

CHAPTER 5

REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 103.1.

ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

Standard reference number	Title	Referenced in code section number
Z21.10.1/CSA 4.1—2017	Gas Water Heaters, Volume I, Storage Water Heaters with Input Ratings of 75,000 Btu per Hour or Less	Table 301.3.2
Z21.10.3/CSA 4.3—2017	Gas Water Heaters, Volume III, Storage Water Heaters with Input Ratings above 75,000 Btu per Hour, Circulating and Instantaneous	Table 301.3.2
ANSI Z21.22/CSA 4.4—1999 (R2003)	Relief Valves for Hot Water Supply Systems	301.3.1.3, 301.4.1.3, 301.4.1.5

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990

Standard reference number	Title	Referenced in code section number
BPVC—2019	ASME Boiler and Pressure Vessel Code -07 Edition	301.3.2
ASME A112.18.6/ CSA B125.6—2021	Flexible Water Connectors.	Table 301.9.3
B16.3—2011	Malleable Iron Threaded Fittings, Classes 150 & 300.	301.9.4.1, Table 301.9.4.2
B16.4—2011	Gray Iron Threaded Fittings Classes 125 and 250.	Table 301.9.4.1
B16.5—2013	Pipe Flanges and Flanged Fittings NPS 1/2 through NPS 24	Table 301.9.4.2
B16.9—2012	Factory Made Wrought Steel Butt welding Fittings	Table 301.9.4.1
B16.11—2011	Forged Fittings, Socket-welding and Threaded.	301.9.4.1, Table 301.9.4.2
B16.12—2009	Cast Iron Threaded Drainage Fittings	Table 301.9.4.1
B16.15—2011	Cast Bronze Threaded Fittings.	301.9.4.1, Table 301.9.4.2
B16.18—2012	Cast Copper Alloy Solder Joint Pressure Fittings	301.9.4.1, Table 301.9.4.2
B16.22—2013	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	301.9.4.1, Table 301.9.4.2
B16.23—2011	Cast Copper Alloy Solder Joint Drainage Fittings: DWV.	301.9.4.1, Table 301.9.4.2
B16.24—2011	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Class 150, 300, 400, 600, 900, 1500 and 2500	Table 301.9.4.2
B16.26—2013	Cast Copper Alloy Fittings for Flared Copper Tubes	301.9.4.1, Table 301.9.4.2
B16.28—1994	Wrought Steel Butt welding Short Radius Elbows and Returns.	301.9.4.1, Table 301.9.4.2
B16.29—2012	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings (DWV)	301.9.4.1, Table 301.9.4.2

REFERENCED STANDARDS

ASSE

ASSE International
18927 Hickory Creek Drive, Suite 220
Mokena, IL 98157

Standard reference number	Title	Referenced in code section number
1017—2009	Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems	301.8
1061—10	Performance Requirements for Removable and Non-Removable Push-Fit Fittings	Table 301.9.4.1

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
A53—2018	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	Table 301.9.2, Table 301.9.3
A106—2018	Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service	Table 301.9.3
A126—04 (R2014)	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings	Table 301.9.4.2
A254—2010 (2018)	Specification for Copper-Brazed Steel Tubing	Table 301.9.3
A312—2017	Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
A420—14	Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service	Table 301.9.4.2
A778—2016	Specification for Welded, Unannealed Austenitic Stainless Steel Tubular Products	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
B42—2015a	Specification for Seamless Copper Pipe, Standard Sizes	Table 301.9.2, Table 301.9.3
B43—2015	Specification for Seamless Red Brass Pipe, Standard Sizes	Table 301.9.2, Table 301.9.3
B75—2011	Specification for Seamless Copper Tube	Table 301.9.2, Table 301.9.3
B88—2016	Specification for Seamless Copper Water Tube	Table 301.9.2, Table 301.9.3
B135—2017	Specification for Seamless Brass Tube	Table 301.9.3
B251—2017	Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube	Table 301.9.2, Table 301.9.3
B302—2017	Specification for Threadless Copper Pipe, Standard Sizes	Table 301.9.2, Table 301.9.3
B447—2012	Specification for Welded Copper Tube	Table 301.9.2
D635—2018	Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position	303.1.3
D1527—1999 (2005)	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80	Table 301.9.3
D1693—2015	Test Method for Environmental Stress-Cracking of Ethylene Plastics	Table 301.9.3
D1785—2015E1	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120	Table 301.9.2, Table 301.9.3
D1929—2020	Standard Test Method for Determining Ignition Temperature of Plastics	303.1.3
D2282—1999 (2005)	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (SDR-PR)	Table 301.9.3
D2241—2015	Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)	Table 301.9.2, Table 301.9.3
D2464—2015	Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	Table 301.9.4.1
D2466—2015	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	Table 301.9.4.1, Table 301.9.4.2
D2467—2015	Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	Table 301.9.4.1, Table 301.9.4.2
D2468—1996a	Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe Fittings, Schedule 40	Table 301.9.4.1, Table 301.9.4.2
D2513—2014	Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings	Table 301.9.3
D2609—2015	Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe	Table 301.9.4.1

