CHAPTER 4715
DEPARTMENT OF HEALTH
MINNESOTA PLUMBING CODE

4715.0100 DEFINITIONS.

[For text of subps 1 to 84, see M.R.]

Subp. 84a. **Readily accessible.** "Readily accessible" means capable of being reached safely and quickly for operation, repair, or inspection without requiring those to whom ready access is requisite to remove obstacles, panels, or similar obstructions.

[For text of subps 85 to 128, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0200 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 which are not specifically covered in this code, the twenty three principles which follow 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 which meets the requirements of the commissioner of health. Such 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, device, or appliance shall be connected indirectly with the building drainage system.

C. Each family dwelling unit shall have at least one water closet, one lav-

atory, 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. Every building with installed plumbing fixtures and intended for human habitation, occupancy, or use when located on premises where a public sewer is available within a reasonable distance shall be connected to the 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 which will 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 back flow of sewage, suitable provision shall be made to prevent its 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 which 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 workmanship and so designed and constructed as 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 shall 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 so 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 water-seal trap placed as near to the fixture as possible.

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

U. If water closets or other plumbing fixtures are installed in a building where there is no sewer within a reasonable distance, suitable provision must be made for treatment of the building sewage by methods which meet the design criteria of the Minnesota Pollution Control Agency as prescribed in chapter 7080. One-family and two-family dwellings must comply with applicable local ordinances.

V. Devices for heating water and storing it 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.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0210 [Renumbered 4715.0200]

4715.0220 [Renumbered 4715.0200]

4715.0230 [Renumbered 4715.0200]

4715.0240 [Renumbered 4715.0200]

4715.0250 [Renumbered 4715.0200]

4715.0260 [Renumbered 4715.0200]

4715.0270 [Renumbered 4715.0200]

4715.0310 USE OF PUBLIC SEWER AND WATER SYSTEMS REQUIRED.

If a public sewer is accessible in a street or alley to a building or premises and the connection is feasible, liquid wastes from any plumbing system in that building must be discharged into the public sewer unless otherwise prohibited by this code or a local ordinance.

If a public water supply system is accessible, the water distribution system must be connected to it unless otherwise permitted by the administrative authority. A water well taken out of service because a person is connecting to a public water supply must either be maintained for a use such as irrigation, or sealed and abandoned in accordance with the Minnesota Water Well Construction Code. (Minnesota Rules, chapter 4725)

If either a public sewer or water supply system or both are not available, an individual water supply or sewage disposal system, or both, conforming to the published standards of the administrative authority must be provided.

Every building must have its own independent connection with a public or private sewer, except that a group of buildings may be connected to one or more manholes which are constructed on the premises, and connected to a public or private sewer. These manholes must conform to the standards set by the local sewer authority.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0320 CONFORMANCE WITH CODE.

Subpart 1. **Scope.** As provided in Minnesota Statutes, section 326.37, the Minnesota Plumbing Code applies to all new plumbing installations, including additions, extensions, alterations, and replacements connected to a water or sewage disposal system owned or operated by or for a municipality, institution, factory, office building, hotel, apartment building, or other place of business regardless of location or the population of the city or town in which it is located.

Subp. 2. **New buildings.** All plumbing materials and plumbing systems or parts thereof must be installed to meet the minimum provisions of this code.

Subp. 3. **Existing buildings.** In existing buildings or premises in which plumbing installations are to be altered, renovated, or replaced, the new materials and work must meet the provisions of this code. If the administrative authority 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 devia-

tion may be granted by the administrative authority only to the extent the deviation can be granted without endangering the health and safety of the occupants and the public.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0420 STANDARDS FOR PLUMBING MATERIALS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Standards for plumbing materials.**

