BC Plumbing Code
Instruction Sheet/Checklist

VERSION 1.03

This package contains amendments to the *2012 British Columbia Plumbing Code* up to Revision 8, effective December 11, 2015. Remove the pages listed in the second column and replace them with the pages listed in the third column.

Division	Remove Pages	Insert Pages
Division B – Part 1	39-44	39-44
Division B – Part 2	55-56	55-56.1
	59-62	59-62
	101-106	101-106.1
Division B – Appendix A	119-120	119-120
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Part 1
General

Section 1.1. General

1.1.1. Application

1.1.1.1. Application

1) This Part applies to all *plumbing systems* covered in this Code. (See Article 1.1.1.1. of Division A.)

1.1.2. Objectives and Functional Statements

1.1.2.1. Attribution to Acceptable Solutions

1) For the purposes of compliance with this Code as required in Clause 1.2.1.1.(1)(b) of Division A, the objectives and functional statements attributed to the acceptable solutions in Division B shall be the objectives and functional statements identified in Section 2.8. (See Appendix A.)

Section 1.2. Terms and Abbreviations

1.2.1. Definitions of Words and Phrases

1.2.1.1. Non-defined Terms

1) Words and phrases used in Division B that are not included in the list of definitions in Article 1.4.1.2. of Division A shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.

2) Where objectives and functional statements are referred to in Division B, they shall be the objectives and functional statements described in Parts 2 and 3 of Division A.

3) Where acceptable solutions are referred to in Division B, they shall be the provisions stated in Part 2.

1.2.1.2. Defined Terms

1) The words and terms in italics in Division B shall have the meanings assigned to them in Article 1.4.1.2. of Division A.

1.2.2. Symbols and Other Abbreviations

1.2.2.1. Symbols and Other Abbreviations

1) The symbols and other abbreviations in Division B shall have the meanings assigned to them in Article 1.4.2.1. of Division A and Article 1.3.2.1.

Section 1.3. Referenced Documents and Organizations

1.3.1. Referenced Documents

1.3.1.1. Effective Date

1) Unless otherwise specified herein, the documents referenced in this Code shall include all amendments, revisions, reaffirmations, reapprovals, addenda and supplements effective to 30 September 2009.

1.3.1.2. Applicable Editions

1) Where documents are referenced in this Code, they shall be the editions designated in Table 1.3.1.2. (See Appendix A.)

Table 1.3.1.2.
Documents Referenced in <Book II (Plumbing Systems) of the British Columbia Building Code 2012>
Forming part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<ANSI/AWWA	C228-08	Stainless-Steel Pipe Flanges for Water Service — Sizes 2 In. Through 72 In. (50 mm Through 1,800 mm)	2.2.6.12.(1)>
ANSI/CSA	ANSI Z21.22-1999/ CSA 4.4-M99 <(including Addenda 1 and 2)>	Relief Valves for Hot Water Supply Systems	2.2.10.11.(1)
<ASME/CSA	ASME A112.18.1-2012/ CAN/CSA-B125.1-12	Plumbing Supply Fittings	2.2.10.6.(1) 2.2.10.7.(1)>
<ASME/CSA	ASME A112.18.2-2011/ CAN/CSA-B125.2-11	Plumbing Waste Fittings	2.2.3.3.(1) 2.2.10.6.(2)>
<ASME/CSA>	<ASME A112.19.1-08/ CSA B45.2-08>	<Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures>	<2.2.2.2.(3)> <2.2.2.2.(4)>
<ASME/CSA>	<ASME A112.19.2-08/ CSA B45.1-08>	<Ceramic Plumbing Fixtures>	<2.2.2.2.(2)>
<ASME/CSA>	<ASME A112.19.3-08/ CSA B45.4-08>	<Stainless Steel Plumbing Fixtures>	<2.2.2.2.(5)>
<ASME/CSA	ASME A112.19.7-2012/CSA B45.10-12	Hydromassage Bathtub Systems	2.2.2.2.(7)>
<ASME	B16.3-2011	Malleable Iron Threaded Fittings, Classes 150 and 300	2.2.6.6.(1)>
<ASME	B16.4-2011	Gray Iron Threaded Fittings, Classes 125 and 250	2.2.6.5.(1)>
<ASME	B16.5-2009	Pipe Flanges and Flanged Fittings: NPS ½ Through NPS 24 Metric/Inch Standard	2.2.6.12.(1)>
<ASME	B16.9-2007	Factory-Made Wrought Buttwelding Fittings	2.2.6.11.(1) 2.2.6.14.(1)>
<ASME	B16.12-2009	Cast Iron Threaded Drainage Fittings	2.2.6.3.(1)>
<ASME	B16.15-2011	Cast Copper Alloy Threaded Fittings: Classes 125 and 250	2.2.7.3.(1)>
<ASME	B16.18-2012	Cast Copper Alloy Solder-Joint Pressure Fittings	2.2.7.6.(1) 2.2.7.6.(2)>
ASME	B16.22-2001	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	2.2.7.6.(1)
<ASME	B16.23-2011	Cast Copper Alloy Solder Joint Drainage Fittings: DWV	2.2.7.5.(1)>
<ASME	B16.24-2011	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500	2.2.7.2.(1)>
<ASME	B16.26-2011	Cast Copper Alloy Fittings for Flared Copper Tubes	2.2.7.7.(1) 2.2.7.7.(2)>
ASME	B16.29-<2007>	Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings – DWV	2.2.7.5.(1)
<ASME	B31.9-2008	Building Services Piping	2.3.2.8.(1)>
<ASME	B36.19M-2004	Stainless Steel Pipe	2.2.6.10.(1)>
ASSE	<ANSI/ASSE> 1010-2004	Water Hammer Arresters	2.2.10.15.(1)