ASTM—continued

D2683—2014	Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing	Table 301.9.3, Table 301.9.4.1
D2837—2013E1	Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products	Table 301.9.3
D2846—2017BE1	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
D3035—2015	Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter	Table 301.9.3
D3261—2012	Specification for Butt Heat Fusion Polyethylene (PE) Plastic fittings for Polyethylene (PE) Plastic Pipe and Tubing	Table 301.9.4.1
D3350—2012e1	Specification for Polyethylene Plastics Pipe and Fittings Materials	Table 301.9.3
F437—2015	Specifications for Threaded Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe fittings, Schedule 80	Table 301.9.4.1
F438—2015	Specification for Socket-type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40	Table 301.9.4.1, Table 301.9.4.2
F439—2013	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	Table 301.9.4.1, Table 301.9.2
F441—2015	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	Table 301.9.3.1, Table 301.9.3.2
F442—2015	Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)	Table 301.9.3.1, Table 301.9.3.2
F876—2018A	Specification for Crosslinked Polyethylene (PEX) Tubing	Table 301.9.3.1, Table 301.9.3.2
F877—2018A	Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems	Table 301.9.3, Table 301.9.4.1, Table 301.9.4.2
F986—2014	Standard Specification for Suction Strainer Boxes	Table 301.9.2
F1055—2016A	Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing	Table 301.9.3, Table 301.9.4.1
F1281—2017	Specification for Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) Pressure Pipe	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
F1282—2017	Specification for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure Pipe	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
F1807—2015	Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	Table 301.9.4.1, Table 301.9.4.2
F1960—2015	Specification for Cold Expansion Fittings with PEX Reinforcing Rings for use with Cross-linked Polyethylene (PEX) Tubing	Table 301.9.4.1
F1986—2001(2011)	Standard Specification for Multilayer Pipe Type 2, Compression Fittings, and Compression Joints for Hot and Cold Drinking-Water Systems	Table 301.9.4.1
F1974—2009	Specification for Metal Insert Fittings for Polyethylene/Aluminum/Polyethylene and Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene Composite Pressure Pipe	Table 301.9.4.1, Table 301.9.4.2
F2080—2012	Specifications for Cold-expansion Fittings with Metal Compression-sleeves for Cross-linked Polyethylene (PEX) Pipe	Table 301.9.4.1
F2098—2015	Standard specification for Stainless Steel Clamps for Securing SDR9 Cross-linked Polyethylene (PEX) Tubing to Metal and Plastic Insert Fittings	Table 301.9.4.1
F2159—2014	Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing	Table 301.9.4.1, Table 301.9.4.2
F2262—2009	Specification for Multilayer Pipe Type 2, Compression Fittings, and Compression Joints for Hot and Cold Drinking-Water Systems	Table 301.9.2
F2389—2017A	Specification for Pressure-rated Polypropylene (PP) Piping Systems	Table 301.9.2, Table 301.9.3, Table 301.9.4.1, Table 301.9.4.2
F2623—2014	Specification for Polyethylene of Raised Temperature (PE-RT) SDR 9 Tubing	Table 301.9.3
F2735—2009	Standard Specification for Plastic Insert Fittings for SDR9 Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing	Table 301.9.4.1, Table 301.9.4.2
F2769—2018	Polyethylene of Raised Temperature (PE-RT) Plastic Hot and Cold-Water Tubing and Distribution Systems	Table 301.9.2, Table 301.9.3

REFERENCED STANDARDS



American Water Works Association
6666 West Quincy Avenue
Denver, CO 80235

Standard reference number	Title	Referenced in code section number
C110/A21.10—2012	Standard for Ductile Iron & Gray Iron Fittings	Table 301.9.4.1, Table 301.9.4.2
C115/A21.15—2017	Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Threaded Flanges	Table 301.9.2, Table 301.9.3
C151/A21.51—2015	Ductile-Iron Pipe, Centrifugally Cast.	Table 301.9.2, Table 301.9.3
C153/A21.53-2011	Standard for Ductile-Iron Compact Fittings for Water Service.	Table 301.9.4.1, Table 301.9.4.2



Canadian Standards Association
8501 East Pleasant Valley
Cleveland, OH 44131-5516

