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(FORM UPDATED: 08/11/2010)

## WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

### 2007-08

(session year)

### Joint

(Assembly, Senate or Joint)

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State of Wisconsin \ Department of Commerce

# RULES IN FINAL DRAFT FORM

**Rule No.:** Chapters Comm 62 and 81 to 84

**Relating to:** Wisconsin Uniform Plumbing Code  
and Commercial Building Code

**Clearinghouse Rule No.:** 08-055

The Department of Commerce proposes an order to:

amend ss. Comm 62.2900 (1), Comm 81.01 (5), Comm 81.01 (79), Comm 81.01 (115), (120) and (147), Comm 81.01 (156), Comm 81.01 (163), Comm 81.01 (189), Comm 81.01 (204), Comm 81.01 (234), Comm 81.01 (269) and (288), Comm 81.20 (1), Tables Comm 81.20-1 to 81.20-9, Tables Comm 81.20-11 to 81.20-13, Comm 82.20 (1) (c) (intro.), (4) (b) 2. and (13) (e), Tables Comm Comm 82.20-1 line 7 and 82.20-2 line 6 and Footnote a, Comm 82.21 Title, Comm 82.21 (1) (intro.), Comm 82.30 (3), Table Comm 82.30-1, Comm Table 82.30-3, Comm 82.30 (6) (a) 2. and (b) 1. and 2., Comm 82.30 (10) (a) 1., Comm 82.31 (4) (a), Comm 82.31 (10) (c), (13) 1. e., (14) (g) 2. and (17) (a) 1. e., Comm 82.31 (17) (b) 1. and 3. a., Comm 82.33 (9) (c) 1. a. and b., Comm 82.33 (9) (f) 1., Comm 82.34 (3) (a) 1., Comm 82.34 (5) (intro.) and (a), Table Comm 82.35, Comm 82.35 (3) (b) 2. a. and b., (c) 2. a. and b. and (d) 2. b. and c., Comm 82.35 (5) (a) 1., Comm 82.36 (4) (b) 3. and (8) (a) 4., Comm 82.36 (3) (b) 3., Table Comm 82.38-1 lines 10 to 17 and Footnote g and j, Table Comm 82.40-1 and 82.40-2, Comm 82.40 (3) (b) 1. b. and (d) 3., Comm 82.40 (5) (c) and (6) (a), Comm 82.40 (7) (d) 1. b., Comm 82.40 (8) (j), Table Comm 82.41-1, Table Comm 82.41-2, Comm 82.41 (4) (c) 1. a., (f), (i) and (n) and (5) (a), (e) 2. and (f) (intro.), Comm 82.50 (3) (b) 5., Comm 82.51, Table Comm 82.70-1 lines 2 and 10 and Footnote e, Table Comm 84.11, Comm 84.20 (3) (b) 2. to 8., Comm 84.20 (5) (b) 1. c., (n) 1. a. and b., (o) 1. a. and 2. b. and (p) 2. c., Tables Comm 84.30-2, 84.30-5 and 84.30-6, Comm 84.30 (4) (e) 2., Comm 82.40 (8) (b) 2, Tables Comm 84.30-7, 84.30-8 and 84.30-10 and Comm 84.40 (2) (a) 2., (4) (b), (6) (a), (8) (c), (9) (b) and (10) (b);

repeal ss. Comm 81.01 (2), Comm 81.01 (199e), Comm 81.01 ((209e) and (209m), Comm 81.01 (252e) and (258), Table Comm 81.20-10, Comm 82.21 (2), Table Comm 82.21-1, Comm 82.30 (6) (a) 2. and (b) 5., 82.31 (17) (a) 1. f., Comm 82.33 (9) (c) 1. c., Table Comm 84.10 line 8, Comm 84.30 (1) (f) Note, Comm 84.30 (4) (f) and (g) and Comm 84.40 (12) and (16);

create ss. Comm 62.2902 (1) (a) 5., Comm 81.01 (79m), Comm 81.01 (82e) and (108e), Comm 81.01 (231m), Comm 82.22, Table Comm 82.22-1, Comm 82.30 (11) (h) 1. g., Comm 82.32 (4) (b) 2. c., Comm 82.33 (8) (d) 6. and 7., Comm 82.34 (5) (c) 7., Table Comm 82.40-3e, Comm 82.40 (8) (b) 8., Comm 82.40 (8) (d) 3. b., Comm 82.41 (3) (b) 4. e. and Comm 84.30 (5) (c) 20.;

repeal and recreate ss. Comm 81.01 (80), Comm 81.01 (152), (153) and (154), Comm 81.01 (163), Comm 81.01 (203), Comm 81.01 (204m), Comm 82.21 (b) 1. b., Comm 82.30 (4) (b), Comm 82.30 (6) (b) 4. and 5., Comm 82.31 (5) and (6), Comm 82.30 (11) (e) 2. and 3., Comm 82.30 (11) (f) 2., Table Comm 82.30-2, Comm 82.31 (5), Comm 82.33 (7) (a), Comm 82.34 (4) (b) 2., Comm 82.34 (14) (a) 2., Comm 82.35 (3) (a), Comm 82.36 (11), Comm 82.40 (3) (e), Comm 82.40 (8) (e) 2. and Comm 84.20 (5) (o) 3.;

renumber and amend ss. Tables Comm 81.20-10m and Comm 84.40 (14) to (19); and

renumber ss. Comm 82.21 (1) (d), Comm 82.21 (3), Comm 82.30 (4) (c) to (e), Comm 82.30 (6) (a) 1., 82.30 (11) (h) 1. g. to i., Comm 82.40 (8) (d) e., Comm 84.30 (4) (h) and (i) and Comm 84.40 (13) to (19) relating to the design, installation or construction, inspection and maintenance of plumbing.

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## ANALYSIS OF PROPOSED RULES

### **1. Statutes Interpreted.**

Sections 101.02 and 145.02, Stats.

### **2. Statutory Authority.**

Sections 101.02 and 145.02, Stats.

### **3. Related Statute or Rule.**

- Section 145.13, Stats
- Chapters Comm 60 to 66, Commercial Building Code
- Chapters 20 to 25, Uniform Dwelling Code
- Chapters 81 to 87, Uniform Plumbing Code

### **4. Explanation of Agency Authority.**

Sections 101.02 and 145.02 Stats., grant the Department of Commerce general authority for protecting the health, safety and welfare of the public by establishing reasonable and effective safety standards for the design, installation or construction, inspection and maintenance of plumbing. In accordance with s.145.13, Stats., the Department is also responsible for safeguarding the waters of the state.

### **5. Summary of Proposed Rules.**

The proposed revisions to Chapters Comm 81 to 84 clarify existing rules and bring the state Uniform Plumbing Code up to date with current technology and nationally recognized standards. The proposed rules contain a number of modifications to the technical requirements within these standards, reorganization of current requirements and editorial changes.

The proposed change in Chapter Comm 62 would limit the installation of waterless toilets and waterless antiseptic cleansing provisions where used in lieu of water-based toilets and cleansing provisions.

The following is a summary of the major proposed changes to Chapters Comm 81 to 84:

- a. Allow the recycling of wastewater discharged from water closets and urinals. [Comm 82.34 (3) (a) 1.]

- b. Create code language to recognize alternate standards that have been used by the department. (e.g. Pressurized sewer systems and water treatment device sizing). [Comm 82.30 (11) (f) 2. and Comm 82.40, Table 82.40-3e]
- c. Expand the requirement for demand regeneration controls for water treatment devices to devices that discharge to municipal sewers. [Comm 82.40 (8) (j)]
- d. Use the term “manufactured home” in place of the term “mobile home” in numerous places as referenced in s.101.91 (2), Stats. [Comm 81.01 (152), (153), and (154) and Comm 82.51]
- e. Change the calculation of the load factor on drain piping so it reflects national model plumbing code requirements. [Comm 82.30 (3)]
- f. Modify the triggers for the installation of stack vents serving drain stacks from two to five or more branch intervals. [Comm 82.31 (4)(a) and 82.31 (5)]
- g. Expand and describe more fully the grease and oil treatment requirements for restaurants. [Comm 82.34 (5)]
- h. Modify the requirements for secondary roof drains so they more closely follow national standards. [Comm 82.36 (11)]
- i. Upgrade the requirements for water conserving fixtures to more closely correspond to national standards. [Comm 84.20 (3)(b)2.]

