

4715.0420 STANDARDS FOR PLUMBING MATERIALS.

Subpart 1. **Approved materials.** A material shall be considered approved if it meets one or more of the standards in subpart 3. All approved materials shall be certified to the listed standard by an independent accredited third-party certification agency. Certification reports shall be made available to the administrative authority when requested. Materials not listed in subpart 3 shall be used only as provided for in part 4715.0330, or as permitted elsewhere in this code.

Subp. 2. **Abbreviations.** Abbreviations in this chapter refer to the following:

A. ASME, American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990;

B. ANSI, American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, D.C. 20036;

C. ASTM, American Society for Testing and Materials, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959;

D. AWWA, American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235;

E. CSA, Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6;

F. CS, Commercial Standards available from: U. S. Department of Commerce, Bureau of Industry and Security, 14th Street & Constitution Avenue NW, Washington, D. C. 20230;

G. FS, Federal Specifications available from: Federal Supply Service, Standards Division, U.S. General Services Administration, One Constitution Square, 1275 - 1st Street NE, Washington, D. C. 20417;

H. NSF, NSF International 789 N. Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113-0140;

I. FHA, Federal Housing Administration, Architectural Standards Division, U.S. Department of Housing & Urban Development, 451 - 7th Street SW, Washington, D. C. 20410;

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

K. IAPMO, International Association of Plumbing and Mechanical Officials, 4755 E. Philadelphia St., Ontario, CA 91761;

L. ASSE, American Society of Sanitary Engineering, 901 Canterbury, Suite A, Westlake, OH 44145;

M. ASPE, American Society of Plumbing Engineers, 2985 S. River Road, Des Plaines, IL 60018.

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	A888-07a	CISPI Standard 301-05 CSA/CAN 3-B70	
1L	Ductile Iron Pipe Flanged	A21.15	AWWA C115	
1M	Ductile Iron Pipe Push-on Joints, Mechanical 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 A53 B36.20	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
2F	Corrugated Steel Pipe, Aluminized and Fittings (18- to 120-inch) (Storm only)		A760 A796	AASHTO M36
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	
3R	Removable and Nonremovable Push-Fit Fittings for Copper Pipe (3/8 to 2 inches only)			NSF 61 ASSE 1061-06
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	C500	SS-P351	

	Pressure Pipe and Fitting	C296		
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 FHA-MPS	NSF14 CSA-B181.1 CS270
	Type 1, Schedule 40 Cellular core	F628		
6B	(1) Polyvinyl Chloride (PVC) Schedule 40 Unthreaded	D2665	L-P-320a FHA-MPS	NSF14 CS272
	Schedule 80 can be threaded			CSA-B181.2
	Cellular core	F891		
	Fabricated Fittings (8- to 24-inch)	D3311		
	Fabricated Fittings (8-inch and larger with mitered joints 4-inch and larger)	F1866		
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		
	Fabricated Fittings (8-inch and larger with mitered joints 4-inch and larger)	F1866		

6B (4) Polyvinyl Chloride (PVC)
Schedule 40 and 80 SDR 21 and
SDR 26 (6-inch and larger) D2241

6B (5) Corrugated Poly-vinyl
Chloride (PVC) Schedule 40 (4-
to 36-inch) with ASTM D3212
fittings (Storm only) F949

BUILDING SEWER

6C (1) Styrene – Rubber D2852 CS228

6C (2) Polyvinyl Chloride (PVC) D3034 WW-P-00380a CSA-B182.2
F789
(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) (4- to 60-inch) with
ASTM D3212 fittings (Storm
only) 4- to 10-inch
AASHTO
M252
12- to 60-inch
ASTM F2306

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 LP-315a NSF14
D2737 FHA-UM-31C CS255
CSA-B137.1

6E Acrylonitrile- B72.3 D2282 NSF14
Butadiene-Styrene CS254
(ABS)

6F	Polyvinyl Chloride (PVC)	B72.2	D2241 D1785	L-P-1036 FHA UM-41	NSF14 NSF61 AWWA C900 CS256 CSA-B137.3
6G	Polybutylene		D2662 D2666		NSF14 CSA-B137.7
6I	Polyethylene/Aluminum/ Polyethylene (PE-AL-PE) Composite Pressure Pipe (up to 1 inch only)		F1282		NSF 14 NSF 61

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 a qualified independent testing laboratory acceptable to the administrative authority. Cross-linked polyethylene (PEX) tubing systems together with approved fittings must be tested at 150 psi and 210 degrees Fahrenheit for a period of not less than 30 days by a qualified independent testing laboratory acceptable to the administrative authority.

Polypropylene (PP-R) pipe together with fittings must be tested by the manufacturer at 510 psi hoop stress and 203 degrees Fahrenheit for a period of not less than 40 days by a qualified independent testing laboratory acceptable to the administrative authority.

6K	Polybutylene		D3309		CSA-B137.8 (tubing)
6L	Chlorinated Polyvinyl Chloride (CPVC), Schedule 80 (2-1/2 to 6 inches)	119.1, 119.2	D2846 F441 F442		NSF14 FHA Bulletin #76 CSA-B137.6
6M	Cross-linked Polyethylene (PEX) Tubing		F876		NSF 14 NSF 61

6N	(1) Metal Insert Fittings Utilizing a Copper Crimp Ring for PEX Tubing	F1807		NSF 14 NSF 61
6N	(2) Cold Expansion Fittings with PEX Reinforcing Rings for Use with PEX Tubing	F1960		NSF 14 NSF 61
6N	(3) Cold Expansion Fittings with Metal Compressions Sleeves for Use with PEX Tubing	F2080		NSF 14 NSF 61
6N	(4) Stainless Steel Clamps for Securing PEX Tubing to Metal Insert Fittings	F2098-01		NSF 14 NSF 61
6N	(5) Plastic Insert Fittings Utilizing a Copper Crimp Ring for PEX Tubing	F2159		NSF 14 NSF 61
6N	(6) Cross-linked Polyethylene (PEX) Plastic Hot and Cold Water Distribution Systems	F877		NSF 14 NSF 61
6P	Polypropylene (PP-R) SPECIAL WASTES	F2389		NSF 14 NSF 61
6S	Polyethylene	F1412	LP 315a	PS10-69 PS11-69 PS12-69

6T Polypropylene F1412

6U Polyvinylidene Fluoride (PVDF) F1673

6V Chlorinated Polyvinyl Chloride (CPVC) IAPMO IGC 210-2005a

GENERAL
DRAINAGE

6W 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; 326.37 to 326.45; 326B.101 to 326B.194; 326B.43 to 326B.49; 326B.52*

History: *9 SR 1557; 11 SR 1405; 15 SR 76; 19 SR 590; 23 SR 686; 28 SR 146; L 2007 c 140 art 4 s 61; art 6 s 15; art 13 s 4; L 2008 c 337 s 64; 33 SR 2042; 36 SR 1479*

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