Table 1.3.1.2.
Documents Referenced in <Book II (Plumbing Systems) of the British Columbia Building Code 2012>
Forming part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<ASSE	1051-2009G	Individual and Branch Type Air Admittance Valves (AAVs) for Sanitary Drainage Systems	2.2.10.16.(1)>
<ASTM	A 53/A 53M-10	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	2.2.6.7.(4)>
<ASTM	A 182/A 182M-06	Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service	2.2.6.12.(1) 2.2.6.13.(1)>
<ASTM	A 269-10	Seamless and Welded Austenitic Stainless Steel Tubing for General Service	2.2.6.14.(1)>
<ASTM	A 312/A 312M-11	Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	2.2.6.10.(1)>
<ASTM	A 351/A 351M-10	Castings, Austenitic, for Pressure-Containing Parts	2.2.6.13.(1)>
<ASTM	A 403/A 403M-11	Wrought Austenitic Stainless Steel Piping Fittings	2.2.6.11.(1)>
ASTM	B 32-<08>	Solder Metal	2.2.9.2.(1)
<ASTM	B 42-10	Seamless Copper Pipe, Standard Sizes	2.2.7.1.(1)>
<ASTM	B 43-09	Seamless Red Brass Pipe, Standard Sizes	2.2.7.1.(2)>
<ASTM	B 88-09	Seamless Copper Water Tube	2.2.7.4.(1)>
<ASTM	B 306-09	Copper Drainage Tube (DWV)	2.2.7.4.(1)>
<ASTM	B 813-10	Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube	2.2.9.2.(3)>
ASTM	B 828-02	Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings	2.3.2.4.(1)
ASTM	C 1053-00	Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications	2.2.8.1.(1)
ASTM	D 2466-<06>	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	2.2.5.8.(2)
ASTM	D 2467-<06>	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	2.2.5.8.(2)
<ASTM	D 3261-10a	Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing	2.2.5.5.(3)>
ASTM	F 628-<08>	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe With a Cellular Core	2.2.5.10.(1) 2.2.5.12.(1)
<ASTM	F 714-10	Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter	2.2.5.6.(1)>
<AWS	ANSI/AWS A5.8:2011	Specification for Filler Metals for Brazing and Braze Welding	2.2.9.2.(4)>
<AWWA>	<ANSI/AWWA C104/A21.4-08>	<Cement-Mortar Lining for Ductile-Iron Pipe and Fittings>	<2.2.6.4.(2)>
<AWWA	ANSI/AWWA C110/A21.10-12	Ductile-Iron and Gray-Iron Fittings	2.2.6.4.(3)>
<AWWA>	<C111/A21.11-2007>	<Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings>	<2.2.6.4.(4)>

Table 1.3.1.2.
Documents Referenced in <Book II (Plumbing Systems) of the British Columbia Building Code 2012>
Forming part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<AWWA	ANSI/AWWA C151/A21.51-09	Ductile-Iron Pipe, Centrifugally Cast, for Water	2.2.6.4.(1)>
<BC>		<Book I (General) of the British Columbia Building Code 2012>	<1.1.1.1.(1)[3]> <1.1.1.1.(3)[3]> <1.4.1.2.(1)[3]> <2.1.3.1.(1)> <2.2.3.1.(1)[4]> <2.2.5.12.(2)> <2.2.5.12.(3)> <2.2.6.7.(3)> <2.4.3.1.(1)> <2.4.10.4.(1)>
<BC>		<British Columbia Fire Code 2012>	<2.5.5.2.>
<BC>	<R.S.B.C. 1996, c. 323>	<Local Government Act >	<2.2.1.1.(1)[4]>
<BC>	<R.S.B.C. 1996, c. 293>	<Mines Act>	<1.4.1.2.(1)[3]>
CGSB	CAN/CGSB-34.1-94	Asbestos-Cement Pressure Pipe	2.2.5.2.(1)
CGSB	CAN/CGSB-34.9-94	Asbestos-Cement Sewer Pipe	2.2.5.1.(2)
CGSB	CAN/CGSB-34.22-94	Asbestos-Cement Drain Pipe	<2.2.5.1.(1)>
CGSB	CAN/CGSB-34.23-94	Asbestos-Cement House Connection Sewer Pipe	2.2.5.1.(2)
CSA	A60.1-M1976	Vitrified Clay Pipe	2.2.5.4.(1)
CSA	A60.3-M1976	Vitrified Clay Pipe Joints	2.2.5.4.(2)
<CSA	CAN/CSA-A257.1-09	Non-Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings	2.2.5.3.(1)>
<CSA	CAN/CSA-A257.2-09	Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings	2.2.5.3.(1)>
<CSA	CAN/CSA-A257.3-09	Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections, and Fittings Using Rubber Gaskets	2.2.5.3.(2)>
<CSA	CAN/CSA-A257.4-09	Precast Reinforced Circular Concrete Manhole Sections, Catch Basins, and Fittings	2.2.5.3.(5)>
CSA	CAN/CSA-B45 Series-02	Plumbing Fixtures	2.2.2.2.(1)
<CSA	CSA B45.5-11/IAPMO Z124-2011	Plastic Plumbing Fixtures	2.2.2.2.(6)>
CSA	CAN/CSA-B45.9-02	Macerating Systems and Related Components	2.2.2.2.(8)
<CSA	B64.0-11	Definitions, General Requirements, and Test Methods for Vacuum Breakers and Backflow Preventers	2.2.10.10.(1)>
<CSA	B64.1.1-11	Atmospheric Vacuum Breakers (AVB)	2.2.10.10.(1)>
<CSA	B64.1.2-11	Pressure Vacuum Breakers (PVB)	2.2.10.10.(1)>
<CSA	B64.2-11	Hose Connection Vacuum Breakers (HCVB)	2.2.10.10.(1)>
<CSA	B64.2.1-11	Hose Connection Vacuum Breakers (HCVB) with Manual Draining Feature	2.2.10.10.(1)>
<CSA	B64.2.2-11	Hose Connection Vacuum Breakers (HCVB) with Automatic Draining Feature	2.2.10.10.(1)>