## 6. Summary of, and Comparison with, Existing or Proposed Federal Regulations.

There are several existing federal regulations that relate to the design, installation or construction, inspection and maintenance and repair of plumbing. Some of these regulations require compliance with the 2006 editions of the International Plumbing Code (IPC), a national model code developed by the International Code Council (ICC), and the Uniform Plumbing Code (UPC), a national model code developed by the International Association of Plumbing and Mechanical Officials.

An Internet-based search of the *United States Code* (USC) found the following existing federal rules that impact plumbing. The Wisconsin Uniform Plumbing Code reflects the requirements currently contained in these federal laws.

- Assembly Bill No. 1953, Chapter 853 – The Lead Solder, Pipe and Flux Law expands Section 116875 of the Health and Safety Code as contained in USC Title 42, Chapter 6A, Subchapter XII, Part B, Section 300g-6 relating to lead plumbing to include any pipe or plumbing fitting, or fixture intended to convey or dispense water for human consumption. The law, which becomes effective January 1, 2010, passed both the Assembly and the Senate in 2006 and also revises the term “lead free.”

- USC Title 42, Chapter 6A, Subchapter XII, Part F, Section 300j-24 – Lead contamination in school drinking water outlines the testing protocol for lead contamination in drinking water from coolers and other sources at educational agencies, private nonprofit elementary or secondary schools and day care centers. The law became effective in 1999. Currently, legislation is being proposed that would amend this section of the Safe Drinking Water Act.
- USC Title 33, Chapter 26, Subchapter IV, Section 1342 – National Pollutant Discharge Elimination System (NPDES) established Phase I of the storm water program in 1990. Nine years later, Phase II of the program was signed into law and requires smaller communities to develop and implement a comprehensive storm water management program.

An Internet-based search of the 2005 through 2008 issues of the *Federal Register* found a proposed rule about plumbing connections to manufactured homes published April 26, 2005 in Vol. 70, No. 79. Comments and an analysis have been received and the final rule will become effective October 20, 2008.

## **7. Comparison with Rules in Adjacent States.**

An Internet-based search of the four adjacent states found the following:

- The Illinois Department of Public Health administers a state-written uniform plumbing code with exceptions for cities that existed prior to Illinois statehood.
- The Iowa Department of Public Health administers the Iowa Uniform Plumbing Code that adopts the 2000 edition of the national UPC with amendments.
- The Michigan Department of Consumer and Industry Services, Bureau of Construction Codes developed the 2003 Michigan Plumbing Code that became effective December 31, 2003. Based on the IPC, the code includes state amendments.
- The Minnesota Department of Labor and Industry, Building Codes and Standards Division, administers the Minnesota Plumbing Code, a state written uniform code that was revised August 25, 2003.

## **8. Summary of Factual Data and Analytical Methodologies.**

The methodology for updating the Wisconsin Uniform Plumbing Code, chapters Comm 81 to 84 has been a review and assessment of the latest editions of the national technical standards that serve as the basis for Wisconsin code. Staff prepared a comprehensive comparison of the changes in the 2006 editions of the IPC and the national UPC to what currently is adopted in chapters Comm 81 to 84. The department's review and assessment process involved the

participation of the Plumbing Advisory Code Council. The members of that Council represent the many stakeholders involved in the plumbing industry including designers, inspectors, labor and building contractors. (A listing of the Plumbing Advisory Code Council is provided at the end of this analysis.)

The department believes the national model codes reflect current societal values with respect to safeguarding people and property from hazards arising from the use of plumbing.

#### **9. Analysis and Supporting Documents Used to Determine Effect on Small Business or in Preparation of Economic Impact Report.**

The department used the Plumbing Advisory Code Council to gather and analyze information on potential impacts in complying with both the technical and administrative requirements of the codes. Many small businesses belong to the industry associations that sit on the advisory council. A responsibility of council members is to bring forth concerns that their respective organizations may have with the requirements including economic impact.

In addition to posting rule development and council activities on the department's web site, the department offers an Email subscription service that is available to all small businesses. This service provides Email notification of council meetings, meeting, agendas and council meeting progress reports so small businesses can follow proposed code changes.

#### **10. Effect on Small Business.**

The department believes the rules will not increase the effect on small businesses from what the current rules impose on them. An economic impact report is not required pursuant to s. 227.137, Stats

#### **11. Agency Contact Person.**

Lynita Docken, Program Manager, [lynita.docken@wisconsin.gov](mailto:lynita.docken@wisconsin.gov), (608) 785-9349.

#### **12. Public Hearing Comments.**

A public hearing has been scheduled for July 8, 2008. The hearing record on this proposed rulemaking will remain open until July 18, 2008, to permit submittal of written comments from persons who are unable to attend the hearing or who wish to supplement testimony offered at the hearing. Written comments should be submitted to Lynita Docken at the Department of Commerce, P.O. Box 2689, Madison, WI 53701-2689, or Email at [lynita.docken@wisconsin.gov](mailto:lynita.docken@wisconsin.gov).

**Council Members and Representatives**

The proposed rules have been developed with the assistance of the Plumbing Advisory Code Council. The members of that citizen advisory council are as follows:

<u>Name</u>	<u>Representing</u>
Art Biesek	League of Wisconsin Municipalities
Thomas Boehnen	American Society of Plumbing Engineers
Patrick Casey	Plumbers' Local 75
Hallet Jenkins	Milwaukee City Department of Neighborhood Services
Gary Kowalke	Wisconsin Association of Plumbing-Heating-Cooling Contractors
Jeff Kuhn	Plumbing and Mechanical Contractors of SE Wisconsin
Rudolf Petrowitsch	American Society of Sanitary Engineering
Gene Shumann	Designer
David Viola	Plumbing Manufacturers Institute
Joseph Zoulek	Wisconsin Association of Plumbing-Heating-Cooling Contractors

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SECTION 1. Comm 62.2900 (1) is amended to read:

**Comm 62.2900 (1) PLUMBING FIXTURE ALTERNATIVES.** (a) *Water closets.* 1. Systems or devices recognized under ~~ch. Comm 91~~ ss. Comm 91.10 and 91.11 may be substituted for water closets required under IBC chapter 29.

2. Privies recognized under ch. Comm 91 may be substituted for water closets required under IBC chapter 29 in any of the following situations:

a. A building accommodating a seasonal occupancy when occupancy of the building does not extend for more than 3 of the 4 seasons.

b. A building accommodating a school or a assembly that is operated by and for members of a bona fide religious denomination in accordance with the teachings and beliefs of the denomination.

c. As approved by the department.

3. Portable restrooms recognized under ch. Comm 91 may be substituted for water closets required under IBC chapter 29 for buildings accommodating events or temporary occupancies not exceeding 12 consecutive days or as approved by the department.

(b) *Lavatories.* Waterless antiseptic cleansing provisions may be substituted for lavatories required under IBC chapter 29 where systems or devices under par. (a) 2. are substituted for water closets. Where water-based water closets or urinals are used, water-based lavatories shall be provided in numbers to accommodate the number of people served by the water closets and urinals.

SECTION 2. Comm 62.2902 (1) (a) 5. is created to read:

**Comm 62.2902 (1) (a) 5.** Service sinks may be omitted for any occupancy where privies have been substituted for water closets under s. Comm 62.2900 (1) (a) 2.

