CHAPTER 4715
DEPARTMENT OF HEALTH
MINNESOTA PLUMBING CODE

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4715.0100 DEFINITIONS.

[For text of subpart 1, see M R]

Subp 2 **Administrative authority.** "Administrative authority" means the commissioner of health (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, its agents, and employees, however, the commissioner of health retains the ultimate authority to enforce Minnesota Statutes, sections 326 37 to 326.45, and provisions of this chapter that are necessary to ensure compliance)

[For text of subps 3 to 128, see M R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0420 STANDARDS FOR PLUMBING MATERIALS.

[For text of subpart 1, see M R]

Subp 2. **Abbreviations.** Abbreviations in subpart 3 refer to the following

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

G NSF, NSF International, Ann Arbor, Michigan 48106,

H FHA, Federal Housing Authority, Architectural Standards Division, Washington, D C ,

I AASHTO, American Association of State and Highway Transportation Officials, 444 North Capital Street Northwest, Suite 249, Washington, D C 20001

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 Black and Galvanized 125#	B16 4		WW–P–501	
1J	Cast Iron Drainage Fittings Black and Galvanized	B16.12		WW–P–491	
1K	Hubless Cast Iron Pipe and Fittings				CISPI Standard 301–69T CSA/CAN 3–B70

1L	Ductile Iron Pipe Flanged	A21 15			AWWA C115
1M	Ductile Iron Pipe Rubber Gasket Joints	A21 51			AWWA C151
II	STEEL AND WROUGHT IRON PIPE FITTINGS				
2A	Steel Pipe, Welded and Seamless Galvanized, Schedule 40 and Above	B36 1 B36.20	A53		WW–P–406 6(1)
2B	Wrought Iron Pipe, Galvanized Schedule 40 and Above	B36 2			
2C(a)	Stainless Steel Pipe	B36 19			
2C(b)	Stainless Steel Pipe	A112 3 1			
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 (HWT–T439)	A–268	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 Drain Tile	C412		AASHTO M178
5K	Nonreinforced Concrete Pipe	C14	SS–P–371	AASHTO M86 CSA–A257 1
5L	Perforated Concrete Pipe, Underdrainage	C444		
5M	Reinforced Concrete Pipe	C76	SS–P–375	CSA–A257.2
5N	Reinforced and Prestressed Concrete Pipe, Pressure Type and Fittings			
5O	Bituminized Fiber Drain and Sewer Pipe	D1860	SS–P–1540A	
5P	Perforated Bituminized Fiber Pipe for General Drainage	D2311	SS–P–1540A	

VI	PLASTIC PIPE AND FITTINGS DRAIN, WASTE AND VENT			
6A	Acrylonitrile–Butadiene–Styrene (ABS)	D2661	L–P–322a	NSF14 CSA–B181 1
			FHA–MPS	CS270
	Type 1, Schedule 40 Cellular core	F628		
6B	(1) Polyvinyl Chloride (PVC) Schedule 40 Unthreaded Schedule 80 can be threaded	D2665	L–P–320a FHA–MPS	NSF14 CS272 CSA–B181 2
	Cellular core	F891		
	Fabricated Fittings (8– to 24–inch)	D3311		
6B	(2) Polyvinyl Chloride (PVC) Schedule 30 (3–inch only)	D2949	L–P–001221	
6B	(3) Polyvinyl Chloride (PVC) Schedule 40 (14– to 24–inch only) with ASTM D3311 fittings	D1785		
6B	(4) Polyvinyl Chloride (PVC) Schedule 40 and 80 SDR 21 and SDR 26 (6–inch and larger)	D2241		
	BUILDING SEWER			
6C	(1) Styrene — Rubber	D2852		CS228
6C	(2) Polyvinyl Chloride (PVC)	D3034 F789	WW–P–00380a	CSA–B182 2
	(18– to 27–inch only)	F679		
	(18–inch and larger)	F794		
6C	(3) Acrylonitrile–Butadiene–Styrene (ABS)	D2751		CSA–B182 1
6C	(4) Corrugated High Density Polyethylene (Corrugated HDPE) (12– to 24–inch) (Storm only)			AASHTO M294

