture Unit Loading on Building Sewer Piping

	SLOPE (inches per foot)		
Size of Pipe (inches)	**1/16**	**1/8**	**1/4**
6 and smaller	(As specified in Table 703.2/No minimum loading)		
8*	1950/1500	2800/625	3900/275
10*	3400/1600	4900/675	6800/300
12*	5600/1700	8000/725	11 200/325

*Loadings less than the listed minimums must be approved by the Authority Having Jurisdiction.

For SI units: 1 inch = 25 mm, 1 inch per foot = 83.3 mm/m

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0719 CLEANOUTS.

UPC section 719.6 is amended to read as follows:

719.6 Manholes. Approved manholes shall be permitted to be installed in lieu of cleanouts, where first approved by the Authority Having Jurisdiction. The maximum distance between manholes shall not exceed 300 feet (91,400 mm). Connections to manhole and similar structures must be provided as follows:

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

2. Approved resilient rubber joints must be used to make watertight connections to manholes, catch basins, and other structures.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.0721 LOCATION.

UPC Table 721.1 is amended to read as follows:

TABLE 721.1

Minimum Horizontal Distance Required from Building Sewer (feet)

Water supply wells	See M.R. Chapter 4725[1]
Building supply	10[2]

For SI units: 1 foot = 304.8 mm

Notes:

[1] The minimum horizontal setback distance between a building sewer and a water supply well is governed by Minnesota Rules, chapter 4725.

[2] Unless otherwise permitted by the Administrative Authority and when installed in accordance with section 720.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0722 ABANDONED SEWERS AND SEWAGE DISPOSAL FACILITIES.

UPC sections 722.0 to 722.5 are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0723 BUILDING SEWER TEST.

UPC section 723.1 is amended to read as follows:

723.1 General. Building sewers shall be tested by plugging the end of the building sewer at its points of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low-pressure air test. Testing of building sewers shall be in accordance with section 712, as amended. The building sewer shall be gastight or watertight.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0724 RECREATIONAL VEHICLE.

UPC chapter 7 is amended by adding the following sections:

724.0 Recreational Vehicle Sanitary Disposal Station.

724.1 Construction. Each recreational vehicle sanitary disposal (dump) station shall have a concrete slab with the drainage system located as to be on the road (left) side of the recreational vehicle. The slab shall be not less than 3 feet by 3 feet (914 mm by 914 mm), not less than 3-1/2 inches (89 mm) thick, and properly reinforced. The slab surface shall be troweled to a smooth finish and sloped from each side inward to a drainage system inlet.

The drainage system inlet shall consist of a 4 inch (102 mm), self-closing, foot-operated hatch of materials meeting these rules with the cover milled to fit tight. The hatch body shall be set in the concrete of the slab with the lip of the opening flush with its surface to facilitate the cleansing of the slab with water. The hatch shall be properly connected to a drainage system inlet, which shall discharge to a public or private sewer meeting the same requirements as provided in this code for building sewers.

724.2 Flushing Device. The recreational vehicle sanitary disposal station flushing device shall consist of a supported riser terminating not less than 2 feet (610 mm) above the ground surface, with a 3/4 inch (20 mm) valved outlet adaptable for a flexible hose. The flexible hose shall be designed such that it cannot lie on the ground. The water supply to the flushing device shall be protected from backflow by means of a listed vacuum breaker or backflow prevention device located downstream from the last shutoff valve. A pressure-type vacuum breaker backflow device must be provided if a shut-off valve is installed downstream of the backflow device. Direct connections between:

(1) the water piping and sewer-connected waste piping; and

(2) the water piping and the recreational vehicle holding tank

are not allowed to exist under any condition with or without backflow protection.

Adjacent to the recreational vehicle sanitary disposal station shall be posted a sign of durable material not less than 2 feet by 2 feet (610 mm by 610 mm) in size. Inscribed on the sign in clearly legible letters shall be the following:

"DANGER - NOT TO BE USED FOR DRINKING OR DOMESTIC PURPOSES."

724.3 Drainage Pipe Sizes. The minimum pipe diameters of drainage pipes serving recreational vehicle sites shall be in accordance with Table 724.3.

TABLE 724.3

DRAINAGE PIPE SIZES

Maximum Number of Recreational Vehicles Served	Minimum Pipe Sizes (Inches)

36	4
71	5
120	6
440	8

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0801 INDIRECT WASTES.

Subpart 1. **Section 801.3.2.** UPC section 801.3.2 is amended to read as follows:

801.3.2 Walk-In Coolers. Floor drains shall not be located inside walk-in coolers unless they are specifically required by the licensing authority. Where required, floor drains shall be connected to a separate drainage line discharging into an outside receptor. The flood-level rim of the receptor shall not be less than 6 inches (152 mm) lower than the lowest floor drain. The floor drains shall be trapped and individually vented. Cleanouts shall be provided at 90 degree (1.57 rad) turns and shall be accessibly located. The waste shall discharge through an air gap or air break into a trapped and vented receptor, except that a full-size air gap is required where the indirect waste pipe is under vacuum.

Subp. 2. **Section 801.3.3.** UPC section 801.3.3 is amended to read as follows:

801.3.3 Food-Handling Fixtures. Cooking ranges, steam kettles, potato peelers, ice cream dipper wells, and similar equipment shall be indirectly connected to the drainage system by means of an air gap. Bins, cooling counters, compartments, and other equipment having drainage connections and used for the storage of unpackaged ice used for human ingestion, or used in direct contact with ready-to-eat food, shall be indirectly connected to the drainage system by means of an air gap. Each indirect waste pipe from food-handling fixtures, storage or holding compartments, or equipment shall be separately trapped and piped to the indirect waste receptor and shall not combine with other indirect waste pipes. The piping from the equipment to the receptor shall be not less than the drain on the unit, and in no case less than 3/4 inch (20 mm).

Subp. 3. **Section 801.4.** UPC section 801.4 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0804 INDIRECT WASTE RECEPTORS.