SECTION 3. Comm 81.01 (5) is amended to read:

**Comm 81.01 (5)** "Air-break" means a piping arrangement for a drain system where the wastes from a fixture, appliance, appurtenance or device discharge by means of indirect or local waste piping terminating in a receptor at a point below the flood level rim of the receptor and above the ~~inlet-outlet~~ inlet-outlet of the trap serving the receptor.

SECTION 4. Comm 81.01 (20), (67e) and (67m) are repealed.

SECTION 5. Comm 81.01 (79) is amended to read:

**Comm 81.01 (79)** “Double check backflow prevention assembly” means a type of cross connection control ~~device~~ assembly which is composed of 2 independently acting check valves internally force-loaded to a normally closed position, tightly closing shut-off valves located at each end of the assembly and fitted with test cocks. ~~The terms “backflow preventer, double check valve type” or “DCV” have~~ The term “double check valve backflow preventer” has the same meaning as double check backflow prevention assembly.

SECTION 6. Comm 81.01 (79m) is created to read:

**Comm 81.01 (79m)** “Double check fire protection backflow prevention assembly” means an assembly serving a fire protection system and consisting of two independently acting check valves, internally forced loaded to a normally closed position, two tightly closing shut-off valves, and properly located test cocks. The term “double check valve backflow preventer for fire protection systems” has the same meaning as double check fire protection backflow prevention assembly.

SECTION 7. Comm 81.01 (80) is repealed and created to read:

**(80)** “Double check detector fire protection backflow preventer-assembly” means an assembly serving a fire protection system and consisting of two independently acting check valves, internally forced loaded to a normally closed position, two tightly closing shut-off valves, and properly located test cocks which also includes a parallel flow meter to indicate leakage or unauthorized use of water downstream of the assembly.

SECTION 8. Comm 81.01 (82e) and (108e) are created to read:

**(82e)** “Dual check backflow preventer wall hydrant-freeze resistant type” means a type of hose bibb that provides protection of the potable water supply from contamination due to backsiphonage or backpressure without damage to the device due to freezing, and is field testable to verify protection under the high hazard conditions present at a hose threaded outlet.

**(108e)** “Freeze resistant sanitary yard hydrant” means a type of device serving as a hose bibb that has design features that minimize the risk of freezing, prevent groundwater contamination and provide backflow protection. The term “freeze resistant sanitary yard hydrant with backflow protection” has the same meaning as freeze resistant sanitary yard hydrant.

SECTION 9. Comm 81.01 (115), (120) and (147) are amended to read:

**Comm 81.01 (115)** “Hand-held shower” means a ~~type of plumbing fixture that includes a cross connection control device, a hose and a hand-held discharge piece such as a shower head or spray~~ connecting to a fixture fitting.

**(120)** “High hazard” means a situation where the water supply system could be contaminated with a toxic substance or solution so as to ~~alter the characteristics of the water~~ making make the water unsuitable for the designated use.

**(147)** “Low hazard” means a situation where the water supply system could be contaminated with a nontoxic substance or solution so as to ~~alter the characteristics of the water~~ making make the water unsuitable for the designated use.

SECTION 10. Comm 81.01 (152), (153) and (154) are repealed and recreated to read:

**Comm 81.01 (152)** “Manufactured home” has the meaning specified under s. 101.91 (2), Stats.

**Note:** Section 101.91 (2), Stats. reads: “Manufactured home” means any of the following:

(am) A structure that is designed to be used as a dwelling with or without a permanent foundation and that is certified by the federal department of housing and urban development as complying with the standards established under 42 USC 5401 to 5425.

(c). A mobile home, unless a mobile home is specifically excluded under the applicable statute.

**(153)** “Manufactured home drain connector” means the pipe that joins the drain piping for a manufactured home to the building sewer.

**(154)** “Manufactured home community” has the meaning specified under s. 101.91 (5m), Stats.

**Note:** Section 101.91 (5m), Stats. reads: “Manufactured home community” means any plot or plots of ground upon which 3 or more manufactured homes that are occupied for dwelling or sleeping purposes are located. “Manufactured home community” does not include a farm where the occupants of the manufactured homes are the father, mother, son, daughter, brother or sister of the farm owner or operator or where the occupants of the manufactured homes work on the farm.

SECTION 11. Comm 81.01 (156) is amended to read:

**Comm 81.01 (156)** “Multipurpose piping system” means a ~~type of water distribution system conveying potable water to plumbing fixtures and appliances and automatic fire sprinklers with the intention of serving both domestic water needs and fire protection needs within an one- or 2- family dwelling or manufactured dwelling.~~

SECTION 12. Comm 81.01 (163) is repealed and recreated to read:

**Comm 81.01 (163)** "Nontoxic" means a substance in the diluted form that meets one of the following requirements:

(a) Is listed by the National Sanitation Foundation (NSF) as meeting the NSF evaluation criteria for nonfood compounds.

(b) Is acceptable to the United States Food and Drug Administration (FDA) Title 21 Section 175.300 of the Federal Regulation on Food Additives.

(c) Is acceptable for contact with potable water or is deemed non-toxic by a third party certification that is acceptable to the department.

(d) Is deemed non-toxic by the department.

SECTION 13. Comm 81.01 (189) is amended to read:

**Comm 81.01 (189)** "Pressure vacuum breaker assembly" means a type of cross connection control ~~device~~ assembly which consists of an independently operating internally loaded check valve and an independently operating loaded air inlet located on the discharge side of the check valve, a tightly closing shut-off valve located at each end of the assembly, and test cocks. The term "~~PVB~~ pressure vacuum breaker" has the same meaning as pressure vacuum breaker assembly.

SECTION 14. Comm 81.01 (199e) is repealed.

SECTION 15. Comm 81.01 (203) is repealed and recreated to read:

**Comm 81.01 (203)** "Reduced pressure detector fire protection backflow prevention assembly" means a type of reduced pressure principle type backflow preventer serving a fire protection system and which includes a parallel flow meter to indicate leakage or unauthorized use of water downstream of the assembly.

SECTION 16. Comm 81.01 (204) is amended to read:

**Comm 81.01 (204)** "Reduced pressure principle backflow preventer" means a type of cross connection control ~~device~~ assembly which contains 2 independently acting check valves, separated by an intermediate chamber or zone in which there is a hydraulically operated means for venting to atmosphere, and includes 2 shut-off valves and 4 test cocks.

SECTION 17. Comm 81.01 (204m) is created to read:

**Comm 81.01 (204m)** “Reduced Pressure Fire Protection Principle Backflow Preventer” means an assembly serving a fire protection system and consisting of two independently-acting check valves, internally force loaded to a normally closed position, and separated by an intermediate chamber or zone in which there is an hydraulically operated relief means of venting to atmosphere, internally forced loaded to a normally open position. The term “reduced pressure principle backflow preventer for fire protection systems” has the same meaning as reduced pressure fire protection principle backflow preventer.

SECTION 18. Comm 81.01 (209e) and (209m) are repealed.

SECTION 19. Comm 81.01 (231m) is created to read:

**Comm 81.01 (231m)** “Spill Resistant Vacuum Breaker” means a cross connection control device consisting of one check valve force loaded closed, an air inlet force loaded open to atmosphere downstream of the check valve, two shutoff valves and two test cocks.

SECTION 20. Comm 81.01 (234) is amended to read:

**Comm 81.01 (234)** “Stack vent” means a vent extending from the ~~top of a drain stack of at least two branch intervals.~~ highest horizontal drain connected to a stack.

SECTION 21. Comm 81.01 (252e) and (258) are repealed.

SECTION 22. Comm 81.01 (269) and (288) are amended to read:

**Comm 81.01 (269)** “Vent stack” means a vertical vent pipe that provides air for a drain stack of ~~two~~ 5 or more branch intervals.