Table 1.3.1.2.
Documents Referenced in <Book II (Plumbing Systems) of the British Columbia Building Code 2012>
Forming part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<CSA	B64.3-11	Dual Check Valve Backflow Preventers with Atmospheric Port (DCAP)	2.2.10.10.(1)>
<CSA	B64.4-11	Reduced Pressure Principle Backflow Preventers (RP)	2.2.10.10.(1)>
<CSA	B64.4.1-11	Reduced Pressure Principle Backflow Preventers for Fire Protection Systems (RPF)	2.6.2.4.(2) 2.6.2.4.(4)>
<CSA	B64.5-11	Double Check Valve (DCVA) Backflow Preventers	2.2.10.10.(1)>
<CSA	B64.5.1-11	Double Check Valve Backflow Preventers for Fire Protection Systems (DCVAF)	2.6.2.4.(2)>
<CSA	B64.6-11	Dual Check Valve (DuC) Backflow Preventers	2.2.10.10.(1)>
<CSA	B64.6.1-11	Dual Check Valve Backflow Preventers for Fire Protection Systems (DuCF)	2.6.2.4.(2)>
<CSA	B64.7-11	Laboratory Faucet Vacuum Breakers (LFVB)	2.2.10.10.(1)>
<CSA	B64.8-11	Dual Check Valve Backflow Preventers with Intermediate Vent (DuCV)	2.2.10.10.(1)<
<CSA	B64.9-11	Single Check Valve Backflow Preventers for Fire Protection Systems (SCVAF)	2.6.2.4.(2)>
<CSA	B64.10-11	Selection and Installation of Backflow Preventers	2.6.2.1.(3)>
<CSA	B70-12	Cast Iron Soil Pipe, Fittings, and Means of Joining	2.2.6.1.(1) 2.4.6.4.(2)>
<CSA	B125.3-12	Plumbing Fittings	2.2.10.6.(1) 2.2.10.7.(2) 2.2.10.10.(2)>
CSA	<CAN/CSA->B127.1-99	Asbestos Cement Drain, Waste and Vent Pipe and Pipe Fittings	2.2.5.1.(1) 2.2.6.2.(1)
CSA	B127.2-M1977	Components for Use in Asbestos Cement Building Sewer Systems	2.2.5.1.(2) 2.2.6.2.(1)
<CSA>	<CAN/CSA-B128.1-06>	<Design and Installation of Non-Potable Water Systems>	<2.7.4.1.(1)>
<CSA	CAN/CSA-B137.1-09	Polyethylene (PE) Pipe, Tubing, and Fittings for Cold-Water Pressure Services	2.2.5.5.(1)>
<CSA	CAN/CSA-B137.2-09	Polyvinylchloride (PVC) Injection-Moulded Gasketed Fittings for Pressure Applications	2.2.5.8.(3)>
<CSA	CAN/CSA-B137.3-09	Rigid Polyvinylchloride (PVC) Pipe and Fittings for Pressure Applications	2.2.5.8.(1)>
<CSA	CAN/CSA-B137.5-09	Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications	2.2.5.7.(1)>
<CSA	CAN/CSA-B137.6-09	Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing, and Fittings for Hot- and Cold-Water Distribution Systems	2.2.5.9.(1)>
<CSA	CAN/CSA-B137.9-09	Polyethylene/Aluminum/Polyethylene (PE-AL-PE) Composite Pressure-Pipe Systems	2.2.5.13.(1)>
<CSA	CAN/CSA-B137.10-09	Crosslinked Polyethylene/Aluminum/Crosslinked Polyethylene <(PEX-AL-PEX)> Composite Pressure-Pipe Systems	2.2.5.13.(4) 2.2.5.14.(1)>

Table 1.3.1.2.
Documents Referenced in <Book II (Plumbing Systems) of the British Columbia Building Code 2012>
Forming part of Sentence 1.3.1.2.(1)