UPC section 804 is amended by adding the following subsection:

804.2 Domestic or Culinary Type Fixtures Prohibited as Receptors. No plumbing fixture that is used for domestic or culinary purposes shall be used to receive the discharge of an indirect waste.

Exception: Domestic use dishwashers may discharge into a sink, or discharge to a sink tailpiece or food-waste grinder when installed in accordance with section 807.3.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *September 27, 2021*

4714.0807 APPLIANCES.

UPC section 807.3 is amended to read as follows:

807.3 Domestic Dishwashing Machine. No domestic dishwashing machine shall be directly connected to a drainage system or food waste disposer without the use of an approved dishwasher air gap fitting on the discharge side of the dishwashing machine or run the discharge line as high as possible under the countertop, securely fastened. Listed air gaps shall be installed with the flood level (FL) marking at or above the flood level of the sink or drainboard, whichever is higher.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0810 STEAM AND HOT WATER DRAINAGE CONDENSERS AND SUMPS.

UPC section 810 is amended to read as follows:

810.0 Steam and Hot Water Drainage Condensers and Sumps.

810.1 High-Temperature Discharge. No steam pipe shall be directly connected to a plumbing or drainage system, nor shall water having a temperature above 140°F (60°C) be discharged under pressure directly into a drainage system.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0811 PLASTIC WASTE AND VENT PIPES.

UPC section 811 is amended to add subsection 811.9 as follows:

811.9 Waste and Vent. Thermal expansion and contraction compensation shall be provided for every 30 feet of developed horizontal or vertical length of run for thermoplastic piping as shown in Table 313.3.1.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0813 SWIMMING POOLS.

UPC section 813.1 is amended to read as follows:

813.1 General. Pipes carrying wastewater from swimming or wading pools, including pool drainage and backwash from filters, water from scum gutter drains and pool deck drains, shall be installed as an indirect waste. Pool deck drains need not be trapped and vented per section 803.1. Pool deck drain piping must be pitched at a minimum of 1/8 inch per foot for pipe sizes 3 inches and larger. Where a pump is used to discharge waste pool water to the drainage system, the pump discharge shall be installed as an indirect waste.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0814 CONDENSATE WASTES AND CONTROL.

Subpart 1. **Section 814.1.** UPC section 814.1 is amended to read as follows:

814.1 Condensate Disposal. Where discharged into the drainage system, equipment shall drain by means of an indirect waste pipe.

Subp. 2. **Table 814.3.** UPC Table 814.3 is deleted.

Subp. 3. **Section 814.3.** UPC section 814.3 is deleted in its entirety.

Subp. 4. **Section 814.5.** UPC section 814.5 is amended to read as follows:

814.5 Point of Discharge. Air-conditioning condensate waste pipes shall connect indirectly to the interior drainage system through an air gap or air break to: (1) properly trapped and vented receptors; (2) the tailpiece of an approved plumbing fixture; or (3) an exterior place of disposal approved by the Minnesota Pollution Control Agency.

Condensate waste shall not drain over a public way or in areas causing a nuisance.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0902 VENTS NOT REQUIRED.

UPC section 902.2 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0903 MATERIALS.

UPC section 903.1 is amended to read as follows:

903.1 Applicable Standards. Vent pipes and fittings shall comply with the applicable standards referenced in Table 701.2, except that:

(1) Galvanized steel or 304 stainless steel pipe shall not be installed underground and shall be not less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be in accordance with the applicable standards referenced in Table 1701.1.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.0905 VENT PIPE GRADES AND CONNECTIONS.

UPC section 905.3 is amended to read as follows:

905.3 Vent Pipe Rise. Except as provided elsewhere in this code, each vent shall rise vertically to a point not less than 6 inches (152 mm) above the flood-level rim of the fixture served before offsetting horizontally, and where two or more vent pipes converge, each such vent pipe shall rise to a point not less than 6 inches (152 mm) in height above the flood-level rim of the plumbing fixture it serves before being connected to any other vent.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.0906 VENT TERMINATION.

Subpart 1. **Section 906.1.** UPC section 906.1 is amended to read as follows:

906.1 Roof Termination. Each vent pipe or stack shall extend through its flashing and shall terminate vertically not less than 12 inches (305 mm) above the roof.

Subp. 2. **Section 906.3.** UPC section 906.3 is amended to read as follows:

906.3 Use of Roof. Vent pipes shall be extended separately or combined and of full required size, not less than 12 inches (305 mm) above the roof. Flagpoling of vents shall be prohibited except where the roof is used for purposes other than weather protection. Vents within 10 feet (3,048 mm) of a part of the roof that is used for such other purposes shall extend not less than 7 feet (2,134 mm) above the roof and shall be securely stayed.

Subp. 3. **Section 906.7.** UPC section 906.7 is amended to read as follows:

906.7 Frost or Snow Closure. Vent terminals shall be not less than 2 inches (50 mm) in diameter and shall not be smaller than the required vent pipe. Any change in diameter shall be made inside the building not less than 12 inches (305 mm) below the roof in an insulated space and terminate not less than 12 inches (305 mm) above the roof.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.1001 TRAPS REQUIRED.

UPC section 1001.2 is amended to read as follows:

1001.2 Where Required. Each plumbing fixture shall be separately trapped by an approved type of liquid seal trap. This section shall not apply to fixtures with integral traps. Not more than one trap shall be permitted on a trap arm. Food waste disposal units installed with a set of restaurant, commercial, or industrial sinks shall be connected to a separate trap. Each domestic clothes washer and each laundry tub shall be connected to a separate and independent trap, except that a laundry tub shall be permitted to also receive the waste from a clothes washer set adjacent thereto. The vertical distance between a fixture outlet and the trap weir shall be as short as practicable, but in no case shall the tailpiece from a fixture exceed 24 inches (610 mm) in length. One trap shall be permitted to serve a set of not more than three single compartment sinks or laundry tubs of the same depth or three lavatories immediately adjacent to each other and in the same room where the waste outlets are not more than 30 inches (762 mm) apart and the trap is centrally located where the three compartments are installed.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1002 TRAPS PROTECTED BY VENT PIPES.