**Comm 81.01 (288)** “Wet vent” means that portion of a vent pipe ~~which that~~ receives the discharge of wastes from other than water closets, urinals or other fixture which discharge like sewage or fecal matter other fixtures.

SECTION 23. Comm 81.20 (1) is amended to read:

**Comm 81.20 (1) (a)** Pursuant to s. 227.21 (2), Stats., the attorney general ~~and the revisor of statutes have~~ has consented to the incorporation by reference of the standards listed in sub. (3).

(b) The codes and standards that are referenced in this chapter, and any additional codes and standards that are subsequently referenced in those codes and standards, shall apply to the prescribed extent of each such reference, except as modified by this chapter.

**Note:** Copies of the adopted standards are on file in the offices of the department, the secretary of state and the legislative reference bureau. Copies of the standards may be purchased through the respective organizations listed in Tables 81.20-1 to 81.20-13.

SECTION 24. Tables 81.20-1 to 81.20-9 are amended to read:

**Table 81.20-1**

<b>AHAM</b>	<b>Association of Home Appliance Manufacturers 20 North Wacker Drive Chicago, Illinois 60606 Phone: 202-872-5955 Web page: <a href="http://www.aham.org">www.aham.org</a></b>
<b>Standard Reference Number</b>	<b>Title</b>
<u>DW-1-922005</u>	Household Electric Dishwashers

**Table 81.20-2**

<b>ANSI</b>	<b>American National Standards Institute, Inc. 1430 Broadway New York, New York 10018 Phone: 212-642-4900 Web page: <a href="http://www.ansi.org">www.ansi.org</a></b>
<b>Standard Reference Number</b>	<b>Title</b>
1. <u>Z21.22a-9099 (R 2004)</u>	Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems
<del>2. Z21.61-83</del>	<del>Gas-Fired Toilets</del>
2. <u>Z21.22a-2000</u>	<u>Relief Valves for Hot Water Supply Systems (Addenda 2000)</u>
<del>3. Z124.1-95</del>	<del>Plastic Bathtub Units</del>
3. <u>Z21.22b-2001</u>	<u>Relief Valves for Hot Water Supply Systems (Addenda 2001)</u>
4. <u>Z124.1.2-952005</u>	Plastic Shower Receptors and Shower Stalls
5. <u>Z124.3-952005</u>	Plastic Lavatories
6. <u>Z124.4-962006</u>	Plastic Water Closet Bowls and Tanks
7. <u>Z124.6-97</u>	Plastic Sinks
8. <u>Z124.9-942004</u>	<u>Plastic Urinal Fixtures, Plastic Urinal, American National Standard for</u>

**Table 81.20-3**

<b>ARI</b>	<b>Air-Conditioning and Refrigeration Institute 1815 North Fort Myer Drive Arlington, Virginia 22209 Phone: <u>703-524-8800</u> Web page: <u>www.ari.org</u></b>
<b>Standard Reference Number</b>	<b>Title</b>
ARI-1010-94 <u>2002</u>	Self-Contained Mechanically-Refrigerated Drinking-Water Coolers

**Table 81.20-3e**

<b>ASME</b>	<b>American Society of Mechanical Engineers 345 East 47<sup>th</sup> Street New York, New York 10017 Phone: <del>(800) THE-ASME</del> <u>800-843-2763</u> Web page: <u>www.infocentral@asme.org</u></b>
<b>Standard Reference Number</b>	<b>Title</b>
1. A112.1.2-91 (R1998)2004	<u>Air Gaps in Plumbing Systems (For Plumbing Fixtures and Water-Connected Receptors)</u>
1e. A112.1.3-00	<u>Air-gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances</u>
2. A112.6.1M-97 (R2002)	<u>Floor-Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use</u>
2m. A112.6.3-2001	<u>Floor and Trench Drains</u>
3. A112.14.1-75 (R1998) 03 (R2008)	<u>Backwater Valves</u>
4. A112.18.1M-96 <u>2005</u>	<u>Plumbing Fixture Fittings <u>Supply Fittings</u></u>
5. A112.19.1M-94 (R 2000)	<u>Enameled Cast Iron Plumbing Fixtures</u>
5m. A112.19.1M-1994	<u>Errata November 1996 to Enameled Cast Iron Plumbing Fixtures</u>
6. A112.19.1M-1994	<u>Supplement 1-2000 to Enameled Cast Iron Plumbing Fixtures</u>
7. A112.19.1M-1994	<u>Supplement 2-1998 to Enameled Cast Iron Plumbing Fixtures</u>
6. 8. A112.19.2M-952003	<u>Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals</u>
7. 9. A112.19.3M-87 (R1996)2000 (R 2004)	<u>Stainless Steel Plumbing Fixtures (Designed for Residential Use)</u>
10. A112.19.3-2002	<u>Supplement 1.-2002 to Stainless Steel Plumbing Fixtures (Designed for Residential Use)</u>
8. 11. A112.19.4-94 (R 2004)	<u>Porcelain Enameled Formed Steel Plumbing Fixtures</u>

9. <del>12.</del> A112.19.5-79 (R1998)2005	Trim for Water-Closet Bowls, Tanks, and Urinals ( <del>Dimensional Standards</del> )
10. A112.19.6-95	Hydraulic Performance Requirements for Water Closets and Urinals
11. A112.21.1M-91	Floor Drains
12. A112.21.2M-83	Roof Drains
13. B1.20.1-83 (R1992 2006)	Pipe Threads, General Purpose (Inch)
14. B16.1-892005	Cast Iron Pipe Flanges and Flanged Fittings ( <u>Classes 25, 125, and 250</u> )
15. B16.3-921998 (R 2006)	Malleable Iron Threaded Fittings ( <u>Classes 150 and 300</u> )
16. B16.4-922006	Gray Iron Threaded Fittings (Classes 125 and 250)
17. B16.5 a-982003	Pipe Flanges and Flanged Fittings NPS ½ Through NPS 24 (and addenda)
18. B16.9-932003	Factory-Made Wrought Steel Butt welding Fittings
19. B16.11-962005	Forged Fittings, Socket - Welding and Threaded
20. B16.12-941998 (R 2006)	Cast Iron Threaded Drainage Fittings
21. B16.15-85 (R 1994)	Cast Bronze Threaded Fittings, Classes 125 and 250
22. B16.18-84 (R-1994) 2001 (R 2005)	Cast Copper Alloy Solder Joint Pressure Fittings
23. B16.22-952001 (R 2005)	Wrought Copper and Copper Alloy Solder - Joint Pressure Fittings
24. B16.23-922002 (R2006)	Cast Copper Alloy Solder Joint Drainage Fittings - DWV
25. B16.24-942001	Cast Copper Alloy Pipe Flanges and Flanged Fittings, Class 150, 300, 400, 600, 900, 1500 and 2500
26. B16.26-882006	Cast Copper Alloy Fittings for Flared Copper Tubes
27. B16.28-94	Wrought Steel Butt welding Short Radius Elbows and Returns
28. B16.29-942001	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV
29. B16.42-87 (R1997) 1998 (R 2006)	Ductile Iron Pipe Flanges and Flanged Fittings
30. B16.45-87 (R1997) 1998 (R 2006)	Cast Iron Fittings for Sovent <sup>®</sup> Drainage Systems
31. B36.19M-85 (R1994)2004	Stainless Steel Pipe