	DESCRIPTION	ANSI	ASTM	FS	OTHER
I. CAST IRON PIPE AND FITTINGS					
		A21.2 A21.6	A-74	WW-P-401C	CS188
1A	Cast Iron Pipe and Fittings Extra Heavy	A21.8			
1B	Cast Iron Pipe Centrifugally Cast Only and Fittings Service Weight	A21.6 A21.8	A-74	WW-P-401C	CS188
1C	Cast Iron Mechanical (Gland Type) Pipe	A21.11 A21.2 A21.6		WW-P-421a	
1D	Cast Iron Mechanical (Gland Type) Pipe Cement Lined	A21.8 A21.4 A21.2 A21.6 A21.8			
1E	Cast Iron Short Body Water Service Fittings (2"-12")	A21.10			AWWA C100
1F	Cast Iron Threaded Pipe	A40.5			
1G	High Silicon Pipe, Fittings Cast Iron				
1H	Cast Iron Threaded Fittings	B16.4		WW-P-501	

	Black and Galvanized 125#				
1J	Cast Iron Drainage Fittings Black and Galvanized	B16.12		WW-P-491	
1K	Hubless Cast Iron Pipe and Fittings (Amended 8-31-72)				CISPI Standard 301-69T

II. STEEL AND WROUGHT IRON PIPE FITTINGS

2A	Steel Pipe, Welded and Seamless Galvanized, Schedule 40 and Above	B36.1 B36.20			WW-P-406 6(1)
2B	Wrought Iron Pipe, Galvanized Schedule 40 and Above	B36.2			
2C	Stainless Steel Pipe	B36.19			
2D	Galvanized Malleable Fittings 150 psi and Above	B16.3	A197		
2E	Steel Unions, Galvanized			WW-V-531 C	

III. COPPER AND COPPER BASE PIPE AND FITTINGS

3A	Red Brass Pipe, Regular and Heavier	H27.1	B42B		
3B	Seamless Brass Tube	H36.1			
3C	Brass or Bronze				

	Threaded Fittings 125 lbs. and Over	B16.15	B62	WW-P-460	
3D	Brass or Bronze Flare Fittings 125 lbs. and Over, Heavy Duty Long Collar Type		B62		
3E	Seamless Copper Tube Type K, Soft Temper	H23.1	B88		
3F	Seamless Copper Tube Type K, Hard Temper	H23.1	B88		
3G	Seamless Copper Tube Type L, Soft Temper	H23.1	B88		
3H	Seamless Copper Tube Type L, Hard Temper	H23.1	B88		
3H(a)	Welded Copper Alloy 194 Water, Tube, Type "Heavy," Hard Temper		B543-72		OFT194-101A Navfac TS-15400
3H(b)	Stainless Steel Water Tubing, Type SL, Copper Plated Coating (HWT-T439)		A-651		
3J	Seamless Copper Tube, Type M, Hard and Soft Temper	H23.1	B88		
3J(a)	Welded Copper Alloy 194 Water Tube, Type "Standard," Hard Temper		B543-72		OFT194-101A Navfac TS-15400
3J(b)	Stainless Steel Water Tubing, Type SM, Copper Plated Coating	A-268			

	(HWT-T439)		A-651		
3K	Seamless Copper Tube Type DWV	H23.3	B306		
3L	Copper Pipe I.P.S.	H26.1	B42		
3M	Copper Pipe, Threadless Type T P and Fittings	H26.2	B302		
3N	Cast Bronze and Wrought Solder Joint Pressure Fitting	B16.22 H23.1 B16.18			
3O	Cast Bronze and Wrought Solder Joint D W V Fittings	B16.23			
3P	Copper Alloy Water Tube 1/2 Inch and 3/4 Inch		B447 B75		
3Q	Welded Brass Water Tube 1/2 Inch and 3/4 Inch		B587		

IV. LEAD PIPE AND FITTINGS

4A	Lead Pipe AA			WW-P-325-44	
4B	Lead Pipe AAA			WW-P-325-44	
4C	Lead Bends and Traps			WW-P-325-44	
4D	Sheet Lead			QQ-L201d	