UPC section 1002.2 is amended to read as follows:

1002.2 Fixture Traps. Each fixture trap shall have a protecting vent located so that the developed length of the trap arm from the trap weir to the inner edge of the vent shall be within the distance given in Table 1002.2 but in no case less than two times the diameter of the trap arm.

Exception: Emergency floor drains, tell tale floor drains, and floor drains not used as waste receptors installed within 25 feet of a vented branch or main.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1006 FLOOR DRAIN TRAPS.

UPC section 1006.1 is amended to read as follows:

1006.1 General. Floor drains shall connect into a trap constructed so that the trap can be readily cleaned and be of a size to efficiently serve the purpose for which the trap is intended. The drain inlet shall be located so that it is in full view. Where subject to the reverse flow of sewage or liquid waste, such drains shall be equipped with an approved backwater valve.

Exception: Floor drains or trench drains that connect to sand interceptors or oil and flammable liquid interceptors do not need to be trapped.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1007 TRAP SEAL PROTECTION.

UPC section 1007 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.1008 BUILDING TRAPS.

UPC section 1008 is deleted in its entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.1009 INTERCEPTORS (CLARIFIERS) AND SEPARATORS.

Subpart 1. UPC section 1009.2 is amended to read as follows:

1009.2 Approval. The size, type, and location of each interceptor (clarifier) or separator shall meet the requirements of this chapter.

Exception: Interceptors or separators that are engineered and manufactured and are documented by the manufacturer and the project registered professional engineer to be properly designed and sized for the specific project, and are approved by the Authority Having Jurisdiction.

No wastes other than those requiring treatment or separation shall be discharged into an interceptor (clarifier) or separator unless specifically permitted elsewhere in this code.

Subp. 2. Section 1009.4 is amended to read as follows:

1009.4 Relief Vent. Interceptors (clarifiers) shall be so designed that they will not become air-bound where closed covers are used. Each interceptor (clarifier) shall be properly vented. Interceptor (clarifier) and neutralization tank vent ports shall be located above the highest liquid flow level.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1010 SLAUGHTERHOUSES, PACKING ESTABLISHMENTS, ETC.

UPC section 1010.1 is amended to read as follows:

1010.1 Slaughterhouses. Slaughtering and dressing room drains shall be equipped with separators or interceptors approved by the administrative authority, which shall prevent the discharge into the drainage system of feathers, entrails, or other material likely to clog the drainage system.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.1014 GREASE INTERCEPTORS.

UPC section 1014.3.7 is amended to read as follows:

1014.3.7 Abandoned Gravity Grease Interceptors. Abandoned gravity grease interceptors shall be pumped and filled as required by the Authority Having Jurisdiction.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71*
Published Electronically: *January 25, 2016*

4714.1016 SAND INTERCEPTORS.

UPC section 1016.4 is amended to read as follows:

1016.4 Separate Use. Sand and similar interceptors shall be so designed and located as to be readily accessible for cleaning, have a water seal of not less than 6 inches (152 mm), and be vented.

Exception: Sand interceptors connecting to oil and flammable liquid interceptors meeting the requirements of section 1017 do not require a water seal or vent.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1017 OIL AND FLAMMABLE LIQUID INTERCEPTORS.

Subpart 1. **Section 1017.1.** UPC section 1017.1 is amended to read as follows:

1017.1 Interceptors Required. Repair garages and gasoline stations with grease racks or grease pits, parking garages over 1,000 square feet, vehicle wash facilities, and factories that have oily waste, flammable waste, or both as a result of manufacturing, storage, maintenance, repair, or testing processes shall be provided with an oil or flammable liquid interceptor that shall be connected to necessary floor drains. The separation or vapor compartment shall be independently vented to the outer air. Where two or more separation or vapor compartments are used, each shall be vented to the outer air or shall be permitted to connect to a header that is installed at a minimum of 6 inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air. The minimum size of a flammable vapor vent shall be not less than 2 inches (51 mm) and, where vented through a sidewall, the vent shall be not less than 10 feet (3,048 mm) above the adjacent level at an approved location. The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. Oil and flammable interceptors shall be provided with gastight cleanout covers that shall be readily accessible. Drains discharging into interceptors must not be designed to retain liquid waste. The waste line shall be not less than 3 inches (80 mm) in diameter with a full-size cleanout to grade. Where an interceptor is provided with an overflow, it shall be provided with an overflow line, not less than 2 inches (50 mm) in diameter, to an approved waste oil tank having a minimum capacity of 550 gallons (2,082 L) and meeting the requirements of the Authority Having Jurisdiction. The waste oil from the separator shall flow by gravity or shall be pumped to a higher elevation by an automatic pump. Pumps shall be adequately sized and accessible. Waste oil tanks shall have a 2 inch (50 mm) minimum pumpout connection at grade and a 1-1/2 inch (38 mm) minimum vent to atmosphere at an approved location not less than 10 feet (3,048 mm) above grade.

Subp. 2. **Section 1017.2.** UPC section 1017.2 is amended to read as follows:

1017.2 Design of Interceptors. Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate of such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow and shall be provided with an overflow line to an underground tank.

Interceptors not rated by the manufacturer shall have a depth of not less than 2 feet (610 mm) below the invert of the discharge drain. The outlet opening shall have not less than an 18 inch (457 mm) water seal and shall have a minimum capacity as follows: Where not more than three motor vehicles are serviced, stored, or both, interceptors shall have a minimum capacity of 6 cubic feet and 1 cubic foot of capacity shall be added for each vehicle up to 10 vehicles. Above 10 vehicles, each interceptor shall have a holding capacity of not less than 35 cubic feet. Where vehicles are serviced and not stored, interceptor capacity shall be based on a net capacity of 1 cubic foot (0.03 m^3) for each 100 square feet (9.29 m^2) of the surface to be drained into the interceptor, with a minimum of 6 cubic feet (0.2 m^3).