Table 81.20-4

Standard Reference Number	Title
ASSE	American Society of Sanitary Engineering P.O. Box 9712 Bay Village, Ohio 4414 Phone: 440-835-3040 Web page: <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a>
1. <del>1001-90</del> <u>2002</u>	<del>Pipe Applied Atmospheric Type Vacuum Breakers</del>
2. <del>1002-86</del> <u>1999</u>	<del>Anti-siphon Fill Valves (Ballcocks) for Gravity Water Closet Flush Tank Tanks Ball Coeks</del>
3. <del>1003-95</del> <u>2001</u>	<del>Water Pressure Reducing Valves</del>
4. <del>1004-19</del> <u>90</u>	<del>Commercial Dishwashing Machines</del>
<del>5. 1005-86</del>	<del>Water Heater Drain Valves</del>
<del>6. 5. 1006-19</del> <u>89R</u>	<del>Residential Use (Household) Dishwashers</del>
7. <del>6. 1007-92</del> <u>1986</u>	<del>Home Laundry Equipment</del>
8. <del>7. 1008-89</del> <u>2006</u>	<del>Household Plumbing Aspects of Residential Food Waste Disposer Units</del>
9. <del>8. 1009-90</del> <u>1990</u>	<del>Commercial Food Waste Grinder Units</del>
<del>10. 9. 1010-96</del> <u>2004</u>	<del>Water Hammer Arresters</del>
<del>11. 10. 1011-95</del> <u>2004</u>	<del>Hose Connection Vacuum Breakers</del>
12. <del>11. 1012-93</del> <u>2002</u>	<del>Backflow Preventers Preventer with Intermediate Atmospheric Vent</del>
<del>13. 12. 1013-99</del> <u>2005</u>	<del>Reduced Pressure Principle Backflow Preventer Preventers and Reduced Pressure Detector-Fire Protection Principle Backflow Preventers</del>
14. <del>13. 1014-90</del> <u>2005</u>	<del>Backflow Prevention Devices for Hand-Held Showers</del>
15. <del>14. 1015-99</del> <u>2005</u>	<del>Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies</del>
<del>15e. 15. 1016-96</del> <u>2005</u>	<del>Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations Thermostatic, Pressure Balancing, and Combination Pressure Balancing and Thermostatic Control Valves for Individual Fixture Fittings</del>
15m. <del>1017-20</del> <u>03</u>	<del>Temperature Actuated Mixing Valves for Hot Water Distribution Systems</del>
16. <del>1018-88</del> <u>2001</u>	<del>Trap Seal Primer Valves - Potable, Water Supply Fed-Supplied</del>
17. <del>1019-97</del> <u>2004</u>	<del>Vacuum Breaker Wall Hydrants, Freeze Resistant Automatic Draining Type</del>
18. <del>1020-89</del> <u>2004</u>	<del>Pressure Vacuum Breaker Assembly</del>
18m. <del>1021-20</del> <u>01</u>	<del>Drain Air Gaps for Domestic Dishwasher Applications</del>
<del>18e. 19. 1022-96</del> <u>2003</u>	<del>Backflow Preventer for Carbonated Beverage Dispensing Equipment Machines</del>
19. <del>20. 1023-79</del> <u>1979</u>	<del>Hot Water Dispensers, Household Storage Type, Electrical</del>
20. <del>1025-78</del>	<del>Diverters for Plumbing Faucets with Hose Spray, Anti-Siphon Type, Residential Applications</del>

<del>21.</del> <u>20.</u> 1035-95 <u>2002</u>	Laboratory Faucet Backflow Preventers
<del>22.</del> <u>21.</u> 1037-90 <u>1990</u>	Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures
<del>23.</del> <u>22.</u> 1047-99 <u>2005</u>	Reduced Pressure Detector <u>Fire Protection Backflow Preventer Prevention Assemblies</u>
<del>24.</del> <u>23.</u> 1048-99 <u>2005</u>	Double Check <u>Detector Fire Protection Backflow Prevention Assemblies</u>
<del>24.</del> 1052-94 <u>2004</u>	Hose Connection Backflow Preventers
<u>24e.</u> 1053-2005	Dual Check Backflow Preventer Wall Hydrant Freeze Resistant Type
<del>25e.</del> <u>25.</u> 1055- 97 <u>1997</u>	Chemical Dispensing Systems
<u>26.</u> 1056-95 <u>2001</u>	<u>Spill Resistant Back Siphonage Vacuum Breakers</u>
<u>26e.</u> 1066-97 <u>1997</u>	Individual Pressure Balancing In-Line Valves for Individual Fixture Fittings
<u>27.</u> 5013-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing Reduced Pressure Principle Backflow Preventers (RP) and Reduced Pressure Principle Fire Protection Backflow Preventers (RPF)</u>
<u>28.</u> 5015-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing Double Check Backflow Prevention Assemblies (DC) and Double Check Fire Protection Backflow Prevention Assemblies (DCF)</u>
<u>29.</u> 5020-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing a Pressure Vacuum Breaker Assembly</u>
<u>30.</u> 5047-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies (RPDF)</u>
<u>31.</u> 5048-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing Double Check Detector Fire Protection Backflow Prevention Assemblies (DCDF)</u>
<u>32.</u> 5056-2004 <sup>a</sup>	<u>Minimum Performance Requirements for Testing Spill Resistant Vacuum Breaker</u>

<sup>a</sup> Standard is contained in the ASSE 5000 Series of standards.

Table 81.20-5

American Society for Testing and Materials  
 100 Barr Harbor Drive  
 West Conshohocken, Pennsylvania 19428-2959  
 Phone: (610) 832-9585  
 Web page: www.astm.org

Standard Reference Number	Title
1. <del>A53-9702</del>	Pipe, Steel, Black and Hot--Dipped, Zinc-Coated Welded and Seamless, Standard Specification for
2. <del>A74-9606</del>	Cast Iron Soil Pipe and Fittings, Standard Specification for
3. <del>A123/A123M-97a02</del>	Zinc (Hot-Galvanized) Coatings on Products, Specification for
4. <del>A270-95a03a</del>	Seamless and Welded Austenitic Stainless Steel Sanitary Tubing, Specification for
5. <del>A377-95-03</del>	Ductile Iron Pressure Pipe, Standard Index of Specifications for
6. <del>5. A403/A403M-97a07</del>	Wrought Austenitic Stainless Steel Piping Fittings, Specification for
7. <del>6. A450/A450M-9604a</del>	Carbon, Ferritic Alloy, and Austenitic Alloy Steel Tubes
7e. <del>7. A888-9807a</del>	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Pipe Applications, Specifications for
8. <del>B32-9604</del>	Solder Metal
9. <del>B42-9 02<sup>E1</sup></del>	Pipe, Seamless Copper, Standard Sizes
10. <del>B43-9698</del>	Seamless Red Brass Pipe, Standard Sizes, Specification for
11. <del>B88/B88M-9603</del>	<del>Water</del> , Seamless, Copper <u>Water Tube</u> , Specification for
11m. <del>B88M-05</del>	<u>Seamless Copper Water Tube (Metric)</u> , Specification for
12. <del>B152/B152M-97a06a</del>	Copper Sheet, Strip, Plate, and Rolled Bar, Specification for
13. <del>B251/B251M-9702<sup>E1</sup></del>	Tube, Wrought Seamless Copper and Copper
14. <del>B302-9702</del>	Threadless Copper Pipe, Specification for
15. <del>B306-9602</del>	<del>Standard Specifications for</del> Copper Drainage Tube (DWV), <u>Standard Specifications for</u>
15s. <del>15m. B828-9802</del>	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings, Practice for
17. <del>16. C14/C14M-9507</del>	<del>Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe</del> , Specification for
17. <del>C14M-9507</del>	<u>Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe (Metric)</u> , Specification for
18. <del>C33-9703</del>	Concrete Aggregates, <u>Specification for</u>
19. <del>C76-9807</del>	<u>Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe</u> ,
20. <del>C76M-9707</del>	<del>Reinforced Concrete Specification for</del> Reinforced Concrete Culvert, Storm Drain, and <u>Culvert-Sewer Pipe (Metric)</u> , Specifications for