Issuing Agency	Document Number(1)	Title of Document(2)	Code Reference
<CSA	CAN/CSA-B137.11-09	Polypropylene (PP-R) Pipe and Fittings for Pressure Applications	2.2.5.15.(1)>
CSA	B158.1-1976	Cast Brass Solder Joint Drainage, Waste and Vent Fittings	2.2.10.1.(1)
<CSA	CAN/CSA-B181.1-11	Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings	2.2.5.10.(1) 2.2.5.11.(1) 2.2.5.12.(1) 2.4.6.4.(2)>
<CSA	CAN/CSA-B181.2-11	Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings	2.2.5.10.(1) 2.2.5.11.(1) 2.2.5.12.(1) 2.4.6.4.(2)>
<CSA	CAN/CSA-B181.3-11	Polyolefin and Polyvinylidene Fluoride (PVDF) Laboratory Drainage Systems	2.2.8.1.(1)>
<CSA	CAN/CSA-B182.1-11	Plastic Drain and Sewer Pipe and Pipe Fittings	2.2.5.10.(1) 2.4.6.4.(2)>
<CSA	CAN/CSA-B182.2-11	PSM Type Polyvinylchloride (PVC) Sewer Pipe and Fittings	2.2.5.10.(1)>
<CSA	CAN/CSA-B182.4-11	Profile Polyvinylchloride (PVC) Sewer Pipe and Fittings	2.2.5.10.(1)>
<CSA	CAN/CSA-B182.6-11	Profile Polyethylene (PE) Sewer Pipe and Fittings For Leak-Proof Sewer Applications	2.2.5.10.(1)>
CSA	B242-<05>	Groove- and Shoulder-Type Mechanical Pipe Couplings	2.2.10.4.(1)
CSA	B272-93	Prefabricated Self-Sealing Roof Vent Flashings	2.2.10.14.(2)
<CSA	CAN/CSA-B356-10	Water Pressure Reducing Valves for Domestic Water Supply Systems	2.2.10.12.(1)>
<CSA	CAN/CSA-B602-10	Mechanical Couplings for Drain, Waste, and Vent Pipe and Sewer Pipe	2.2.10.4.(2)>
<CSA	CAN/CSA-F379 Series-09 (excluding CAN/CSA-F379S1-11)	Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)	2.2.10.13.(1)>
<CSA	CAN/CSA-F383-08	Installation of Packaged Solar Domestic Hot Water Systems	2.6.1.8.(1)>
CSA	<CAN/CSA->G401-<071>	Corrugated Steel Pipe Products	2.2.6.8.(1)
<NFPA	13D-2010	Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes	2.6.3.1.(3)>
ULC	CAN/<ULC>-S114-<05>	Test for Determination of Non-Combustibility in Building Materials	1.4.1.2.(1)<(3)>

Notes to Table 1.3.1.2.:
(1) Some documents may have been reaffirmed or reapproved. Check with the applicable issuing agency for up-to-date information.
(2) Some titles have been abridged to omit superfluous wording.
(3) Code reference is in Division A.
(4) Code reference is in Division C.

1.3.1.3. Priority of the British Columbia Code

1) In case of conflict between the provisions of this Code and those of a referenced document, the provisions of this Code shall govern.

3) Cast-iron fittings for cast-iron or ductile-iron water pipes shall conform to ANSI/AWWA C110/A21.10, "Ductile-Iron and Gray-Iron Fittings."

4) Rubber gasket joints for cast-iron and ductile-iron pressure pipe for water shall conform to AWWA C111/A21.11, "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings."

2.2.6.5. Screwed Cast-Iron Water Fittings

1) Screwed cast-iron water fittings shall conform to ASME B16.4, "Gray Iron Threaded Fittings, Classes 125 and 250."

2) Screwed cast-iron water fittings used in a *water system* shall be cement-mortar lined or galvanized.

3) Screwed cast-iron water fittings shall not be used in a *drainage system*.

2.2.6.6. Screwed Malleable Iron Water Fittings

1) Screwed malleable iron water fittings shall conform to ASME B16.3, "Malleable-Iron Threaded Fittings, Classes 150 and 300."

2) Screwed malleable iron water fittings used in a *water system* shall be cement-mortar lined or galvanized.

3) Screwed malleable iron water fittings shall not be used in a *drainage system*.

2.2.6.7. Steel Pipe

1) Except as provided in Sentences (2) and (3), welded and seamless steel pipe shall not be used in a *plumbing system*.

2) Galvanized steel pipe is permitted to be used in a *drainage system* or a *venting system* above ground inside a *building*.

3) Galvanized steel pipe and fittings shall not be used in a *water distribution system* except

a) in *buildings* of industrial *occupancy* as described in <Book I (General) of this Code>, or

b) for the repair of existing galvanized steel piping systems.

(See Appendix A.)

4) Galvanized steel pipe and fittings shall conform to ASTM A 53/A 53M, "Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless."

2.2.6.8. Corrugated Steel Pipe and Couplings

1) Corrugated steel pipe and couplings shall conform to CAN/CSA-G401, "Corrugated Steel Pipe Products."

2) Corrugated steel pipe shall only be used underground outside a *building* in a *storm drainage system*.

3) Couplings for corrugated steel pipe shall be constructed so that when installed they shall

a) maintain the pipe alignment,

b) resist the separation of adjoining lengths of pipe,

c) prevent root penetration, and

d) prevent the infiltration of surrounding material.

2.2.6.9. Sheet Metal Leaders

1) A sheet metal *leader* shall not be used except above ground outside a *building*.