1017.2.1 Maintenance. Service and maintenance records shall be kept by the owner and available for viewing by the Authority Having Jurisdiction upon request. The service and maintenance records shall demonstrate periodic removal of accumulated substances in the oil and flammable liquid interceptor based on the interceptor's capacity as required by the manufacturer's recommended maintenance instructions. Where the Authority Having Jurisdiction determines

that an interceptor is not being properly cleaned or maintained, the Authority Having Jurisdiction shall have the authority to mandate a maintenance program.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1101 GENERAL.

Subpart 1. **Section 1101.2.** UPC section 1101.2 is amended to read as follows:

1101.2 Where Required. Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Authority Having Jurisdiction. In no case shall water from roofs or any building roof drainage flow onto the public sidewalk. In the case of one- and two-family dwellings, storm water shall be permitted to be discharged on flat areas, such as lawns, so long as the storm water shall flow away from the building and away from adjoining property and shall not create a nuisance.

Subp. 2. **Section 1101.3.** UPC section 1101.3 is amended to read as follows:

1101.3 Storm Water Drainage to Sanitary Sewer Prohibited. Storm water shall not be drained into sewers intended for sanitary drainage unless approved by the municipal sewer authority or stated elsewhere in this code.

Subp. 3. **Section 1101.4.** UPC section 1101.4 is amended to read as follows:

1101.4 Material Uses. Rainwater piping placed within 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 6 inches (152 mm) aboveground], or other approved materials. Changes in direction shall be in accordance with Section 706.0. ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 1701.1.

UPC subsections 1101.4.1 through 1101.4.6 are maintained without amendment.

Subp. 4. **Section 1101.12.** UPC section 1101.12 is amended to read as follows:

1101.12 Roof Drainage.

1101.12.1 Primary Roof Drainage. When roof areas of a building are drained by roof drains, the location and sizing of the drains shall be coordinated with the structural design and pitch of the roof in accordance with section 1103 or as permitted elsewhere in this code. The roof drainage system shall be sized on a basis of a rate of rainfall of at minimum 4 inches per hour.

1101.12.2 Secondary Drainage. Secondary (emergency) roof drainage shall be provided in accordance with Minnesota Rules, chapter 1305.

1101.12.2.1 Location. Unless roof design is certified by a Registered Design Professional specializing in Structural Engineering for the maximum possible depth of water that will pond in accordance with Minnesota Rules, chapter 1305, secondary roof drainage shall be located 2 inches above the lowest point of the roof surface.

1101.12.2.2 Engineered System. Engineered siphonic roof drainage systems must not be utilized in the design of a secondary roof drainage system.

UPC Table 1103.1 is not amended.

Subp. 5. **Subsections 1101.12.2.2.1 and 1101.12.2.2.2.** UPC subsections 1101.12.2.2.1 and 1101.12.2.2.2 are deleted in their entirety.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1103 SIZE OF LEADERS, CONDUCTORS, AND STORM DRAINS.

UPC sections 1103.1, 1103.2, and 1103.3 are amended to read as follows:

1103.1 Vertical Conductors and Leaders. Vertical conductors and leaders shall be sized by the maximum projected roof area and Table 1103.1. For sizes not listed under Table 1103.1, a minimum rainfall rate of 4 inches per hour must be used to size the rainwater piping.

1103.2 Size of Horizontal Storm Drains and Sewers. The size of building storm drains or building storm sewers or their horizontal branches shall be based on the maximum projected roof or paved area to be handled and Table 1103.2. For sizes not listed under Table 1103.2, a minimum rainfall rate of 4 inches per hour must be used to size the rainwater piping.

1103.3 Reduction in Size Prohibited. Except for siphonic roof drainage systems, storm drain piping shall not reduce in size in the direction of flow, including changes in direction from horizontal to vertical.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1105 CONTROLLED-FLOW ROOF DRAINAGE.

UPC section 1105.1 is amended to read as follows:

1105.1 Application. The controlled-flow roof drainage system shall be sized on the basis of controlled flow and storage of the storm water on the roof, provided the design is based on a minimum of 4 inches per hour and the following conditions are met:

(1) The water from a 25-year-frequency storm shall not be stored on the roof for more than 24 hours.

(2) During the storm, the water depth on the roof shall not exceed the depths specified in Table 1105.1(1).

(3) Not less than two drains shall be installed in roof areas of 10,000 square feet (929 m^2) or less, and not less than one additional drain shall be installed for each additional 10,000 square feet (929 m^2) or less of roof area.

(4) Each roof drain shall have a precalibrated, fixed (nonadjustable), and proportional weir (notched) in a standing water collar inside the strainer. No mechanical devices or valves shall be allowed.

(5) Pipe sizing shall be based on the precalibrated rate of flow (gpm) (L/s) of the precalibrated weir for the maximum allowable water depth, and Tables 1103.1 and 1103.2.

(6) The height of stones or other granular material above the waterproofed surface shall not be considered in water depth measurement, and the roof surface in the vicinity of the drain shall not be recessed to create a reservoir.

(7) Roof design, where controlled-flow roof drainage is used, shall be such that the design roof live load is not less than 40 lb/ft^2.

(8) Scuppers shall be provided in parapet walls. The distance of scupper bottoms above the roof level at the drains shall not exceed the maximum distances specified in Table 1105.1(2).

(9) Scupper openings shall be not less than 4 inches (102 mm) high and have a width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1103.1.

(10) Flashings shall extend above the top of the scuppers.

(11) At a wall or parapet, 45-degree (0.79 rad) cants shall be installed.

(12) Separate storm and sanitary drainage systems shall be provided within the building.

(13) Calculations for the roof drainage system shall be submitted, along with the plans, to the Authority Having Jurisdiction for approval.

UPC Table 1105.1(1) and Table 1105.1(2) are not amended.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.1106 [Renumbered 4714.1103]

4714.1106 SIPHONIC ROOF DRAINAGE SYSTEM.

UPC chapter 11 is amended by adding a new section and subsections as follows:

1106.0 Siphonic Roof Drainage System.

1106.1 General Requirements. Siphonic roof drainage systems shall be designed as an engineered siphonic roof drainage system when allowed by the administrative authority. The engineered siphonic roof drainage system shall meet the requirements of sections 1106.2 and 1106.3.