V. SILICA AND EARTH PRODUCTS PIPE AND FITTINGS, NONMETALLIC

5A	Asbestos-Cement Pressure Pipe and Fitting		C500 C296	SS-P351	
5B	Asbestos-Cement Water Pipe and Fittings		C500	SS-P-351	AWWA C400

5C	Asbestos-Cement Nonpressure Pipe and Fittings	C428	XX-P-331	
5D	Asbestos-Cement Perforated Underdrain Pipe and Fittings	C508		
5E	Vitrified Clay Pipe, Standard Strength and Stronger Fittings	C13 C200		
5F	Unglazed Clay Pipe, Extra Strength and Fittings	C278		
5G	Perforated Clay Pipe and Fittings	C211		
5H	Borosilicate Glass Pipe and Fittings 60 psi			
5J	Nonreinforced Concrete Draintile	C412		AASHO M178
5K	Nonreinforced Concrete Pipe	C14	SS-P-371	AASHO M86
5L	Perforated Concrete Pipe, Underdrainage	C444		
5M	Reinforced Concrete Pipe	C76	SS-P-375	
5N	Reinforced and Prestressed Concrete Pipe, Pressure Type and Fittings			
5O	Bituminized Fiber Drain and Sewer Pipe	D1860	SS-P-1540A	(Amended 8-31-72)
5P	Perforated Bituminized Fiber Pipe for General Drainage	D2311	SS-P-1540A	(Amended 8-31-72)
VI.	PLASTIC PIPE AND FITTINGS			
	DRAIN, WASTE AND VENT			
6A	Acrylonitrile-Butadiene-Styrene (ABS) Type 1, Schedule 40	D2661	L-P-322a FHA-MPS	HSF14 CS270

	Foam core		F628		
6B	(1) Polyvinyl Chloride (pvc) Schedule 40 Unthreaded Schedule 80 can be threaded		D2665	L-P-320a FHA-MPS	NSF14 CS272
6B	(2) Polyvinyl Chloride (pvc) Schedule 30 (3 inch only)		D2949	L-P-001221	
	BUILDING SEWER				
6C	(1) Styrene — Rubber		D2852	(Filed 4-5-73)	CS228
6C	(2) Polyvinyl Chloride (pvc) (Amended 4-5-73)		D3033 D3034 F789	FHA-UM-26 WW-P-00380a	
6C	(3) Acrylonitrile-Butadiene-Styrene (ABS)		D2751		

WATER SERVICE - Minimum working pressure rating shall be at least 150 psi for municipal water service and 100 psi for other service.

6D	Polyethylene (PE)	B72.1	D2239 D2737	LP-315a FHA-UM-31C	NSF14 CS255
6E	Acrylonitrile-Butadiene-Styrene (ABS)	B72.3	D2282		NSF14 CS254
6F	Polyvinyl Chloride (PVC)	B72.2	D2241 D1785	L-P-1036 FHA UM-41	NSF14 CS256
6G	Polybutylene		D2662 D2666		NSF14
	SPECIAL WASTES (Amended 12-26-72)				
6H	Polyethylene		D2239	LP 315a	PS10-69 PS11-69 PS12-69
6J	Polypropylene (Type II 24308)		D2146		

WATER DISTRIBUTION - Polybutylene (PB) systems (PB tubing together with recommended fittings) and chlorinated polyvinyl chloride (cpvc) pipe together with fittings must be tested by the manufacturer at 150 psi and 210 degrees Fahrenheit for a period of not less than 48 hours by an independent testing laboratory acceptable to the administrative authority.

6K	Polybutylene		D3309	
6L	Chlorinated polyvinyl chloride (CPVC)	119.1, 119.2	D2846	NSF14 FHA Bulletin #76
	GENERAL DRAINAGE		ASTM	
6M	Polyethylene (corrugated)		F405	

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0500 WATER SUPPLY SYSTEMS.