<2.2.6.10. Stainless Steel Pipe

1) Stainless steel pipe shall conform to

a) ASTM A 312/A 312M, "Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes," and

b) ASME B36.19M, "Stainless Steel Pipe."

2) Only grade 304/304L or 316/316L stainless steel pipe shall be used.

2.2.6.11. Stainless Steel Butt Weld Pipe Fittings

1) Stainless steel butt weld pipe fittings shall conform to

a) ASTM A 403/A 403M, "Wrought Austenitic Stainless Steel Piping Fittings," and

b) ASME B16.9 "Factory-Made Wrought Buttwelding Fittings."

2) Stainless steel butt weld pipe fittings shall be made of a material that matches the grade of the pipe material used.

2.2.6.12. Stainless Steel Pipe Flanges

1) Stainless steel pipe flanges shall conform to ASME B16.5, "Pipe Flanges and Flanged Fittings: NPS ½ Through NPS 24 Metric/Inch Standard," and

a) ASTM A 182/A 182M, "Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service," or

b) ANSI/AWWA C228, "Stainless-Steel Pipe Flanges for Water Service — Sizes 2 In. Through 72 In. (50 mm Through 1,800 mm)."

2) Stainless steel pipe flanges shall be made of a material that matches the grade of the pipe material used.

2.2.6.13. Stainless Steel Threaded Fittings

1) Stainless steel threaded fittings shall be schedule 40s or greater conforming to

a) ASTM A 182/A 182M, "Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service," or

b) ASTM A 351/A 351M, "Castings, Austenitic, for Pressure-Containing Parts."

2) Stainless steel threaded fittings shall be made of a material that matches the grade of the pipe material used.

2.2.6.14. Stainless Steel Tube

1) Stainless steel tube shall conform to

a) ASTM A 269, "Seamless and Welded Austenitic Stainless Steel Tubing for General Service," and

b) ASME B16.9, "Factory-Made Wrought Buttwelding Fittings."

2) Only grade 304/304L or 316/316L stainless steel tube shall be used.

2.2.6.15. Stainless Steel Pipe and Tube

1) The use of stainless steel pipe and tube shall conform to Table 2.2.6.15.

Table 2.2.6.15.
Permitted Uses of Stainless Steel Tube and Pipe
Forming part of Sentence 2.2.6.15.(1)

Stainless Steel Tube or Pipe	Plumbing Purposes						
	Water Distribution System		Building Sewer	Drainage System		Venting System	
	Under-ground	Above-ground		Under-ground	Above-ground	Under-ground	Above-ground
Stainless steel pipe	P	P	P	P	P	P	P
Stainless steel tube	P	P	N	N	N	N	N

P = Permitted N = Not Permitted>

2.2.7. Non-Ferrous Pipe and Fittings

(For a summary of pipe applications, see A-2.2.5., 2.2.6. and 2.2.7. in Appendix A.)

2.2.7.1. Copper and Brass Pipe

1) Copper pipe shall conform to ASTM B 42, "Seamless Copper Pipe, Standard Sizes."

2) Brass pipe shall conform to ASTM B 43, "Seamless Red Brass Pipe, Standard Sizes."

2.2.7.2. Brass or Bronze Pipe Flanges and Flanged Fittings

1) Brass or bronze pipe flanges and flanged fittings shall conform to ASME B16.24, "Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500."

2.2.7.3. Brass or Bronze Threaded Water Fittings

1) Brass or bronze threaded water fittings shall conform to ASME B16.15, "Cast Copper Alloy Threaded Fittings, Classes 125 and 250."

2) Brass or bronze threaded water fittings shall not be used in a *drainage system*.

2.2.7.4. Copper Tube

1) Copper tube shall conform to
a) ASTM B 88, "Seamless Copper Water Tube," or
b) ASTM B 306, "Copper Drainage Tube (DWV)."

2) Except as provided in Sentence (3), the use of copper tube shall conform to Table 2.2.7.4.

3) Copper tube shall not be used for the *fixture drain* or the portion of the *vent pipe* below the *flood level rim* of a flush-valve-operated urinal.

Table 2.2.7.4.
Permitted Use of Copper Tube and Pipe
Forming part of Sentence 2.2.7.4.(2)

Type of Copper Tube or Pipe	Plumbing Purposes							
	Water Service Pipe	*Water Distribution System*		*Building Sewer*	*Drainage System*		*Venting System*	
		Under-ground	Above-ground		Under-ground	Above-ground	Under-ground	Above-ground
K & L hard temper	N	N	P	P	P	P	P	P
K & L soft temper	P	P	P	N	N	N	N	N
M hard temper	N	N	N	N	N	P	N	P
M soft temper	N	N	N	N	N	N	N	N
DWV	N	N	N	N	N	P	N	P
P = Permitted N = Not Permitted								

2.2.7.5. Solder-Joint Drainage Fittings

1) Solder-joint fittings for *drainage systems* shall conform to
a) ASME B16.23, "Cast Copper Alloy Solder Joint Drainage Fittings: DWV," or
b) ASME B16.29, "Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings – DWV."

2) Solder-joint fittings for *drainage systems* shall not be used in a *water system*.