1106.2 Design Criteria. The siphonic roof drainage system shall be designed and certified by a registered professional engineer.

1106.2.1 Sizing. The system shall be sized on the basis of a minimum rate of rainfall of 4 inches per hour.

1106.2.2 Design. The drainage system shall be designed according to ASPE Standard 45, Siphonic Roof Drainage, and according to the manufacturer's recommendations and requirements. Manufacturer design software shall be in accordance with ASPE Standard 45.

1106.2.3 Roof Drain Bodies. Roof drains shall meet ASME A112.6.9, Siphonic Roof Drains.

1106.2.4 Water Accumulation. When designed for water accumulation, the roof shall be designed for the maximum possible water accumulation according to section 1105.1 (7), as amended in this code, and Minnesota Rules, chapter 1305.

1106.2.5 Pipe Size and Cleanouts. Minimum pipe size shall be 1-1/2 inches. All pipe sizes and cleanouts in the drainage system shall be designed and installed according to ASPE Standard 45.

1106.2.6 Horizontal Pipes. Horizontal pipe size shall not reduce in the direction of flow.

1106.2.7 Plans and Specifications. The plans and specifications for the drainage system shall indicate the siphonic roof drainage system as an engineered method used for the design.

1106.2.8 Markings. The installed drainage system shall be permanently and continuously marked as a siphonic roof drainage system at approved intervals and clearly at points where piping passes through walls and floors. Roof drains shall be marked in accordance with ASME A112.6.9.

1106.2.9 Transition Locations. The transition locations from the siphonic roof drainage system to a gravity system shall be determined by the registered professional engineer at a location approved by the administrative authority. The design, sizing, and venting of the transition location shall be in accordance with ASPE Standard 45. The gravity portion of the building storm sewer system receiving the siphonic roof drainage system shall be sized for the design rate but not less than a rainfall rate of 4 inches per hour and in accordance with section 1103.0.

1106.2.10 Required Submissions. All plans, specifications, and calculations shall be signed and sealed by the registered professional engineer and submitted to the administrative authority. The submitted calculations shall include performance data for the drainage system for the required rainfall rate, including the minimum and maximum calculated operating pressures and velocities verifying that the design solution is within the operating parameters required by the design standard. All performance data shall be reported as the extreme maximum and minimum calculations and shall not be presented as averaged data.

1106.3 Proof of Suitability. Upon completion of the project: proper tests, inspections, and certification of the siphonic roof drainage system shall be performed according to items 1106.3.1 and 1106.3.2:

1106.3.1 Testing. Testing shall be performed according to ASPE Standard 45.

1106.3.2 Written Certification. Prior to the final plumbing inspection, the registered professional engineer shall provide written certification to the administrative authority that the system has been visually inspected by the registered professional engineer or the registered professional engineer's designee and the installation has been properly implemented according to the certified design, plans, calculations, and specifications. The submitted written certification shall include any field modification from the initial design involving dimensions, location, or routing of the siphonic roof drainage system that shall be reapproved and recertified by the registered professional engineer and be accompanied by a final as-built design of the altered system and supported by calculated data to show that the overall system remains in accordance with ASPE Standard 45.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1107 TESTING.

Subpart 1. **Section 1107.1.** UPC section 1107.1 is amended to read as follows:

1107.1 Testing Required. Building storm drainage systems that are new and parts of existing systems that have been altered, extended, or repaired shall be tested in accordance with section 712 to disclose leaks and defects, except as provided in section 1107.2. Any section of the building storm sewer that passes through contaminated soils or contaminated water must be air tested in accordance with section 712.3.

Subp. 2. **Section 1107.2.** UPC section 1107.2 and its subsections are amended to read as follows:

1107.2 Exceptions.

(A) Testing is not required for:

(1) outside leaders;

(2) perforated or open drain tile; or

(3) portions of storm drainage system and sewers that are located more than ten feet from buildings, more than ten feet from buried water lines, and more than 50 feet from water wells, and that do not pass through soil or water identified as being contaminated.

(B) Building storm sewers shall be tested in accordance with section 712 or the Hydrostatic Test Method from the City Engineers Association of Minnesota. The Hydrostatic Test Method, provisions E2 and E3, as specified in Standard Utilities Specifications for Watermain and

Service Line Installation and Sanitary Sewer and Storm Sewer Installation, written and published by the City Engineers Association of Minnesota, 2018 edition, is incorporated by reference, is not subject to frequent change, and is available in the office of the commissioner of labor and industry.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *45 SR 1007; 46 SR 857*
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4714.1108 [Renumbered 4714.1105]
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4714.1109 [Renumbered 4714.1107]
Published Electronically: *September 27, 2021*

4714.1110 [Renumbered 4714.1106]
Published Electronically: *September 27, 2021*

4714.1401 [Renumbered 4714.1701]
Published Electronically: *September 27, 2021*

4714.1601 GENERAL.

Subpart 1. **Section 1601.1.** UPC section 1601.1 is amended to read as follows:

1601.1 Applicability. The provisions of this chapter shall apply to the installation, construction, alteration, and repair of rainwater catchment systems for nonpotable applications listed in section 1602.1.

1601.1.1 Irrigation. Rainwater catchment systems used for lawn irrigation are not covered under this chapter.

1601.1.2 Combination Systems. Rainwater catchment systems used for lawn irrigation in combination with any uses listed in section 1602.1 shall meet the requirements of this chapter. The irrigation system shall be separated by an air gap or proper backflow protection as required for potable water.

Subp. 2. **Sections 1601.2 and 1601.3.** UPC sections 1601.2 and 1601.3 are deleted in their entirety.