When selecting the material and size for water service pipe, tubing, or fittings, due consideration shall be given to the action of the water on the interior of the pipe and of the soil, fill, or other material on the exterior of the pipe.

Pipe and fitting materials for water service and distribution must be of a type specifically permitted by parts 4715.0510 and 4715.0520, and must be verified to contain no more than eight percent lead.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0520 WATER DISTRIBUTION PIPE.

The following materials may be used for water distribution pipe:

[For text of items A to E, see M.R.]

F. Copper tube 3H, 194 water tube 3H(a), or stainless water tubing 3H(b) with 3N fittings except that this material may not be buried under or embedded in a concrete slab.

[For text of items G to I, see M.R.]

J. Plastic tubing 6K with fittings. Installation must be in accordance with International Association of Plumbing and Mechanical Officials (IAPMO) Installation Standard 22-84.

K. Plastic pipe 6L and corresponding fittings. Installation must be in accordance with International Association of Plumbing and Mechanical Officials (IAPMO) Installation Standards 20-84.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0580 SOIL AND WASTE PIPING ABOVE GROUND.

For soil and waste piping, except special wastes, above ground, the following materials may be used:

[For text of items A to C, see M.R.]

D. Copper 3F, 3H, 3J (hard temper only), and 3K with 3O fittings except these materials shall not be used to receive the wastes from urinals nor wastes from water closets in battery. These materials are not recommended for use in buildings served by septic tank sewage disposal systems.

[For text of items E and F, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0620 SUBSOIL DRAINS.

All materials listed in part 4715.0570 plus asbestos cement 5D, clay 5G, cement 5J, and cement 5L, perforated bituminized fiber pipe for general drainage 5P, and plastic 6A, 6B, 6C, and 6M.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0800 MECHANICAL JOINTS.

[For text of subps 1 to 4, see M.R.]

Subp. 5. **Mechanical pipe couplings and fittings.** Couplings must be made with the housing fabricated in two or more parts of malleable iron castings in accordance with Federal Specification QQ-I-666c, Grand 11, or with ASTM A47 or ASTM A339. The coupling gasket must be molded synthetic rubber, per ASTM D-735-61, Grade No. R615BZ. Coupling bolts must be oval neck track head type with hexagonal heavy nuts, per ASTM-A-183-60, or ASTM A325.

Pipe fittings used with these pipe couplings must be fabricated or malleable iron castings in accordance with Federal Specifications QQ-I-666c, Grade 11, or with ASTM A47; ductile iron ASTM A339; segweld steel ASTM53 or A106.

These couplings and fittings may be used above ground, for storm drains and leaders, and for water distribution pipe provided exposed parts in contact with water are galvanized, and may be used below ground for water distribution if couplings and fittings are galvanized and the exposed grooves are coal tar enamel coated and wrapped.

All grooving of galvanized pipe must be by the cut groove method.

Subp. 6. **Extracted mechanical joint.** An extracted mechanical joint in copper water distribution pipe must be made by drilling through copper pipe and on retraction must extract a cup shaped extruded collar. The height of the collar must be at least three times the thickness of the copper tube wall and the radius of the extruded collar must be the same thickness as the copper tube wall from which it is being extruded. The joining branch tube must be contour-notched and a retaining dimple must be made before insertion into the extracted collar or another acceptable method must be used to provide proper insertion depth. The joint must be brazed with a brazing material meeting the requirements of part 4715.0820. The joint may be used above ground only.

Subp. 6a. **Field formed coupling for copper tubing.** A field formed coupling in copper water distribution pipe must be made by first annealing the area of the tubing where expansion is desired, and then using a hand tube expander to expand the tube end to accept tubing of the same type and size. Joint clearances must be from .001 to .005 inches, and suitable for the brazing filler metal used. The depth of the expanded area must be as recommended by the tube expander manufacturer, but in all cases must be at least four times the wall thickness of the tubing. All joints must be brazed in accordance with the requirements of part 4715.0820. The couplings must be used above ground only.