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 CSA–B137.1
6E	Acrylomtrile–Butadiene–Styrene (ABS)	B72 3	D2282		NSF14 CS254
6F	Polyvinyl Chloride (PVC)	B72 2	D2241 D1785	L–P–1036 FHA UM–41	NSF14 CS256 CSA–B137.3
6G	Polybutylene		D2662 D2666		NSF14 CSA–B137 7
	SPECIAL WASTES				
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		CSA–B137 8 (tubing)
6L	Chlorinated polyvinyl chloride (CPVC)	119 1, 119 2	D2846		NSF14 FHA Bulletin #76 CSA–B137 6
	GENERAL DRAINAGE			ASTM	
6M	Polyethylene (corrugated)		F405		

VII FIBERGLASS PIPE AND FITTINGS

7A	Fiberglass pipe (reinforced thermosetting resin pipe) (one– to 16–inch) (18– to 48–inch must be manufactured in accordance with ASTM D2996)	D2996	NSF14 NSF61 AWWA C–950

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0510 WATER SERVICE PIPE.

The following materials may be used for water service pipe

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

I Fiberglass pipe 7A Installation must be in accordance with the manufacturer's requirements, recommendations, and guidelines

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0520 WATER DISTRIBUTION PIPE.

The following materials may be used for water distribution pipe

[For text of items A and B, see M R]

C Steel pipe 2C(a), stainless

[For text of items D to J, see M R]

K. Plastic pipe 6L and corresponding fittings Installation must be in accordance with International Association of Plumbing and Mechanical Officials (IAPMO) Installation Standards 20–93

L Fiberglass pipe 7A. Installation must be m accordance with the manufacturer's requirements, recommendations, and guidelines

Statutory Authority: *MS s 16B.59 to 16B.75*

History: *23 SR 686*

4715.0530 BUILDING SEWERS.

The following materials may be used for building sewers

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

G Plastic 6A, 6B(1), 6B(3), 6C(1), 6C(2), and 6C(3) and corresponding fittings must be laid on a continuous granular bed Installation must comply with ASTM D2321

H. Bituminized–fiber drain and sewer pipe 5O, laid on a continuous granular bed.

I Fiberglass pipe 7A for pressure sewers Installation must be in accordance with the manufacturer's requirements, recommendations, and guidelines

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0540 STORM WATER AND YARD DRAINAGE (OUTSIDE FOUNDATION WALLS).

For storm water and yard drainage outside foundation walls the following materials may be used.

A. those materials specified in part 4715 0530; and

B. corrugated high density polyethylene 6C(4) and approved joints Installation must comply with ASTM D2321

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.0570 SOIL AND WASTE PIPING UNDERGROUND OR EMBEDDED.

For soil and waste piping, except special wastes, underground or embedded in masonry construction the following materials may be used

A Cast iron 1A or 1B and fittings, and hubless cast iron 1K,

B. Cast iron 1C or 1D with 1E fittings,

C Steel pipe 2C(b), stainless,

D Lead 4A pipe with wiped joints, fittings 4C; and

E Plastic 6A, 6B(1), 6B(2), 6B(3), or 6B(4) and corresponding fittings must be laid on a continuous granular bed Installation must comply with ASTM D2321

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

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 and B, see M R]

C Steel pipe 2A, wrought iron 2B with 1J fittings, and stainless 2C(b)

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

F Plastic 6A, 6B(1), 6B(2), 6B(3), or 6B(4) with corresponding fittings may be installed except that no horizontal drain may exceed 35 feet in total length No stack may exceed 35 feet in total height unless an approved expansion and contraction joint is installed at intervals not to exceed 35 feet

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0590 VENT PIPING BELOW GROUND.

For vent piping below ground, the following materials may be used.

[For text of items A and B, see M R]

C Steel pipe 2C(b), stainless,

D. Brass 3A or 3B with 3C fittings;

E Copper 3F or 3B with 3C fittings,

F Copper 3L with 3C fittings,

G Copper 3M with fittings, and

H Plastic 6A, 6B(1), 6B(2), 6B(3), or 6B(4) with corresponding fittings

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0600 VENT PIPING ABOVE GROUND.

For vent piping above ground, the following materials may be used

[For text of items A and B, see M R]

C. Steel 2A pipe, wrought iron 2B with 1H fitting, and stainless 2C(b),

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

H Plastic 6A, 6B(1), 6B(2), 6B(3), or 6B(4) with corresponding fittings may be installed except that no horizontal vent may exceed 35 feet in total length

No vent stack or stack vent may exceed 35 feet in total height unless an approved expansion and contraction joint is installed at intervals not to exceed 35 feet.

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.0610 SPECIAL WASTES.