Subp. 3. **Table 1601.5.** UPC Table 1601.5 is amended to read as follows:

TABLE 1601.5	
Minimum Alternate Water Source Testing, Inspection, and Maintenance Frequency	
Description	**Minimum Frequency**

Inspect and clean filters and screens, and replace.	Every three months.
Inspect and verify that required disinfection, filters, and water quality treatment devices and systems are operational and maintaining minimum water quality requirements in Table 1602.9.6.	After initial installation and monthly thereafter. Exception: Every 12 months thereafter when electronically monitored.
Inspect and clear debris from rainwater gutters, downspouts, and roof washers.	At the beginning of seasonal usage and monthly during seasonal usage.
Inspect and clear debris from roof or other aboveground rainwater collection surfaces.	At the beginning of seasonal usage and monthly during seasonal usage.
Remove tree branches and vegetation overhanging roof or other aboveground rainwater collection surfaces.	As needed.
Inspect pumps and verify operation.	After initial installation and every 12 months thereafter.
Inspect valves and verify operation.	After initial installation and every 12 months thereafter.
Inspect pressure tanks and verify operation.	After initial installation and every 12 months thereafter.
Clear debris from and inspect storage tanks and locking devices and verify operation.	After initial installation and every 12 months thereafter.
Inspect caution labels and marking.	After initial installation and every 12 months thereafter.
Cross-connection inspection and test.*	After initial installation and thereafter in accordance with Section 1602.5.

*The cross-connection inspection and test shall be performed in accordance with this chapter by a plumber licensed under Minnesota Statutes, section 326B.46, and certified to ASSE Standard 5120.

Subp. 4. **Section 1601.7.** UPC section 1601.7 is amended to read as follows:

1601.7 Minimum Water Quality Requirements. The minimum water quality for rainwater catchment systems shall comply with the applicable water quality requirements for the intended application as determined by the Authority Having Jurisdiction. Water quality for nonpotable rainwater catchment systems shall comply with section 1602.9.6.

Subp. 5. **Section 1601.11.** UPC section 1601.11 is amended to read as follows:

1601.11 Abandonment. All rainwater catchment systems that are no longer in use and fail to be maintained in accordance with section 1601.5 shall be considered abandoned. Abandoned rainwater catchment systems are subject to sections 1601.11.1 and 1601.11.2.

1601.11.1 General. Every abandoned rainwater catchment system or part thereof covered under the scope of this chapter, as amended in this code, shall be disconnected from any remaining systems and drained, plugged, and capped per the requirements of this code. Storm drainage systems of abandoned rainwater catchment systems must comply with chapter 11, Storm Drainage, as amended.

1601.11.2 Underground Tank. Every underground water storage tank that has been abandoned or otherwise discontinued from use in a rainwater catchment system covered under the scope of this chapter, as amended in this code, shall be completely drained and filled with earth, sand, gravel, or concrete or removed in a manner approved by the administrative authority.

Statutory Authority: *MS s 326B.43; 326B.435*

History: *45 SR 1007; 46 SR 857*
Published Electronically: *February 2, 2022*

4714.1602 NONPOTABLE RAINWATER CATCHMENT SYSTEMS.

Subpart 1. **Section 1602.1.** UPC section 1602.1 is amended to read as follows:

1602.1 General. The installation, construction, alteration, and repair of rainwater catchment systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, industrial processes, water features, vehicle washing facilities, cooling tower makeup, and similar uses shall be approved by the commissioner.

Subp. 2. **Section 1602.2.** UPC section 1602.2 is amended to read as follows:

1602.2 Plumbing Plan Submission. No permit for a rainwater catchment system shall be issued until complete plumbing plans have been submitted and approved by the commissioner in accordance with Minnesota Rules, part 1300.0215, subpart 6.

Subp. 3. **Section 1602.4.** UPC section 1602.4 is amended to read as follows:

1602.4 Connections to Potable or Reclaimed (Recycled) Water Systems. Rainwater catchment systems shall have no direct connection to a potable water supply or alternate water source system. Potable or reclaimed (recycled) water is permitted to be used as makeup water for a rainwater catchment system provided the potable or reclaimed (recycled) water supply connection is protected by an air gap or reduced-pressure principle backflow preventer in accordance with this code. An automatic means to supply the rainwater catchment system with makeup water shall be installed when there is insufficient rainwater to meet the required demand or due to system failure.

Subp. 4. **Section 1602.5.** UPC section 1602.5 is amended to read as follows:

1602.5 Initial Cross-Connection Test. Where a portion of a rainwater catchment system is installed within a building, a cross-connection test is required in accordance with section 1605.3, as amended.

Before the building is occupied or the system is activated, the plumbing contractor shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful before final approval is granted.

Subp. 5. **Section 1602.7.** UPC section 1602.7 is amended to read as follows:

1602.7 Rainwater Catchment System Materials. Rainwater catchment system materials shall comply with sections 1602.7.1 through 1602.7.4.

1602.7.1 Water Supply and Distribution Materials. Rainwater catchment water supply and distribution materials shall comply with Chapter 6, as amended in this code, and the requirements of this code for potable water supply and distribution systems, unless otherwise provided for in this section.

1602.7.2 Rainwater Catchment System Drainage Materials. Materials used in rainwater catchment drainage systems, including gutters, downspouts, conductors, and leaders shall be in accordance with Chapter 11, as amended in this code, and the requirements of this code for storm drainage.

1602.7.3 Storage Tanks. Rainwater storage tanks shall comply with section 1603.1, as amended in this code.

1602.7.4 Collection Surfaces. The collection surface shall be constructed of a hard, impervious material.

Subp. 6. **Section 1602.9.** UPC sections 1602.9.3 and 1602.9.5 are amended to read as follows:

1602.9.3 Collection Surfaces. Rainwater catchment systems shall collect rainwater only from roof surfaces. Rainwater catchment systems shall not collect rainwater from:

(1) vehicular parking surfaces;

(2) surface water runoff;

(3) bodies of standing water; or

(4) similar nonroof surfaces.

1602.9.5 Prohibited Discharges. Overflows and bleed-off pipes from roof-mounted equipment and appliances, condensate, and other waste disposal shall not discharge onto roof surfaces that collect rainwater for rainwater catchment systems.

Subp. 6a. **Subsection 1602.9.4.** UPC subsection 1602.9.4 is deleted in its entirety.