[For text of subp 7, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0805 PUSH-ON JOINTS.

Push-on joints may be used in cast iron and ductile iron water service pipe located underground outside the building, and must comply with ANSI-A21.11-85.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0810 PLASTIC JOINTS.

Subpart 1. **Joint methods.** Every joint in plastic piping must be made with approved fittings using solvent welded connections, fusion welded connections, insert fittings with metal clamps and screws of corrosion-resistant material or approved crimp rings, threaded joints according to accepted standards, or special IAPMO listed fittings of other types. Large diameter water service pipe may have approved elastomeric-gasket push-on type joints. All solvent materials must meet approved recognized standards. Expansion and contraction joint materials and dimensions must conform to ASTM D 2661 or ASTM D 2665 and shall be of an approved type.

Subp. 2. **Primer.** Solvent weld joints in PVC and CPVC pipe must include use of a primer of contrasting color to the pipe and cement. Primers must comply with the National Sanitation Foundation (NSF) Standard Number 14. A mechanical method of preparing PVC or CPVC pipe for solvent cement is not acceptable in lieu of using a primer.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0820 SOLDERED OR BRAZED JOINTS.

Joints with copper tube with solder joint fittings must be soldered or brazed. Copper tubing must be reamed out to the full interior tubing dimension before soldered or brazed joints are made. Surfaces to be soldered or brazed must be thoroughly cleaned. Joints to be soldered must be properly fluxed with noncorrosive paste type flux. Solder and flux used in potable water systems must not contain more than 0.2 percent lead. Solder used for joints must have a nominal composition of 50 percent tin and 50 percent lead, 95 percent tin and five percent antimony, or 96 percent tin and four percent silver, conforming to ASTM Standard Specification for soft solder metal B32-76, except that 50 percent tin and 50 percent lead solder must not be used in potable water systems. Alternative solders may be used if specifically approved by the administrative authority after review of testing laboratory or listing agency documentation. Brazing must be done using a brazing filler metal which is manufactured for the particular application, and using methods specified by the filler metal manufacturer.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.0860 SPECIAL JOINTS.

[For text of subps 1 to 5, see M R.]

Subp. 6. **Transition couplings.** A transition coupling is one which is to be used when pipes made of different materials are to be joined. A transition coupling may be made of elastomeric materials (ASTM C 425 and ASTM C 564) and 300 series stainless steel bands and bolts, except that an exterior corrosion-resistant shield to prevent outward expansion of the coupling must be included on above-ground installations. Any transition coupling joining plastic to plastic, copper to copper, or galvanized to galvanized, must be approved by the administrative authority.

[For text of subp 7, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1220 INSTALLATION OF FIXTURES.

Subpart 1. **Fixtures.** Fixtures must be set level and in proper alignment with reference to adjacent walls. No water closet may be set closer than 15 inches from

its center to any side wall or partition nor closer than 30 inches, center to center, between toilets. At least a 24-inch clearance must be provided in front of water closets.

No urinal may be set closer than 15 inches from the center to any side wall or partition, nor closer than 24 inches, center to center, between urinals.

Wall-hung water closet bowls must be rigidly supported by a concealed metal hanger which is attached to the building structural members so that no strain is transmitted to the closet connector or any other part of the plumbing system.

Plumbing fixtures must be so installed as to afford easy access for cleaning both the fixture and the area about it. Where practical, all pipes from fixtures must be run to the nearest wall.

[For text of subps 2 and 3, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1240 BATHTUBS.

Subpart 1. **Outlets.** Bathtubs must have waste outlets and overflows at least one and one-half inches in diameter. The waste control device must be located at the tub outlet.

Subp. 2. **Whirlpool bathtubs.** Whirlpool bathtubs and their installation must comply with International Association of Plumbing and Mechanical Officials (IAPMO) standard PS 32-84.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1260 DRINKING FOUNTAINS.