For special wastes, the following materials may be used

A The following corrosion resistant materials are acceptable for chemical waste and vent systems. stainless steel 2C(b), chemically resistant glass pipe 5H, high silicon con-

tent cast iron 1G, and chemically resistant plastic pipe 6H or 6J Use of any other materials must be approved by the administrative authority, who shall grant approval if the applicant can show that the material in question is as resistant to corrosion as are those listed above

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

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.0700 TIGHTNESS.

Joints and connections in the plumbing system shall be gastight and watertight for the pressure required by test, with the exception of those portions of perforated or open joint piping which are installed for the purpose of collecting and conveying ground or seepage water Portions of storm sewers that do not require testing as provided in part 4715 2820 must be constructed with a code–approved type of pipe and joint that has been certified by the manufacturer to be able to pass the air test specified in part 4715 2820, or an internal hydrostatic pressure of ten pounds per square inch for ten minutes with no leakage.

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

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 which comply with ASTM D 3139. 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 Gasketed sewer fittings must comply with ASTM F1336.

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

Exception· A one–step solvent cement complying with ASTM F493 and ASTM D2846 may be used for CPVC pipe.

Statutory Authority: *MS s 16B.59 to 16B 75*

History: *23 SR 686*

4715.1000 LOCATION.

There shall be at least two cleanouts in the building drain, one at or near the base of the stack and one near the connection between the building drain and the building sewer The cleanout at the outside wall may be inside or outside the building, and shall be made with a full "Y" branch fitting and shall extend at least two inches above grade or finished floor, except that the administrative authority may grant permission to use a flush cover in traffic areas

A cleanout which is easily accessible shall be provided at or near the foot of each vertical soil or waste stack and each vertical storm water leader

Each horizontal branch drain pipe shall be provided with a cleanout at its upper terminal, except that a fixture trap or a fixture with an integral trap, readily removable without disturbing concealed piping, may be accepted as a cleanout equivalent for this purpose.

A trap opening from a lavatory, drinking fountain, urinal, sink, or similar fixture may serve as a cleanout for a horizontal branch drain up to two inches in size, if the drain opening is not more than one pipe size smaller than the horizontal branch drain

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.1300 FLOOR DRAINS.

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

Subp 4 **Venting of floor drains.** Floor drain fixture branches which are less than 25 feet in length and connect to a vented main or branch do not require an individual vent Floor drains not meeting these requirements and floor drains used for shower drains, recessed slop, or similar receptors shall be vented in accordance with parts 4715 2520, subparts 5 and 6, 4715 2550, subpart 3, and 4715 2620, subpart 4

[For text of subp 6, see M R.]

Statutory Authority: *MS s 16B.59 to 16B 75*

History: *23 SR 686*

4715.1390 SINKS.

Subpart 1. **Drain sizing.** Sinks shall be provided with waste outlets not less than 1–1/2 inches in diameter A strainer, crossbar, or similar device shall be provided. Sinks on which a food grinder is installed shall have a waste opening of not less than 3–1/2 inches in diameter Pot or scullery sinks must be provided with waste outlets not less than two inches in diameter

Subp. 2. **Commercial kitchen sinks.** All pot, scullery, food preparation, and bar sinks must be connected directly to the drainage system A floor drain constructed without a back-water valve must be installed on the horizontal branch serving the fixture

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.1430 HANGERS AND SUPPORTS.

[For text of subps 1 to 6, see M R]

Subp. 7 **Piping in the ground.** Piping in the ground shall be laid on a firm bed for its entire length, except where support is otherwise provided which is adequate in the judgment of the administrative authority Installation of plastic sewer pipe must comply with ASTM D2321

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.1750 WATER HAMMER.

In all building supply systems in which devices or appurtenances are installed which cause noises due to water hammer, protective devices or approved mechanical shock absorbers shall be installed as close as possible to the quick–acting valve causing the water hammer. Where mechanical devices are used the manufacturer's specifications shall be followed as to location and method of installation

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.1770 MINIMUM PRESSURES REQUIRED IN WATER DISTRIBUTION SYSTEM.

[For text of subpart 1, see M.R]

Subp 2 **Table of minimum flow pressure and flow rates.**

Location	Flow Pressure psi	Flow Rate gpm
Ordinary basin faucet	8	2 0
Self–closing basin faucet	8	2 0
Sink faucet, 3/8 inch	8	2 0
Sink faucet, 1/2 inch	8	2 0
Bathtub faucet	8	6 0
Laundry tub cock, 1/2 inch	8	5 0
Shower	8	2 0

Ball cock for closet	8	3 0
Flush valve for closet	15	15–35
Flushometer valve for urinal	15	15.0
Drinking fountains	15	0.75
Still cock–wall hydrant	10	5.0

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.1910 IDENTIFICATION OF POTABLE AND NONPOTABLE WATER.