2.2.7.6. Solder-Joint Water Fittings

1) Except as provided in Sentence (2), solder-joint fittings for *water systems* shall conform to
a) ASME B16.18, "Cast Copper Alloy Solder-Joint Pressure Fittings," or
b) ASME B16.22, "Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings."

2) Solder-joint fittings for *water systems* not made by casting or the wrought process shall conform to the applicable requirements of ASME B16.18, "Cast Copper Alloy Solder-Joint Pressure Fittings."

2.2.7.7. Flared-Joint Fittings for Copper Water Systems

1) Flared-joint fittings for copper tube *water systems* shall conform to ASME B16.26, "Cast Copper Alloy Fittings for Flared Copper Tubes."

2) Flared-joint fittings for copper tube *water systems* not made by casting shall conform to the applicable requirements of ASME B16.26, "Cast Copper Alloy Fittings for Flared Copper Tubes."

2.2.7.8. Lead Waste Pipe and Fittings

1) Lead *waste pipe* and fittings shall not be used in a *water system* or as a *building sewer*.

2) When there is a change in *size* of a lead closet bend, the change shall be in the vertical section of the bend or made in a manner that prevents the retention of liquid in the bend.

2.2.10.13. Solar Domestic Hot Water

1) Equipment for solar heating of *potable* water shall conform to <CAN/CSA-F379 Series, "Packaged Solar Domestic Hot Water Systems (Liquid-to-Liquid Heat Transfer)," excluding CAN/CSA-F379S1.>

2.2.10.14. Vent Pipe Flashing

1) Flashing fabricated on-site for *vent pipes* shall be fabricated from

a) copper sheet not less than 0.33 mm thick,

b) aluminum sheet not less than <0.48 mm> thick,

c) *alloyed zinc* sheet not less than 0.35 mm thick,

d) lead sheet not less than <1.73 mm> thick,

e) galvanized steel sheet not less than <0.33 mm> thick, or

f) polychloroprene (neoprene) not less than 2.89 mm thick.

2) Prefabricated flashing for *vent pipes* shall conform to CSA B272, "Prefabricated Self-Sealing Roof Vent Flashings." (See Article 2.5.6.5. for location of *vent pipe* terminals.)

2.2.10.15. Water Hammer Arresters

1) Water hammer arresters shall conform to ANSI/ASSE 1010, "Water Hammer Arresters."

2.2.10.16. Air Admittance Valves

1) *Air admittance valves* shall conform to <ASSE 1051, "Individual and Branch Type Air Admittance Valves (AAVs) for Sanitary Drainage Systems."> (See Appendix A.)

Section 2.3. Piping

2.3.1. Application

2.3.1.1. General

1) This Section applies to the construction and use of joints and connections, and the arrangement, protection, support and testing of piping.

2.3.2. Construction and Use of Joints

2.3.2.1. Caulked Lead Drainage Joints

1) Caulked lead drainage joints shall not be used except for cast-iron pipe in a *drainage system* or *venting system*, or between such pipe and

a) other ferrous pipe,

b) brass and copper pipe,

c) a caulking ferrule, or

d) a *trap standard*.

2) Every caulked lead drainage joint shall be firmly packed with oakum and tightly caulked with lead to a depth of not less than 25 mm.

3) No paint, varnish or other coating shall be applied on the lead until after the joint has been tested.

4) A length of hub and spigot pipe and pipe fittings in a *drainage system* shall be installed with the hub at the upstream end.

2.3.2.2. Wiped Joints

1) Wiped joints shall not be used except for sheet lead or lead pipe, or between such pipe and copper pipe or a ferrule.

2) Every wiped joint in straight pipe shall

a) be made of solder,

b) have an exposed surface on each side of the joint at least 19 mm wide, and

c) be not less than 10 mm thick at the thickest part.

3) Every wiped flanged joint shall be reinforced with a lead flange that is not less than 19 mm wide.

2.3.2.3. Screwed Joints

1) In making a screwed joint, the ends of the pipe shall be reamed or filed out to the size of the bore and all chips and cuttings shall be removed.

2) No pipe-joint cement or paint shall be applied to the internal threads.

2.3.2.4. Soldered Joints

1) Soldered joints shall be made in accordance with ASTM B 828, "Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings."

2.3.2.5. Flared Joints

1) In making a flared joint, the pipe shall be expanded with a proper flaring tool.

2) Flared joints shall not be used for hard (drawn) copper tube.

2.3.2.6. Mechanical Joints

1) Mechanical joints shall be made with compounded elastomeric rings that are held in compression by

a) stainless steel or cast-iron clamps, or

b) groove and shoulder type mechanical couplings.

(See Appendix A.)

2.3.2.7. Cold-Caulked Joints

1) Cold-caulked joints shall not be used except for bell and spigot pipe in a *water system*, a *drainage system* or a *venting system*.

2) Caulking compound used in cold-caulked joints shall be applied according to the manufacturer's directions.

3) Every cold-caulked joint in a *drainage system* shall be firmly packed with oakum and tightly caulked with cold caulking compound to a depth of not less than 25 mm.

<2.3.2.8. Stainless Steel Welded Joints

1) Welding shall conform to ASME B31.9, "Building Services Piping," and accord with good engineering practice.

2) Butt weld pipe fittings shall have an equal or thicker section than the pipe wall specified.**>**

2.3.3. Joints and Connections

2.3.3.1. Drilled and Tapped Joints

1) Drilled and tapped joints shall not be made in a *soil-or-waste pipe* or *vent pipe* and fittings unless suitable provision has been made for drilling and tapping.