21. ~~C425-9704~~ Compression Joints for Vitrified Clay Pipe and Fittings for  
~~Vitrified Compression Joints~~, Specification for
22. ~~C443/C443M-9407~~ Specification for Joints for Circular Concrete Sewer and  
Culvert Pipe, Using Rubber Gaskets
- 22e. ~~C443M-07~~ Specification for Joints for Circular Concrete Sewer and  
Culvert Pipe, Using Rubber Gaskets (Metric)
- 22e. ~~22m. C507/C507M-95a~~ Reinforced Concrete Elliptical Culvert, Storm Drain and  
~~07~~ Sewer, (Metric) Specifications for
23. ~~C564-9703a~~ Rubber Gaskets for Cast Iron Soil Pipe and Fittings,  
Specification for
24. ~~C700-9707~~ Vitrified Clay Pipe, Extra Strength, Standard Strength, and  
Perforated, Specification for
- 24e. ~~C877/C877M-94~~ External Sealing Bands for ~~None~~ircular Concrete Sewer, Storm  
~~02<sup>E</sup>~~ Drain, and Culvert Pipe, Manholes and Precast Box  
Sections, (Metric), Standard Specifications for
- 24h. ~~C923-9807~~ Resilient Connectors Between Reinforced Concrete Manhole  
Structures, Pipes, and Laterals, Specification for
- 24m. ~~C990/C990M-96~~ Joints for Concrete Pipe, Manholes, Precast Box Sections Using  
~~06~~ Preformed Flexible Joint Sealants, Specifications for
- 24s. ~~C1306-9505a~~ Hydrostatic Pressure Resistance of a Liquid-Applied  
Waterproofing Membrane, Standard Test Method for
25. ~~D1527-96a99~~ (R 2005) Acrylonitrile-Butadiene-Styrene (ABS), Schedules 40 and 80
26. ~~D1785-96b06~~ Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and  
120, Specification for
27. ~~D2104-9603~~ Standard Specifications for Polyethylene (PE) Plastic Pipe,  
Schedule 40
28. ~~D2235-96a04~~ Standard Specifications for Solvent Cement for Acrylonitrile-  
Butadiene-Styrene (ABS) Plastic Pipe and Fittings
29. ~~D2239-96a03~~ Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled  
Inside Diameter, Specification for
30. ~~D2241-96b05~~ Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic  
Pipe (SDR - Series)
31. ~~D2282-96a99~~ (R 2005) Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR -  
PR), Specification for
32. ~~D2321-8905~~ Underground Installation of Thermoplastic Pipe for Sewers and  
Other Gravity-Flow Applications, Practice for
33. ~~D2447-9503~~ Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on  
Outside Diameter, Specification for
34. ~~D2464-96a06~~ Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings,  
Schedule 80, Specification for
35. ~~D2466-9706~~ Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40,  
Specification for
36. ~~D2467-96a06~~ ~~Socket~~-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings,  
Schedule 80, Specification for
37. ~~D2468-96a~~ Acrylonitrile-Butadiene-Styrene (ABS), Plastic Pipe Fittings,  
Schedule 40, Specification for

38. D2564-96a04<sup>E1</sup> Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Systems, Specification for
39. D2609-9702 Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe, Specification for
40. D2657-9707 Heat Fusion Joining of Polyolefin Pipe and Fittings, Standard Practice of
41. D2661-97a06 Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings, Specification for
42. ~~D2662-96a~~ Polybutylene (PB) Plastic Pipe (SIDR-PR), Based on Controlled Inside Diameter, Specification for
43. D2665-97a07 Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings, Specification for \*
46. D2680-95a01 Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Composite Sewer Piping, Specification for
47. D2683-9804 Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing, Specification for
48. D2729-96a03 Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, Specification for
49. D2737-96a03 Polyethylene (PE) Plastic Tubing, Specification for
50. D2751-96a05 Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings, Specification for
51. D2774-9404 Underground Installation of Thermoplastic Pressure Piping, Standard Practice for
52. D2846/D2846M-9706 Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems, Specification for
53. D2852-95 Styrene-Rubber (SR) Plastic Drain Pipe and Fittings, Specification for
54. D2855-96 Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings, Practice for
55. ~~D3000-95a~~ Polybutylene (PB) Plastic Pipe (SDR-PR) Based on Outside Diameter, Specification for
56. ~~55.~~ D3034-9706 Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, Specification for
57. ~~56.~~ D3035-9506 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter, Specification for
- 57s. ~~57.~~ D3138-9504 Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components, Specifications for
58. ~~D3139-96a~~ Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals, Specification for
59. D3140-90 Flaring Polyolefin Pipe and Tubing, Practice for
60. D3212-96a (R 2003) Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals, Specification for
61. D3261-9703 Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing, Specification for

<del>62.</del> <u>D3309-96a(R 2002)</u>	Polybutylene (PB) Plastic Hot and Cold Water Distribution Systems, Specification for
<del>63.</del> <u>62. D3311-9406a</u>	Drain, Waste, and Vent (DWV) Plastic Fittings Patterns, Specification for
<del>64.</del> <u>63. D4068-9601</u>	Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane, Standard Test Method for
<del>65.</del> <u>64. D4491-89 99a (R 2004)</u>	Water Permeability of Geotextile by Permittivity, Standard Test Method for
<del>66.</del> <u>65. D4533-9104</u>	Trapezoid Tearing Strength of Geotextiles, Standard Test Method for
<del>67.</del> <u>66. D4632-91 (R 2003)</u>	Grab Breaking Load and Elongation of Geotextiles, Standard Test Method for
<del>68.</del> <u>67. D4751-8704</u>	Determining the Apparent Opening Size of a Geotextile, Standard Test Method for
<del>69.</del> <u>68. D4833-8800<sup>E1</sup></u>	Index Puncture Resistance of Geotextile, Geomembranes, and Related Products, Standard Test Methods for
<del>70.</del> <u>69. F402-9305</u>	Safe Handling of Solvent Cements, Primers and Cleaners Used for Joining Thermoplastic Pipe and Fittings, Practice for
<del>71.</del> <u>70. F405-9705</u>	Corrugated Polyethylene (PE) Tubing and Fittings, Specification for
<del>72.</del> <u>71. F409-9702</u>	Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings, Specification for
<del>73.</del> <u>72. F437-96a06</u>	Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, Specification for
<del>74.</del> <u>73. F438-9704</u>	Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40, Specification for
<del>75.</del> <u>74. F439-9706</u>	Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80, Specification for
<del>76.</del> <u>75. F441/F441M-9702</u>	Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80, Specification for
<del>77.</del> <u>76. F442/F442M-9799 (R 2005)</u>	Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR), Specification for
<del>78.</del> <u>77. F477-96a07</u>	Elastomeric Seals (Gaskets) for Joining Plastic Pipe, Specification for
<del>78e.</del> <u>78. F492-9596</u>	Propylene and Polypropylene (PP) Plastic-Lined Ferrous Metal Pipe Fittings
<del>79.</del> <u>F493-9704</u>	Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings, Specification for
<del>80.</del> <u>F628-97a06<sup>E1</sup></u>	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core, Specification for
<del>81.</del> <u>F656-96a02</u>	Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings, Specification for
<del>81e.</del> <u>F679-9506a</u>	Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

81m. F789-95a	Type PS-46 and Type PS-115 PVC Poly(Vinyl Chloride)(PVC)Plastic Gravity Flow Sewer Pipe and Fittings
81s. F794-9703	Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter
82. F810-9307	Smoothwall Polyethylene (PE) Pipe for Use in Drainage and Waste Disposal Absorption Fields, Specification for
83. F845-96	<del>Plastic Insert Fittings for Polybutylene (PB) Tubing, Specification for</del>
84. F876-9706	Crosslinked Polyethylene (PEX) Tubing, Specification for
85. F877-97a07	Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems, Specification for
86. F891-9704	Coextruded Poly (Vinyl Chloride) (PVC) Plastic Pipe With a Cellular Core, Specification for
87. F949-96a06a	Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings
88. F1281-9807	Crosslinked Polyethylene / Aluminum / Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe
89. F1282-9706	Polyethylene / Aluminum / Polyethylene (PE-AL-PE) Composite Pressure Pipe
90. F1336-9307	Poly (Vinyl Chloride) (PVC) Gasketed Sewer Fittings
91. F1807-98A07	Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing
92. F1866-9807	Poly (Vinyl Chloride) (PVC) Plastic Schedule 40 Drainage and DWV Fabricated Fittings, Specifications for