Subp. 7. **Section 1602.9.** UPC section 1602.9.6 is amended to read as follows:

1602.9.6 Minimum Water Quality. The minimum water quality for rainwater catchment systems shall meet the applicable water quality recommendations in Table 1602.9.6.

Subp. 8. **Table 1602.9.6.** UPC Table 1602.9.6 is amended to read as follows:

TABLE 1602.9.6

Measure	Limit
E. coli (MPN/100 mL)	2.2
Odor	Non-offensive
Temperature (degrees Celsius)	MR
Color	MR
pH	MR

MR = measured and recorded only

Treatment:

100-micron or smaller filter

Minimum 3.5-log reduction of bacteria

Statutory Authority: *MS s 326B.43; 326B.435*

History: *45 SR 1007; 46 SR 857*
Published Electronically: *February 2, 2022*

4714.1603 RAINWATER STORAGE TANKS.

Subpart 1. **Section 1603.2.** UPC section 1603.2 is amended to read as follows:

1603.2 Construction. Rainwater storage shall be constructed of solid, durable materials not subject to excessive corrosion or decay, watertight, and suitable for rainwater storage.

Subp. 2. **Section 1603.7.** UPC section 1603.7 is amended to add the following:

1603.7 Animals and Insects. Rainwater tank openings shall be protected to prevent the entrance of insects, birds, or rodents into the tank and piping system. Screen installed on vent pipes, inlets, and overflow pipes shall be corrosion-resistant and have an aperture of not greater than 1/16 inch (1.6 mm) and shall be close-fitting.

Subp. 3. **Section 1603.9.** UPC section 1603.9 is amended to read as follows:

1603.9 Storage Tank Venting. A vent shall be installed on each tank. The vent shall extend from the top of the tank and terminate a minimum of 12 inches above grade, shall be a minimum of 1-1/2 inches in diameter, and shall be turned downward.

Subp. 4. **Section 1603.10.** UPC section 1603.10 is amended to read as follows:

1603.10 Pumps. Pumps serving rainwater catchment systems shall be listed. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering not less than 15

pounds-force per square inch (psi) (103 kPa) residual pressure at the highest and most remote outlet served. Where the water pressure in the rainwater supply system within the building exceeds 80 psi (552 kPa), a listed pressure-reducing valve reducing the pressure to 80 psi (552 kPa) or less to water outlets in the building shall be installed in accordance with this code.

Subp. 5. **Section 1603.11.** UPC section 1603.11 is amended to read as follows:

1603.11 Roof Drains. Primary and secondary roof drain systems shall be designed and installed in accordance with Chapter 11, as amended in this code. Secondary roof drains shall be equipped with a working alarm.

Subp. 6. **Section 1603.12.** UPC section 1603.12 is amended to read as follows:

1603.12 Water Quality Devices and Equipment. The rainwater catchment system shall include filtration and disinfection to maintain the minimum water quality requirements in Table 1602.9.6. At a minimum, a 100-micron absolute filter shall be provided along with disinfection to provide a 3.5-log reduction of bacteria. Devices and equipment used to treat rainwater shall be suitable for rainwater catchment system applications, properly designed, sized, and documented for the specific project by a Minnesota registered professional engineer.

Subp. 7. **Sections 1603.15 and 1603.16.** UPC sections 1603.15 and 1603.16 are deleted in their entirety.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*
Published Electronically: *September 27, 2021*

4714.1604 SIGNS.

UPC section 1604.2 is amended to read as follows:

1604.2 Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in restrooms in commercial, industrial, and institutional occupancies using nonpotable rainwater for water closets, urinals, or both. Each sign shall contain 1/2 inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to users. Each sign shall contain one of the following texts as determined by the application:

1604.2 (A) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS.

1604.2 (B) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS.

1604.2 (C) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH URINALS.

1604.2 (D) TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO *_____*

_____ shall indicate the rainwater usage.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.1605 INSPECTION AND TESTING.

UPC section 1605.3 is amended to read as follows:

1605.3 Cross-Connection Inspection and Testing. The potable and rainwater catchment water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with sections 1605.3.1 through 1605.3.4.

1605.3.1 Visual System Inspection. Prior to commencing the cross-connection testing and annually thereafter, a dual system inspection shall be conducted as follows:

Pumps, equipment, equipment room signs, and exposed piping in an equipment room shall be inspected for visible cross-connections, proper operation, and damage.

1605.3.2 Cross-Connection Test. The following procedure shall be followed by the plumbing contractor in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred:

(1) The potable water system shall be activated and pressurized. The rainwater catchment water system shall be shut down and completely drained.

(2) The potable water system shall remain pressurized while the rainwater catchment water system is completely drained. The minimum period the rainwater catchment water system is to remain completely drained shall be determined based on the size and complexity of the potable water system and rainwater catchment water distribution system, but in no case shall that period be less than one hour.

(3) Fixtures, potable water, and rainwater shall be tested and inspected for flow. Flow from a rainwater catchment water system outlet indicates a cross-connection. No flow from a potable water outlet indicates that it is connected to the rainwater catchment water system.

(4) The drain on the rainwater catchment water system shall be checked for flow during the test and at the end of the testing period.

(5) The potable water system shall then be completely drained.

(6) The rainwater catchment water system shall then be activated and pressurized.

(7) The rainwater catchment water system shall remain pressurized for a minimum time specified by the Authority Having Jurisdiction while the potable water system is completely drained. The minimum period the potable water system is to remain completely drained shall be based on the size and complexity of the potable water system and rainwater catchment water distribution system, but in no case shall that period be less than one hour.

(8) Fixtures, potable and rainwater catchment, shall be tested and inspected for flow. Flow from a potable water system outlet indicates a cross-connection. No flow from a rainwater catchment water outlet indicates that it is connected to the potable water system.

(9) The drain on the potable water system shall be checked for flow during the test and at the end of the testing period.

(10) Where there is no flow detected in the fixtures that would indicate a cross-connection, the potable water system shall be repressurized.