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

Subp 3 **Metal tags.** When tags are used, potable water lines shall be identified by three–inch–diameter metal tags bearing the legend "SAFE WATER" in letters not less than one–half inch in height.

Nonpotable water lines shall be identified by firmly attached metal tags having the shape of a four–inch equilateral triangle bearing the legend "NONPOTABLE WATER" in letters not less than 7/16 inch in height.

As in the use of color bands, tags shall be attached to pipes at intervals of not more than 25 feet, and, at either side of points where pipes pass through walls and above and below points where pipes pass through floors or roofs

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2100 BACKFLOW PREVENTERS.

[For text of items A and B, see M R]

C Spill–proof vacuum breaker (SVB)

(1) must be installed at least six inches above spill line,

(2) no possibility of back pressure permitted,

(3) continuous line pressure permitted, and

(4) field testable

D Hose connection vacuum breaker (Hose VB)

(1) required for threaded hose connections,

(2) back pressure not permitted,

(3) continuous line pressure not permitted, and

(4) any new device must be field testable

E 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

F Reduced pressure zone backflow preventer assembly (RPZ)

(1) any degree of hazard permitted,

(2) back pressure permitted; and

(3) continuous line pressure permitted

G. 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 59 to 16B 75*

History: *23 SR 686*

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

	RPZ	DCV IAV	DCVA	Only allowed where no back pressure is possible SVB or PVB	AVB	Hose VB
A Boiler, other than one– or two–family residential	X					
B Boiler, one– or two–family residential	X	X				

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

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2210 PRESSURE RELIEF VALVES.

[For text of subpart 1, see M R.]

Subp 2 **Temperature relief valves.** Temperature relief valves shall be of adequate relief rating, expressed in Btu/hr, for the equipment served They shall be installed so that the temperature sensing element is immersed in the hottest water in the head or within the top six inches of the vertical portion of the tank The valve shall be set to open when the stored water temperature is 210 degrees Fahrenheit (or less)

[For text of subps 3 and 4, see M.R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2240 ACCESS TO WATER HEATERS.

Every water heater installation shall be readily accessible for inspection, repair, or replacement The appliance space shall be provided with an opening or doorway of sufficient size to provide such access.

Exception. A water heater with a tank capacity not greater than six gallons may be concealed in a ceiling space provided the water heater has been set in an overflow pan that has been constructed of a corrosion–resistant material, has side walls extending at least four inches upward, and has an outlet that shall not be sized less than the supply line to the water heater This outlet shall be piped undiminished in size to a point of safe disposal below the ceiling area No tools shall be required to gain access to a water heater.

Statutory Authority: *MS s 16B.59 to 16B 75*

History: *23 SR 686*

4715.2300 LOAD ON DRAINAGE PIPING.

[For text of subps 1 to 2a, see M R]

Subp 3 **Table of fixture unit values for various plumbing fixtures.**

Type of Fixture	Fixture Unit Value	Minimum Fixture Trap and Dram Size
Clothes washer (domestic use)	2	1–1/2
Clothes washer (single unit, discharge to standpipe)	2	2

Clothes washer (public use in groups of 3 or more)	6 each	
Bath tub with or without shower	2	1–1/2
Bidet	2	1–1/2
Dental unit or cuspidor	1	1–1/4
Drinking fountain	1	1–1/4
Dishwasher, domestic (gravity drain)	2	1–1/2
Dishwasher, commercial	4	2
Floor drain with 2 inch waste	2	2
Floor drain with 3 inch waste	3	3
Floor drain with 4 inch waste	4	4
Lavatory	1	1–1/4
Laundry tray (1 or 2 compartment)	2	1–1/2
Shower stall, domestic	2	1–1/2
Shower (gang) per head	1	
SINKS		
Classroom, with or without drinking fountain	2	1–1/2
Combination, sink and tray (with disposal unit)	3	1–1/2
Combination, sink and tray (with one trap)	2	1–1/2
Domestic	2	1–1/2
Domestic, with disposal unit	2	1–1/2
Surgeons	3	1–1/2
Laboratory, cup sink	1	1–1/2
Flushrim or bedpan washer	6	3
Service	3	2
Pot or scullery	4	2
Soda fountain	2	1–1/2
Commercial, flat rim, bar, or counter	3	1–1/2
Wash, circular, or multiple (per set of faucets)	2	1–1/2
URINAL pedestal, wall hung, with 3 inch trap (blowout and syphon jet)	6	3
Wall hung with 2 inch trap	3	2
Wall hung with 1–1/2 inch trap	2	1–1/2
Trough (per 6 foot section)	2	1–1/2
Stall	3	2
WATER CLOSET	6	3
Unlisted Fixture or Trap Size		
1–1/4 inch	1	
1–1/2 inch	2	
2 inch	3	
2–1/2 inch	4	
3 inch	5	
4 inch	6	