Drinking fountains must be constructed of impervious nonoxidizing material and must be so designed that they may be easily cleaned. The water should be carried to the fixture in an mdependent pipe, and no part of the fixture must be used in conveying water to the jet. The design of the fixture must be such that no part of the supply pipe can be submerged in the fixture, or in the waste pipe from the fixture. The jet must be slanting and the orifice of the jet must be protected in such a manner that it cannot be contaminated by droppings from the mouth or by splashing from the basin. The orifice of the jet must be at least one-half inch above the rim of the basin. All fountains should be so designed that their proper use is self-evident.

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

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1300 FLOOR DRAINS.

[For text of subps 1 to 4, see M.R.]

Subp. 5. **Enclosed garages.** A floor drain m an enclosed garage must discharge to the sanitary sewer if a municipal sanitary sewer is available. Oil and flammable liquid separators must be provided if required by part 4715.1120 or the state building code.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1305 ELEVATOR PIT DRAIN.

An elevator pit drain must 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 must be outside the pit with a dry pan drain flowing to it.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1380 SHOWERS.

[For text of subps 1 to 4, see M.R.]

Subp. 5. **Anti-scald devices.** A shower or combination shower-bath in a new or remodeled installation must be equipped with an anti-scald type shower control valve. The valve must be of the thermostatic or pressure-balancing type in accordance with ANSI/ASSE standard 1016-79.

The temperature of mixed water to multiple showers must be controlled by a master anti-scald type thermostatic blender, or the showers must be individually equipped with approved anti-scald type shower control valves.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1440 PROTECTION OF PLASTIC PIPE.

All plastic and copper pipe and tubing passing through studs or plates that are within one and one-fourth inches of the outside of the stud or plate must be protected by the provision of steel plates, at least 1/16 inch thick, attached to the outside of the stud or plate.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1590 RECEPTORS OR SUMPS.

[For text of subps 1 to 3, see M.R.]

Subp. 4. **Stand pipe receptors.** The stand pipe receptor for an automatic clothes washer shall be individually trapped and vented, except that multiple clothes washers in the same room may be discharged to multiple standpipes that are manifolded together and use a single trap. The stand pipe shall extend not more than 30 inches, nor less than 18 inches above its trap, and the trap shall be installed at least six inches above the floor.

[For text of subp 5, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1911 TOXIC MATERIALS AND USED PIPE.

Piping conveying potable water shall be constructed of nontoxic material.

No material or substances that could produce either toxic conditions, taste, odor, or discoloration in a potable water system shall be introduced into or used in such systems.

The interior surface of a potable water tank shall not be lined, painted, or repaired with any material which will affect either the taste, odor, color, or potability of the water supply when the tank is placed in or returned to service.

Piping which has been used for any other purpose then conveying potable water shall not be used for conveymg potable water.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1912 USED WATER RETURN PROHIBITED.

Water used for cooling of equipment or other processes 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.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1930 [Renumbered 4715.1911]

4715.1940 POTABLE WATER CONNECTIONS TO HEATING OR COOLING SYSTEMS.

Potable water connections to boiler feed water systems, cooling systems, or other liquid systems, m which water conditioning chemicals may be introduced shall be made through an air gap or provided with an approved backflow preventer located in the potable water line before the point where such chemicals may be introduced. Where a system is filled with an antifreeze or toxic solution a permanent tag will be placed in plain view stating "Caution, this system contains antifreeze/toxic solution."

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1941 HEAT EXCHANGERS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Single-wall heat exchanger.** A single-wall heat exchanger may be used if it satisfies all of the following conditions:

[For text of item A, see M.R.]

B. Except where steam is used as the heat transfer medium, the pressure of the heat transfer medium must be less than the normal minimum operating pressure of the potable water system, and the system must be fitted with devices arranged to function automatically to maintain the pressure of the heat transfer medium entering the exchanger at a level below that of the potable water leaving the exchanger.