**Table 81.20-6**

<b>AWS</b>	<b>American Welding Society 550 N.W. LeJune Road Miami, Florida 33126 Phone: 800-443-9353 Web page: <a href="http://www.aws.org/w/a">www.aws.org/w/a</a></b>
<b>Standard Reference Number</b>	<b>Title</b>
<del>AWS A5.8/92</del> AWS.A5.8M	Filler Metals for <u>Brazing and Braze</u> Welding, Specification for 2004

Table 81.20-7

**AWWA** **American Water Works Association**  
**Data Processing Department**  
**6666 West Quincy Avenue**  
**Denver, Colorado 80235**  
**Phone: 303-794-7711**  
**Web page: [www.awwa.org](http://www.awwa.org)**

Standard Reference Number	Title
1. <u>C110/A21.10-9503</u>	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in., for Water and Other Liquids
2. <u>C111/A21.11-9507</u>	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
3. <u>C115/A21.15-9405</u>	American National Standard for Flanged Ductile-Iron Pipe with Ductile-Type Iron or Gray-Iron Pipe Threaded Flanges
4. <u>C151/A21.51-962002</u>	<del>American National Standard for Ductile-Iron, Centrifugally Cast for Water</del> <u>Ductile-Iron Pipe, Centrifugally Cast, for Water</u>
5. <u>C153/A21.53-9406</u>	American National Standard for Ductile-Iron Compact Fittings, 3 in. through 16 in., for Water and Other Liquids
5e. <u>C651-92 2005</u>	Water Mains, Disinfecting
6. <u>C700-9502</u>	Cold Water Meters – Displacement Type with Bronze Main Case (w/ 1991 Addendum)
7. <u>C701-8807</u>	Cold Water Meters – Turbine Type for Customer Service
8. <u>C702-9201</u>	Cold Water Meters – Compound Type
9. <u>C704-9202</u>	Cold Water Meters – Propeller Type for Main Line Applications
10. <u>C706-96(R.05)</u>	Cold Water Meters, Direct-Reading, Remote-Registration Systems for
11. <u>C707-82(R92)05</u>	Cold Water Meters, Encoder-Type, Remote-Registration Systems for
12. <u>C708-9605</u>	Cold Water Meters – Multi-Jet Type
13. <u>C710-952002</u>	Cold Water Meters, Displacement Type – Plastic Main Case (w/1991 Addendum)
14. <u>C900-892007</u>	<del>American Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution (w/1992 Addendum)</del> <u>Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 4-inch to 12-inch (100mm Through 300mm) for Water Transmission and Distribution.</u>
15. <u>C901-02</u>	<u>Polyethylene (PE) Pressure Pipe and Tubing, ½ in (13mm) Through 3 in (76mm) for Water Service</u>
15. 16. <u>C906-9007</u>	Polyethylene Pressure Pipe and Fittings, 4 in. through 63 in., for Water Distribution

Table 81.20-7e

CAN/CSA  
**Canadian Standards Association**  
**178 Rexdale Boulevard**  
**Rexdale (Toronto), Ontario, Canada**  
**M9W 1R3**  
**Phone: 800-463-6727**  
**Web page: [www.csa.ca](http://www.csa.ca)**

Standard Reference Number	Title
1. <u>B64-94.1.1-07</u>	<u>Atmospheric Vacuum Breakers</u>
2. <u>B64.1.2-07</u>	<u>Pressure Vacuum Breakers</u>
3. <u>B64.1.3-07</u>	<u>Spill Resistant Vacuum Breakers</u>
4. <u>B64.2-07</u>	<u>Hose Connection Vacuum Breakers</u>
5. <u>B64.2.2-07</u>	<u>Hose Connection Vacuum Breakers with Automatic Draining Feature</u>
6. <u>B64.3-07</u>	<u>Dual Check Valve Backflow Preventers with Atmospheric Port</u>
7. <u>B64.3.1-07</u>	<u>Dual Check Valve Backflow Preventers with Atmospheric Port for Carbonators</u>
8. <u>B64.4-07</u>	<u>Reduced Pressure Principle Backflow Preventers</u>
9. <u>B64.4.1-07</u>	<u>Reduced Pressure Principle Backflow Preventers for Fire Protection Systems</u>
10. <u>B64.5-07</u>	<u>Double Check Valve Backflow Preventers</u>
11. <u>B64.5.1-07</u>	<u>Double Check Valve Backflow Preventers for Fire Protection Systems</u>
12. <u>B64.7-07</u>	<u>Laboratory Faucet Vacuum Breakers</u>
13. <u>CSA B125.1-05</u>	<u>Plumbing Supply Fittings</u>
<del>2.</del> <u>14. B125-93.3-05</u>	<u>Plumbing Fittings</u>
14e. <u>B125.3-05</u>	<u>Plumbing Fittings – Update No. 1 November 2006</u>
14m. <u>B125.3-05</u>	<u>Plumbing Fittings – Update No. 2 November 2007</u>
<del>3.</del> <u>15. B137.9-98</u>	<u>Polyethylene / Aluminum / Polyethylene Composite Pressure Pipe Systems</u>
4. <u>16. B137.10-98</u>	<u>Crosslinked Polyethylene /Aluminum / Crosslinked Polyethylene Composite Pressure Pipe Systems</u>
5. <u>17. B181.1-9606</u>	<u>Acrylonitrile-butadiene-styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings</u>
6. <u>19. B181.2-9606</u>	<u>Polyvinylchloride (PVC) and chlorinated polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings</u>

**Table 81.20-8**

**CISPI**

**Cast Iron Soil Pipe Institute**  
**5959 Shallowford Road, Suite 419**  
**Chattanooga, Tennessee 37421**  
**Phone: 423-892-0137**  
**Web page: www.cispi.org**

<b>Standard Reference Number</b>	<b>Title</b>
1. <u>301-972005</u>	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Standard Specification for
2. <u>310-9704</u>	Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications, Specification for

**Table 81.20-9**

**FMRC**

**Factory Mutual Research Corp.**  
**1151 Boston-Providence Turnpike**  
**Norwood, Massachusetts 02062**  
**Phone: 800-320-6808**  
**Web page: www.fmglobal.com**

<b>Standard Reference Number</b>	<b>Title</b>
1680	Couplings used in Hubless Cast Iron Systems for Drain, Waste or Vent, Sewer, Rainwater or Storm Drain Systems Above and Below Ground, Industrial/Commercial and Residential, January 1989

SECTION 25. Table 81.20-10 is repealed.