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.2330 MINIMUM SIZE OF STACK VENT OR VENT STACK.

Any structure in which a building drain is installed shall have at least one stack vent or vent stack carried full size through the roof not less than three inches in diameter Where one

or more soil stacks are required to extend through the roof undiminished in size they should be the stack or stacks most remote from the location where the building dram leaves the building When a soil or waste stack receives the discharge of fixtures located on two or more floors, and the uppermost fixture is located three or more floors above the building dram, such stack and stack vent shall continue undiminished in size through the roof For purposes of this part, "floor" means any building floor level which is above the floor level of the building dram

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2440 DESIGN OF SUMPS.

[For text of subps 1 to 6, see M R]

Subp 7 **Clear water sumps.** Sumps and receiving tanks which receive only clear water drainage, and from which sewage is excluded, need not be airtight or vented. Sumps and receiving tanks must be provided with covers fastened or secured so as to prevent entry by children The covers must be adequate to support anticipated loads in area of use In nonresidential buildings guard rails constructed in accordance with UBC Section 509 may be used in lieu of covers

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2520 VENT STACKS AND STACK VENTS.

Subpart 1 **Vent stack required.** Every building in which plumbing is installed shall have at least one three–inch vent stack (or stack vent) carried full size through the roof as provided in part 4715 2330 A vent stack or main vent shall be installed with a soil or waste stack whenever individual vents, relief vents, or branch vents are required for stacks of three or more branch intervals

Subp 2 **Connections at base and top.** For stacks of three or four branch intervals in height, all main vents or vent stacks shall connect full size at their base to the main soil or waste stack below, through, or not more than 18 inches above the lowest fixture branch

For stacks of five or more branch intervals in height, a main vent or vent stack shall connect full size with the soil or waste stack it serves, with a wye and one–eighth bend below the lowest fixture branch connected to such soil or waste stack, or at a point approved by the administrative authority

Each such soil or waste stack, and vent stack shall be similarly cross–connected with a yoke vent at intervals of not more than five branch intervals as described in part 4715 2640.

Subp 3 **Offsets for stacks of five or more branch intervals.** As provided in part 4715 2360, soil and waste stacks offset at an angle of more than 45 degrees from the vertical, that receive the discharge of fixtures four or more branch intervals or stories above the offset, shall have a yoke vent installed (as per part 4715.2640) at the base of the upper stack section.

[For text of subps 4 to 6, see M R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2560 STACK VENTING.

A group of fixtures consisting of one bathroom group and a kitchen sink or combination fixture may be installed without individual fixture vents at the uppermost branch interval of a stack, if each fixture drain connects independently to a stack at least three inches m diameter extended full size through the roof, and bathtub or shower stall drain enters the stack at or above the same level as the water closet dram, and in accordance with requirements in part 4715 2620, subpart 4 Where the trap arm distances are exceeded the fixtures must be revented When a water closet discharges to a sanitary tee in the vertical position, and a bathtub or shower on the same floor level also discharges to the sanitary tee through a side inlet, the water closet vent must be at least three inches in size unless the bathtub or shower is revented

Statutory Authority: *MS s 16B.59 to 16B 75*

History: *23 SR 686*

4715.2580 COMMON VENTS.

Subpart 1 **Individual vent as common vent.** An individual vent, installed vertically, may be used as a common vent for similar fixtures when both fixture drains connect with a vertical drain at the same level

[For text of subp 2, see M R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2600 CIRCUIT AND LOOP VENTING.