C. The equipment is permanently labeled to specify all constituents of the heat transfer medium, to indicate that only additives recognized as safe by the United States Food and Drug Administration may be used, and to show the hazards and reasons for not using another type of medium.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.1970 [Renumbered 4715.1912]

4715.2020 DEVICES FOR THE PROTECTION OF THE POTABLE WATER SUPPLY.

Approved devices to protect against backflow and back-siphonage must be installed at any plumbing fixture or equipment where backflow or back-siphonage may occur and where a minimum air gap cannot be provided between the water outlet to the fixture or equipment and its flood level rim.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2100 BACKFLOW PREVENTERS.

A. Atmospheric vacuum breaker (AVB):

(1) must be installed at least six inches above spill line (see special requirements in part 4715.2150);

(2) no possibility of back pressure permitted;
(3) only permitted on discharge side of last control valve; and
(4) no more than eight hours of continuous line pressure permitted.

B. Pressure vacuum breaker (PVB):
(1) must be installed at least 12 inches above spill line;
(2) no possibility of back pressure permitted; and
(3) continuous line pressure permitted.

C. Hose connection vacuum breaker (Hose VB):
(1) required for threaded hose connections;
(2) back pressure not permitted; and
(3) continuous line pressure not permitted.

D. Double-check valve with intermediate atmospheric vent (DCVIAV):
(1) permitted for low or moderate hazard with small pipe sizes;
(2) back pressure permitted; and
(3) continuous line pressure permitted.

E. Reduced pressure zone backflow preventer (RPZ):
(1) any degree of hazard permitted;
(2) back pressure permitted; and
(3) continuous line pressure permitted.

F. Double-check valve assembly (DCVA):
(1) permitted only for nontoxic, low hazard installations with nuisance or aesthetic concern;
(2) back pressure permitted; and
(3) continuous line pressure permitted.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2110 TYPES OF DEVICES REQUIRED WHERE AN AIR GAP CANNOT BE PROVIDED. [1]

				Only allowed where no back pressure is possible		
	RPZ	DCV IAV	DCVA	PVB	AVB	Hose VB
A. Boiler, commercial	X					
B. Boiler, residential (R-3 occupancy)	X	X				
C. Car wash	X			X	X	
D. Carbonated beverage machine (postmix) (see part 4715.2163)		X				
E. Chemical line	X					
F. Chemical tank	X			X	X	
G. Chiller	X					
H. Cooling tower	X	X		X	X	
I. Dental units	X	X		X	X	
J. Dishwasher, commercial				X	X	
K. Fire sprinkler system [2]	X	X	X			
L. Flush tank (water closet, urinal, similar) (see part 4715.2150)	X			X	X	
M. Flush valve (water closet, urinal, similar) (see part 4715.2150)	X			X	X	
N. Food and beverage equipment or	X	X	X	X	X	

system						
O. Garbage can washer	X			X	X	
P. Glycol or other antifreeze system	X					
Q. Lab equipment	X			X	X	
R. Lab faucet					X	
S. Laundry machine, commercial	X	X		X	X	
T. Lawn, garden or greenhouse sprinkler system	X			X	X	
U. Operating, dissection, embalming or mortuary table (see part 4715.1950)	X			X	X	
V. Private potable water supply (where permitted by administrative authority)	X	X	X			
W. Private nonpotable water supply (where permitted by administrative authority)	X					
X. Process line	X	X				
Y. Process tank	X			X	X	
Z. RV dump station	X	X		X	X	
AA. Sewage treatment	X			X	X	
BB. Soap dispenser	X	X		X	X	
CC. Swimming pool, fountain, pond, baptistry, aquarium or similar	X	X		X	X	
DD. Threaded hose connections, including: including: hose bibbs, hydrants, service sinks, laundry trays						X
EE. Truck fill	X			X	X	
FF. Vacuum systems or aspirators	X			X	X	

[1] For installations not listed above, review with the Administrative Authority.