SECTION 26. Table 81.20-10m is renumbered Table 81.20-10 and amended to read:

**Table 81.20-10**

<b>NFPA</b>	<b>National Fire Protection Association</b> 11 Tracy Drive Avon, MA 02322-9908 <u>Phone: 617-770-3000</u> <u>Web page: www.nfpa.org</u>
<b>Standard Reference Number</b>	<b>Title</b>
1. <u>NFPA 13D-20022007</u>	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, <u>Standard for the</u>
2. <u>NFPA 24-20022007</u>	<u>Standard for the</u> Installation of Private Fire Service Mains and Their Appurtenances, <u>Standard for the</u>

SECTION 27. Tables 81.20-11 to 81.20-13 are amended to read:

**Table 81.20-11**

<b>NSF</b>	<b>NSF International</b> 789 Dixboro Road P.O. Box 130140 Ann Arbor, Michigan 48113-0140 <u>Phone: (800) 673-6275</u> <u>Web page: www.nsf.org</u>
<b>Standard Reference Number</b>	<b>Title</b>
1. <u>Standard 14-992007</u>	<del>Plastic Piping Compounds and Related Materials</del> <u>Plastics Piping System Components and Related Materials</u>
2. <u>Standard 40-992005</u>	Residential Wastewater Treatment Systems
3. <u>Standard 41-982005</u>	<del>Non-Liquid</del> Non-liquid Saturated Treatment Systems
3m. <u>Standard 41-2005</u> <u>Addendum 1</u>	<u>Non-liquid Saturated Treatment Systems</u>
4. <u>Standard 44-982004</u>	Residential Cation Exchange Water Softeners
5. <u>Standard 51-19972007</u>	Food Equipment Materials
6. <u>Standard 61-20012007</u>	Drinking Water System Components Health Effects

**Table 81.20-12**

<b>STI</b>	<b>Steel Tank Institute 570 Oakwood Road Lake Zurich, Illinois 60047 Phone: 617-770-3000 Web page: www.steeltank.com</b>
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Standard Reference Number	Title
STI-P3	External Corrosion Protection of Underground Steel Storage Tanks, Specifications and Manual for, 1996 edition

**Table 81.20-13**

<b>UL</b>	<b>Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, Illinois 60062 Phone: 847-272-8800 Web page: www.ul.com</b>
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Standard Reference Number	Title
1. Standard 58-861996	Steel Underground Tanks for Flammable and Combustible Liquids - Ninth Edition
2. Standard 1746-892007	External Corrosion Protection Systems for Steel Underground Storage Tanks - Third Edition

SECTION 28. Comm 82.20 (1) (c) (intro.), (4) (b) 2. and (13) (e) are amended to read:

**Comm 82.20 (1) (c) *Cross connection control assembly registration.*** The initial installation of each reduced pressure principle backflow preventer, reduced pressure fire protection principle backflow preventer, ~~back siphonage backflow spill resistant vacuum breaker~~, ~~reduced pressure detector backflow preventer~~, reduced pressure detector fire protection backflow prevention assembly or pressure vacuum breaker, shall meet all of the following:

(4) (b) 2. Plans proposing the installation, creation or extension of ~~private sanitary building sewer~~ or a sanitary private interceptor main sewer which is to discharge to a municipal treatment facility shall:

(13) (e) Upon permanent removal or replacement of any reduced pressure principle backflow preventer, reduced pressure fire protection principle backflow preventer, ~~back siphonage backflow spill resistant vacuum breaker~~, ~~reduced pressure detector backflow preventer~~, reduced pressure detector fire protection backflow prevention assembly, or pressure vacuum breaker, the owner shall notify the department in writing using a format acceptable to the department.

SECTION 29. Comm 82.20 Table 82.20-1 line 7 and Table 82.20-2 line 6. and footnote a are amended to read:

**Table 82.20-1  
(Partial Table)**

**SUBMITTALS TO DEPARTMENT**

**Type of Plumbing Installation**

7. For installation in health care and related facilities, ~~back siphonage~~ backflow spill resistant vacuum breaker.

**Table 82.20-2  
(Partial Table)**

**SUBMITTALS TO DEPARTMENT OR AGENT MUNICIPALITY**

**Type of Plumbing Installation**

6. Water supply systems and drain systems to be installed for ~~mobile home parks~~ manufactured home communities and campgrounds.<sup>c</sup>

<sup>a</sup> Water heaters, floor drains, storm inlets, roof drains and hose bibs are to be counted as plumbing fixtures. For a phased project such as a mall or office complex fixture count includes all proposed fixtures connected to a common building sanitary sewer, a common water service and all storm sewers serving the building.

SECTION 30. Comm 82.21, title is amended to read:

**Comm 82.21 Testing and maintenance inspection.**

SECTION 31. Comm 82.21 (1) (intro.) is amended to read:

**Comm 82.21 (1) TESTING OF PLUMBING SYSTEMS.** Except as provided in par. (a), all new plumbing and all parts of existing systems which have been altered, extended or repaired shall be tested as specified in ~~(d)~~ sub. (2) to disclose leaks and defects before the plumbing is put into operation.

SECTION 32. Comm 82.21 (b) 1. b. is repealed and recreated to read:

**Comm 82.21 (1) (b) 1. b.** Testing may be done without the presence of the inspector, if the master plumber responsible for the installation obtains the inspector's permission to provide a written test report in a format acceptable to the inspector.

**Note:** See the appendix for a sample affidavit form.

SECTION 33. Comm 82.21 (2) is repealed.

SECTION 34. Comm 82.21 (1) (d) is renumbered 82.21 (2).

SECTION 35. Comm 82.21 (3) is renumbered 82.22 (9).

SECTION 36. Comm 82.21 Table 82.21-1 is repealed.

SECTION 37. Comm 82.22 is created to read:

**Comm 82.22 Maintenance and repairs. (1) GENERAL.** (a) All plumbing systems, both existing and new, and all parts thereof, shall be maintained in a safe and sanitary condition.

(b) All devices or safeguards that are required by this chapter shall be maintained in good working order.

(c) The owner shall maintain plumbing systems.

**(2) EXISTING SYSTEMS.** (a) Except as specified in par (b), any existing plumbing system may remain and maintenance continue if the maintenance is in accordance with the original system design and any of the following:

1. The plumbing system was installed in accordance with the code in effect at the time of installation.

2. The plumbing system conforms to the present code.

(b) When a hazard to life, health or property exists or is created by an existing system, that system shall be repaired or replaced.

**Note:** A cross connection is considered a health hazard by the department.

(c) Existing sewers and water services may only be connected to new buildings when determined by examination and test to conform to the requirements of this chapter.

**(3) FIXTURES REPLACED.** 1. When a fixture, appliance or section of pipe is replaced, the replacement fixture, appliance or pipe shall conform to the provisions of this chapter.

2. Where the existing drain or vent piping does not conform to the current provisions of this chapter, the department may require the new fixtures to be provided with deep seal traps.

**(4) PLUMBING REUSED.** (a) 1. Except as provided in par. (b) plumbing materials, fixtures or devices removed and found to be in good condition may be reused if such reuse is approved by the department or a local plumbing inspector.

2. The owner of the building or facility in which the reused materials are to be installed shall provide written consent.

(b) Water supply piping materials may only be reused when the intended use involves an equal or higher degree of hazard than the previous use as specified in Table 82.70-1.

(5) REPAIRS. All repairs to fixtures, devices or piping shall be completed in conformance with the provisions of this chapter, except repair clamps or bands may be used for emergency situations.

(6) DEMOLITION OF STRUCTURES. When a structure is demolished or removed, all sanitary sewer, storm sewer and water supply connections shall be sealed and plugged in a safe manner.

(7) DEAD ENDS. If a dead end is created in the removal of any part of a drain system, all openings in the drain system shall be properly sealed.

(8) TESTING OF CROSS CONNECTION CONTROL ASSEMBLIES.(a) The performance testing requirements of this subsection apply to all cross connection control assemblies regardless of date of installation.

Note: For further clarification see Table 82.22-1.

(b) 1. A performance test shall be conducted for the assemblies listed in Table 82.22-1 at all of the following intervals:

- a. At the time of installation.
- b. Immediately after repairs or alterations to the assembly have occurred.
- c. At least annually.

2. The performance test shall be conducted using the appropriate test standard for the assembly as specified in Table 82.22-1.

3. A cross connection assembly performance test shall be conducted by an individual registered by the department in accordance with s. Comm 5.99.

4. a. The results of the cross connection control assembly performance test shall be submitted as specified in Table 82.22-1 in a format prescribed by the department.

b. As specified in Table 82.22-1, the results of the cross connection assembly performance test shall be submitted to the department and purveyor within 60 days of completion of the test.

5. The results of performance tests for the assemblies listed in Table 82.22-1 shall be made available upon request to the department, its agent or the local government unit.