Subpart 1 **Battery venting.** A branch or waste pipe to which two, but not more than eight water closets (except blowout type) are connected in battery, may be vented by circuit or loop vent which shall be taken off in front of the last fixture connection of the battery When the battery consists of not more than four closets, the vent shall be two inches, when the battery consists of five or six closets, the vent shall be 2–1/2 inches, and when the battery consists of seven or eight closets, the vent shall be three inches In addition, lower floor branches shall be provided with a relief vent which shall be the same size as the branch vent, taken off in front of the first fixture connection of the battery When lavatories, or similar fixtures discharge into such branches, each vertical branch from such fixtures shall be provided with a continuous vent When closets are installed back to back, such installation shall be as per subpart 2 or 4

[For text of subps 2 to 4, see M R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*

4715.2710 SIZE OF BUILDING STORM DRAINS AND LEADERS.

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

Subp 3 **Reduction in size prohibited.** Storm drain piping shall not reduce in size in the direction of flow, including changes in direction from horizontal to vertical

Subp 4. **Size of horizontal storm drains.**

Diameter of Drain	Maximum projected Roof Area for Drains of Various Slopes		
Inches	1/8 in Slope	1/4 in Slope	1/2 in Slope
	Square Feet	Square Feet	Square Feet
3	822	1,160	1,644
4	1,880	2,650	3,760
5	3,340	4,720	6,680
6	5,350	7,550	10,700
8	11,500	16,300	23,000
10	20,700	29,200	41,400
12	33,300	47,000	66,600
15	59,500	84,000	119,000

Use a rate of rainfall of four inches per hour for sizes not listed in this table.

Subp 5 **Size of vertical leaders.**

Size of Leader or Conductor Inches	Maximum Projected Roof Area Square Feet
2	720
2–1/2	1,300
3	2,200
4	4,600
5	8,650

6	13,500
8	29,000

Use a rate of rainfall of four inches per hour for sizes not listed in this table

The equivalent diameter of square or rectangular leader may be taken as the diameter of that circle which may be inscribed within the cross–sectional area of the leader

Subp 6 **Values for continuous flow.** If there is a continuous or semicontinuous discharge into the building storm drain or building storm sewer, as from a pump, ejector, air–conditioning plant, or similar device, each gallon per minute of the discharge must be computed as being equivalent to 24 square feet of roof area, based upon a four–inch rainfall.

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.2760 ROOF AND DECK DRAINS.

[For text of subpart 1, see M R]

Subp 2. **Overflow drains.** For overflow drains refer to Section 1506 of the Uniform Building Code.

[For text of subps 3 and 4, see M R]

Statutory Authority: *MS s 16B 59 to 16B.75*

History: *23 SR 686*

4715.2800 INSPECTIONS.

New plumbing systems and parts of existing systems which have been altered, extended, or repaired shall be inspected and tested by the proper administrative authority to ensure compliance with all the requirements of this code and the installation and construction of the system in accordance with the approved plan and the permit, except that testing may be waived for work which does not include addition to, replacement, alteration, or relocation of any water supply, drainage, or vent piping

All the piping shall be tested and after the plumbing fixtures have been set, and before the system is put into use, the system shall be given a final inspection and test by the proper administrative authority

The equipment, material, power, and labor necessary for the inspection must be furnished by the plumbing contractor

Statutory Authority: *MS s 16B.59 to 16B 75*

History: *23 SR 686*

4715.2820 METHOD OF TESTING.

Subpart 1. **Testing.** The air tests shall be applied to the plumbing drainage system in its entirety or in sections Sections which are found satisfactory need not be retested after completion of the entire system unless considered necessary by the proper administrative authority

Subp 2 **Rough plumbing.** The piping of plumbing drainage and venting systems shall be air tested upon completion of the rough piping The air test shall be made by attaching the air compressor or testing apparatus to any suitable opening and closing all other inlets and outlets to the system by means of proper testing plugs Plaster of paris shall not be used in roof terminals Air shall be forced into the system until there is a uniform pressure of five pounds per square inch on the portion of the system being tested The pressure shall remain constant for 15 minutes without the addition of air

Subp 2a **Exceptions.**

A Testing is not required for:

(1) outside leaders,

(2) perforated or open drain tile, or

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

B Building storm sewers may be tested in accordance with the Hydrostatic Test Method from the City Engineers Association of Minnesota, except that an air test may be required for any section of the building storm sewer that passes through contaminated soils or contaminated water The Hydrostatic Test Method, provisions H2 and H3, 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, 1988 edition, is incorporated by reference, is not subject to frequent change, and is available in the office of the commissioner of administration.

[For text of subps 3 to 7, see M R]

Statutory Authority: *MS s 16B 59 to 16B 75*

History: *23 SR 686*