[2] Installations must comply with AWWA-M14, section 6.3, 1966.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2120 LOCATION OF BACKFLOW PREVENTERS.

Backflow and back-siphonage preventing devices must be located so as to be readily accessible, preferably in the same room with the fixture they serve. Installation in utility or service spaces, provided they are readily accessible, is also permitted.

The access area must provide enough space for testing and maintenance of the device. A backflow preventer must not be installed in a pit or other confined area subject to recurrent flooding. When a conductor pipe is provided from a backflow preventer drain, a visible air gap must be provided at the device.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2130 [Repealed, 15 SR 76]

4715.2140 [Repealed, 15 SR 76]

4715.2161 INSTALLATION OF REDUCED PRESSURE BACKFLOW PREVENTERS.

Subpart 1. **Notification of installation.** The administrative authority must be notified before installation of a reduced pressure backflow preventer.

Subp. 2. **Testing and maintenance.** The installation of reduced pressure backflow preventers shall be permitted only when a periodic testing and inspection

program conducted by qualified personnel will be provided by an agency acceptable to the administrative authority. Inspection intervals shall not exceed one year, and overhaul intervals shall not exceed five years. They shall be inspected frequently after initial installation to assure that they have been properly installed and that debris resulting from the piping installation has not interfered with the functioning of the device.

Subp. 3. **Inspection and records.** A test and inspection tag must be affixed to the device. The tester shall date and sign the tag and include the tester's backflow preventer tester identification number. Written records of testing and maintenance must be maintained and submitted to the administrative authority.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2162 DOUBLE CHECK — DOUBLE GATE VALVES.

The administrative authority may authorize the installation of approved, double check — double gate valve assemblies with test cocks as protective devices against back flow in connections between a potable water system and other nontoxic fluid systems which present no significant health hazards.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2163 CARBONATED BEVERAGE MACHINES.

Postmix type carbonated beverage machines must have an approved double-check valve with an intermediate atmospheric vent type backflow preventer in the water line preceding the carbonator. There must be no copper tubing in the system down line of the backflow preventer.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2190 COMBINATION WATER AND SPACE HEATING EQUIPMENT.

Equipment used for heating domestic or service hot water and for space heating must be installed with a mixing valve to permit the user to control the temperature of the domestic or service hot water regardless of the space heating demand.

The installation must include a drainage port and isolation valve to permit the user to purge the heating coils to waste after the nonheating season, or the system must be designed to automatically prevent stagnation.

The water heater must be specifically designated by the manufacturer for use as a combination hot water and space heater.

All pipes, joints, and appurtenances in the system must be of a type approved for potable water distribution. This provision is not intended to address the wall thickness of heating coils, which must be the responsibility of the manufacturer.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2230 TANKLESS AND INSTANTANEOUS TYPE HEATERS.

Tankless and instantaneous type water heaters require pressure relief valves only. Instantaneous electric water heaters that have Underwriters Laboratory approval for use without a relief valve, and that have space containing the heating element of less than three inches in diameter, may be installed without a pressure relief valve.

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.2260 [Renumbered 4715.2161]

4715.2270 [Renumbered 4715.2162]

4715.2440 DESIGN OF SUMPS.

[For text of subps 1 to 3, see M.R.]

Subp. 4. **Covers.** Sumps and receiving tanks must be provided with gastight metal covers, except that float control or switch rods must operate without binding. The cover must be of a bolt and gasket type or equivalent manhole opening to permit access for inspection, repairs, and cleaning. Covers must be metal or other structurally-sound material that is water-resistant and impervious to moisture, and must be adequate to support anticipated loads in the area of use.

[For text of subps 5 to 7, see M.R.]

Statutory Authority: *MS s 16B.61*

History: *15 SR 76*

4715.3900 [Repealed, 15 SR 76]

4715.4000 [Repealed, 15 SR 76]