2.3.3.2. Extracted Tees

1) Tees may be extracted from the wall thickness of Types K and L copper tube used in a *water distribution system* provided that

a) a tool specifically designed for the purpose is used,

b) the branch is at least one *size* smaller than the tube in which the tee is formed,

c) the end of the branch incorporates a means to prevent it from penetrating into the run and thereby obstructing flow, and

d) the joint at the tee is brazed with a filler metal having a melting point not below 540°C.

2.3.3.3. Prohibition of Welding of Pipes and Fittings

1) Cast-iron soil pipe and fittings shall not be welded.

2) Galvanized steel pipe and fittings shall not be welded.

2.3.3.4. Unions and Slip Joints

(See A-2.2.3.1.(1) and (3) in Appendix A.)

1) Running thread and packing nut connections and unions with a gasket seal shall not be used downstream of a *trap weir* in a *drainage system* or in a *venting system*.

2) A slip joint shall not be used

a) in a *venting system*, or

b) in a *drainage system*, except to connect a *fixture trap* to a *fixture drain* in an accessible location.

2.3.3.5. Increaser or Reducer

1) Every connection between 2 pipes of different *size* shall be made with an increaser or a reducer fitting installed so that it will permit the system to be completely drained.

2.3.3.6. Dissimilar Materials

1) Adaptors, connectors or mechanical joints used to join dissimilar materials shall be designed to accommodate the required transition.

2.3.3.7. Connection of Roof Drain to Leader

1) Every *roof drain* shall be securely connected to a *leader* and provision shall be made for expansion.

2.3.3.8. Connection of Floor Outlet Fixtures

1) Every pedestal urinal, floor-mounted water closet or S-*trap standard* shall be connected to a *fixture drain* by a floor flange, except that a cast-iron *trap standard* may be caulked to a cast-iron pipe.

2) Except as provided in Sentence (3), every floor flange shall be brass.

3) Where cast-iron or plastic pipe is used, a floor flange of the same material may be used.

4) Every floor flange shall be securely set on a firm base and bolted to the *trap* flange of the *fixture*.

5) Every joint in a floor flange shall be sealed with a resilient watertight and gas-tight seal.

6) Where a lead water-closet stub is used, the length of the stub below the floor flange shall be not less than 75 mm.

2.3.3.9. Expansion and Contraction
(See Appendix A.)

1) The design and installation of every piping system shall include means to accommodate its expansion and contraction caused by temperature changes, movement of the soil, *building* shrinkage or structural settlement.
(See Appendix A.)

2.3.3.10. Copper Tube

1) Types M and DWV copper tube shall not be bent.

2.3.3.11. Indirect Connections

1) Where a *fixture* or device is *indirectly connected*, the connections shall be made by terminating the *fixture drain* above the *flood level rim* of a *directly connected fixture* to form an *air break*.

2) The size of the *air break* shall at least equal the *size* of the *fixture drain*, *branch* or pipe that terminates above the *directly connected fixture*, and it shall be not less than 25 mm. (See Appendix A.)

2.3.3.12. <Copper Joints Used Underground>

1) Except as provided in Sentence (2), joints in copper tubes installed underground shall be made with either flared or compression fittings, or be brazed using a brazing alloy within the American Welding Society's AWS-BCuP range.

2) Compression fittings shall not be used underground under a *building*.

2.3.4. Support of Piping

2.3.4.1. Capability of Support

1) Piping shall be provided with support that is capable of keeping the pipe in alignment and bearing the weight of the pipe and its contents.

2) Every floor- or wall-mounted water-closet bowl shall be securely attached to the floor or wall by means of a flange and shall be stable.

3) Every wall-mounted *fixture* shall be supported so that no strain is transmitted to the piping.

2.3.4.2. Independence of Support

1) Piping, *fixtures*, tanks or devices shall be supported independently of each other.

2.3.4.3. Insulation of Support

1) Where a hanger or support for copper tube or brass or copper pipe is of a material other than brass or copper, it shall be suitably separated and electrically insulated from the pipe.

2) <Where a hanger or support for stainless steel pipe or tube is of a material other than stainless steel, it shall be suitably separated and electrically insulated from the pipe or tube.>

2.3.4.4. Support for Vertical Piping

1) Except as provided in Sentence (2), vertical piping shall be supported at its base and at the floor level of alternate *storeys* by rests, each of which can bear the weight of pipe that is between it and the rest above it.

2) The maximum spacing of supports shall be 7.5 m.

2.3.4.5. Support for Horizontal Piping

1) *Nominally horizontal* piping that is inside a *building* shall be braced to prevent swaying and buckling and to control the effects of thrust.

2) *Nominally horizontal* piping shall be supported as stated in Table 2.3.4.5.