Standard reference number	Title	Referenced in code section number
B137.1—2017	Polyethylene (PE) Pipe, Tubing and Fittings for Cold Water Pressure Services.	301.9.2, Table 301.9.4
B137.2—2017	Polyvinylchloride (PVC) Injection-moulded Gasketed Fittings for Pressure Applications.	Table 301.9.4.1
B137.3—2017	Rigid Poly (Vinyl Chloride) (PVC) Pipe for Pressure Applications	Table 301.9.4.1
B137.5—2017	Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications.	Table 301.9.2, Table 301.9.4.1
B137.6—2017	Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing, and Fittings for Hot- and Cold-Water Distribution Systems	Table 301.9.2, Table 301.9.4.1
B137.9—2017	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems	Table 301.9.3, Table 301.9.4.1
B137.10—2017	Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene (PEX-AL-PEX) composite Pressure-Pipe Systems	Table 301.9.2, Table 301.9.3, Table 301.9.4.1
CSA B137.11—2017	Polypropylene (PP-R) Pipe and Fittings for Pressure Applications.	Table 301.9.2, Table 301.9.4.1
CSA C22.1—2018	Canadian Electrical Code, Part I	303.2.3
CSA UL60730-1—2015	Automatic electrical controls – Part 1: General requirements	Table 303.2.3



International Code Council, Inc.
500 New Jersey Ave, NW
6th Floor
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
ICC 901/ SRCC Standard 100—2020	Test Methods and Minimum Standards for Certifying Solar Collectors	301.2.1, 301.4.2, 301.4.3.1
IBC—21	International Building Code®.	305.1.1, 305.1.5, 403.1.1.1
IFC—21	International Fire Code®.	303.1.5.2, 303.1.5.3, 303.1.5.4, 304.1.3, 403.1.1.1
IFGC—21	International Fuel Gas Code.	301.3.1.4
IMC—21	International Mechanical Code	301.3.1, 301.3.1.4, 301.9, 302.1.6, 304.1.5, 305.1.9, 305.1.13, 403.1.1.1
IPC—21	International Plumbing Code	301.3.1, 301.8, 302.1.6, 304.1.5, 305.1.7.2, 305.1.9, 305.1.13, 403.1.1.1

IEC

International Electrotechnical Commission
3, rue de Varembe, PO Box 131, CH-1211
Geneva 20, Switzerland

Standard reference number	Title	Referenced in code section number
IEC 61215—2016	Terrestrial photovoltaic (PV) modules - Design qualification and type approval	Table 303.2.3
IEC 61646—2008	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	Table 303.2.3

ISO

International Organization for Standardization
ISO Central Secretariat
1 ch, de la Voie-Creuse, Case Postale 56
CH-1211 Geneva 20, Switzerland

Standard reference number	Title	Referenced in code section number
10380—12	Pipework—Corrugated Metal Hoses and Hose Assemblies Code of Federal Regulations, Title 21, Food and Drugs, Chapter 1, Food and Drug Administration, Parts 174—186. Federal Hazardous Substances Act, Title 15	Table 301.9.3

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
70—2020	National Electrical Code	301.3.1.4, 301.7, 303.2, 303.2.1, 303.2.2, 303.2.2.1, 303.2.3, 403.1.1.1

NSF

NSF International
789 N. Dixboro
Ann Arbor, MI 48105

Standard reference number	Title	Referenced in code section number
NSF 61—2013	Drinking Water System Components—Health Effects	303.1.4
NSF 372—2011	Drinking Water System Components—Lead Content	303.1.4

REFERENCED STANDARDS



UL LLC
 333 Pfingsten Road
 Northbrook, IL 60062-2096

Standard reference number	Title	Referenced in code section number
174—2012	Household Electric Storage Tank Water Heaters	Table 301.3.2
1453—2016	Electric Booster and Commercial Storage Tank Water Heaters.	Table 301.3.2
499—2014	Electric Heating Appliances—with revisions through February 2017	Table 301.3.2
732—2018	Oil-Fired Storage Tank Water Heaters	Table 301.3.2
778—2014	Standard for Motor-Operated Water Pumps	Table 303.2.3
873—2012	Standard for Safety Temperature-Indicating and Regulating Equipment.	Table 303.2.3
1030—2015	Standard for Sheathed Heating Elements	Table 303.2.3
1453—2016	Electric Booster and Commercial Storage Tank Water Heaters.	Table 301.3.2
1703—2002	Standard for Flat-Plate Photovoltaic Modules and Panels—with Revisions through November 2014.	303.2.2.2, Table 303.2.3
1741—2010	Standard for Inverters, Converters, Controllers and Interconnection System Equipment Use with Distributed Energy Resources	Table 303.2.3
2523—2019	Oil-Fired Storage Tank Water Heaters—with revisions through March 2018.	Table 301.3.2
3703—2015	Standard for Solar Trackers	Table 303.2.3
60730-1—2009	Automatic Electrical Controls for Household and Similar Use - Part 1: General Requirements . . .	Table 303.2.3