1605.3.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:

(1) Rainwater catchment water piping to the building shall be shut down at the meter and the rainwater water riser shall be drained.

(2) Potable water piping to the building shall be shut down at the meter.

(3) The cross-connection shall be uncovered and disconnected.

(4) The building shall be retested following procedures listed in sections 1605.3.1 and 1605.3.2.

(5) The potable water system shall be chlorinated with 50 ppm chlorine for 24 hours.

(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. Where test results are acceptable, the potable water system shall be permitted to be recharged.

1605.3.4 Inspection. An annual inspection of the rainwater catchment water system, following the procedures in Section 1605.3.1, shall be required. Cross-connection testing, following the procedures listed in section 1605.3.2, shall be required every five years.

Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

Statutory Authority: *MS s 326B.43*

History: *45 SR 1007*

Published Electronically: *September 27, 2021*

4714.1701 [Renumbered 4714.1601]

4714.1701 REFERENCED STANDARDS.

Subpart 1. **Table 1701.1.** UPC Table 1701.1 is modified to add the following:

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTIONS
ASSE 1084-2018	Water Heaters with Temperature Limiting Capacity	Appliances	407.3, 409.4, 410.3
ASSE 1085-2018	Water Heaters for Emergency Equipment	Appliances	416.2
ASTM Standards C1214-19	Concrete Pipe Sewerlines by Negative Air Pressure (Vacuum) Test Method		712.4
ASTM Standards C1244-17	Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill		712.4
CSA B125.3-2018	Plumbing Fittings	Fittings	409.4, 410.3
Hydrostatic Test Method (City Engineers Association of Minnesota) - 2018	Standard Utilities Specifications for Watermain and Service Line Installation and Sanitary Sewer and Storm Sewer Installation	Storm Drainage	1107.2(B)

Subp. 2. **Table 1701.1.** UPC Table 1701.1 is modified by amending the following:

STANDARD NUMBER	**STANDARD TITLE**	**APPLICATION**	**REFERENCED SECTIONS**
ASME A112.3.1-2007	Stainless Steel Drainage Systems for Sanitary DWV, Storm, and Vacuum Applications, Above- and Below-Ground	Piping	418.1, 423.1, Table 701.2, 705.7.2, 1102.1
ASME A112.6.3-2001	Floor and Trench Drains	Fixtures	418.1, 423.1
ASME A112.6.9-2005	Siphonic Roof Drains	DWV Components	1106.2.3, 1106.2.8

ASME A112.18.1 - 2018 / CSA B125.1 - 2018	Plumbing Supply Fittings	Fittings	408.3, 417.1, 417.2, 417.3, 417.4 ,417.6, 603.5.19
ASPE Standard 45	Siphonic Roof Drainage	Roof Drainage	1106.2.2 1106.2.5, 1106.2.9, 1106.3.1, 1106.3.2
ASSE 1023-2019	Electrically Heated or Cooled Water Dispensers	Appliances	417.6
NSF 14-2016	Plastics Piping System Components and Related Materials	Miscellaneous	301.2.3, 604.1, 611.3
NSF 42-2015	Drinking Water Treatment Units - Aesthetic Effects	Appliances	611.1, 611.3
NSF 44-2015	Residential Cation Exchange Water Softeners	Appliances	611.1, 611.3
NSF 53-2015	Drinking Water Treatment Units - Health Effects	Appliances	611.1, 611.3
NSF 55-2016	Ultraviolet Microbiological Water Treatment Systems	Appliances	611.1, 611.3
NSF 58-2015	Reverse Osmosis Drinking Water Treatment Systems	Appliances	611.1, 611.2, 611.3
NSF 61-2016	Drinking Water System Components - Health Effects	Miscellaneous	415.1, 417.1, 604.1, 604.9, 606.1, 607.2, 608.2, 611.1.1
NSF 62-2015	Drinking Water Distillation Systems	Appliances	611.1, 611.3

Unless amended above, all other entries in UPC Table 1701.1 are not amended.

Subp. 3. UPC Table 1701.2 is modified to delete the following:

STANDARD NUMBER	**STANDARD TITLE**	**APPLICATION**
ASSE 1023-1979	Hot Water Dispensers Household Storage Type - Electrical	Appliances

Subp. 4. UPC Table 1701.2 is modified by adding the following:

STANDARD NUMBER	STANDARD TITLE	APPLICATION
ASSE 1082-2018	Water Heaters with Integral Temperature Control Devices for Hot Water Distribution Systems	Appliances

Statutory Authority: *MS s 326B.43; 326B.435*

History: *40 SR 71; 45 SR 1007; 46 SR 857*

Published Electronically: *February 2, 2022*

4714.1702 Subpart 1. [Renumbered 4714.1602 subpart 1]

Subp. 2. [Renumbered 4714.1602 subp 2]

Subp. 3. [Renumbered 4714.1602 subp 3]

Subp. 4. [Renumbered 4714.1602 subp 4]

Subp. 5. [Renumbered 4714.1602 subp 5]

Subp.6. [Renumbered 4714.1602 subp 6]

Subp.7. [Renumbered 4714.1602 subp 7]

Subp.8. [Renumbered 4714.1602 subp 8]

Subp. 9. [Renumbered 4714.1603 subpart 1]

Subp. 10. [Renumbered 4714.1603 subp 2]

Subp. 11. [Renumbered 4714.1603 subp 3]

Subp. 12. [Renumbered 4714.1603 subp 4]

Subp. 13. [Renumbered 4714.1603 subp 5]

Subp. 14. [Renumbered 4714.1603 subp 6]

Subp. 15. [Renumbered 4714.1603 subp 7]

Subp. 16. [Renumbered 4714.1604]

Subp. 17. [Renumbered 4714.1605]

Subp. 18. [Repealed, 45 SR 1007]

Subp. 19. [Repealed, 45 SR 1007]

Subp. 20. [Repealed, 45 SR 1007]

Subp. 21. [Repealed, 45 SR 1007]

Subp. 22. [Renumbered 4714.1601 subp 2]

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