Table 2.3.4.5.
Support for Nominally Horizontal Piping
Forming part of Sentence 2.3.4.5.(2)

Piping Material	Maximum Horizontal Spacing of Supports, m	Additional Support Conditions
Galvanized iron or steel pipe		
• diameter ≥ 6 inches	3.75	
• diameter < 6 inches	2.5	
<Stainless steel pipe		
• diameter ≥ 1 inch	3	
• diameter < 1 inch	2.5	
Stainless steel tube		
• diameter ≥ 1 inch	3	
• diameter < 1 inch	2.5>	
Lead pipe	Throughout length of pipe	
Cast-iron pipe	3	At or adjacent to each hub or joint
Cast-iron pipe with mechanical joints that is ≤ 300 mm long between adjacent fittings	1	
Asbestos-cement pipe	2(1)	
Asbestos-cement pipe that is ≤ 300 mm long between adjacent fittings	1	
ABS or PVC plastic pipe	1.2	At the end of *branches* or *fixture drains* and at changes in direction and elevation
ABS or PVC plastic *trap arm* or *fixture drain* pipe > 1 m long	n/a	As close as possible to the *trap*
CPVC pipe	1	
Copper tube or copper and brass pipe, hard temper, diameter > 1 inch	3	
Copper tube or copper and brass pipe, hard temper, diameter ≤ 1 inch	2.5	
Copper tube, soft temper	2.5	
PE/AL/PE composite pipe	1	
PEX/AL/PEX composite pipe	1	
PEX plastic pipe	0.8	
PP-R plastic pipe	1	At the end of *branches* and at changes in direction and elevation

Notes to Table 2.3.4.5.:
(1) As an alternative, asbestos-cement pipe, which is typically manufactured in 4 m lengths, may have 2 supports per length of pipe.

3) Where PVC, CPVC or ABS plastic pipe is installed
a) the pipe shall be aligned without added strain on the piping,
b) the pipe shall not be bent or pulled into position after being welded, and
c) hangers shall not compress, cut or abrade the pipe.

4) Where PEX, PP-R, PE/AL/PE or PEX/AL/PEX plastic pipe is installed, hangers shall not compress, cut or abrade the pipe.

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.2.6.7. Steel Pipe	
(1)	[F80–OH2.1,OH2.3] [F46–OH2.2]
(3)	[F46–OH2.2]
(4)	[F80–OH2.1,OH2.3]
	[F80–OP5]
2.2.6.8. Corrugated Steel Pipe and Couplings	
(1)	[F80–OP5]
(2)	[F81–OP5]
(3)	[F81–OP5]
2.2.6.9. Sheet Metal Leaders	
(1)	[F80–OP5]
<2.2.6.10. Stainless Steel Pipe	
(1)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
2.2.6.11. Stainless Steel Butt Weld Pipe Fittings	
(1)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
2.2.6.12. Stainless Steel Pipe Flanges	
(1)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
(2)	[F71,F80-OH2.1,OH2.3] Applies to drainage systems and venting systems.
	[F46-OH2.2] Applies to water systems.
	[F80-OP5]
2.2.6.13. Stainless Steel Threaded Fittings	
(1)	[F20-OP5]
(2)	[F20-OP5]

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.2.6.14. Stainless Steel Tube	
(1)	[F46-OH2.2]
(2)	[F46-OH2.2]
2.2.6.15. Stainless Steel Pipe and Tube	
(1)	[F80-OH2.1,OH2.2, OH2.3]>
2.2.7.1. Copper and Brass Pipe	
(1)	[F80–OH2.1,OH2.3] Applies to *drainage systems* and *venting systems*. [F46–OH2.2] Applies to *water systems*.
	[F80–OP5]
(2)	[F80–OH2.1,OH2.3] Applies to *drainage systems* and *venting systems*. [F46–OH2.2] Applies to *water systems*.
	[F80–OP5]
2.2.7.2. Brass or Bronze Pipe Flanges and Flanged Fittings	
(1)	[F80–OH2.1,OH2.3] Applies to *drainage systems* and *venting systems*. [F46–OH2.2] Applies to *water systems*.
	[F80–OP5]
2.2.7.3. Brass or Bronze Threaded Water Fittings	
(1)	[F80–OP5]
(2)	[F80–OH2.1,OH2.3]
2.2.7.4. Copper Tube	
(1)	[F80–OH2.1,OH2.3] Applies to *drainage systems* and *venting systems*. [F46–OH2.2] Applies to *water systems*.
	[F80–OP5]
(2)	[F80–OH2.1,OH2.2,OH2.3]
(3)	[F80–OH2.1,OH2.4]
2.2.7.5. Solder-Joint Drainage Fittings	
(1)	[F80–OH2.1,OH2.4]
(2)	[F20–OP5]
2.2.7.6. Solder-Joint Water Fittings	
(1)	[F20–OP5]
(2)	[F20–OP5]
2.2.7.7. Flared-Joint Fittings for Copper Water Systems	
(1)	[F20–OP5]
(2)	[F20–OP5]
2.2.7.8. Lead Waste Pipe and Fittings	
(1)	[F46,F20–OH2.2,OH2.3]
(2)	[F81–OH2.1,OH2.3,OH2.4]
2.2.8.1. Pipes and Fittings	
(1)	[F80,F81–OH2.1]
	[F80,F81–OS3.2,OS3.4]

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.2.9.1. Cement Mortar	
(1)	[F80–OH2.1,OH2.3]
	[F80–OP5]
2.2.9.2. Solders and Fluxes	
(1)	[F80–OH2.1,OH2.3]
	[F80–OP5]
(2)	[F46–OH2.2]
(3)	[F80–OH2.1,OH2.3]
(4)	[F20,F80,F81–OH2.1,OH2.3]
2.2.10.1. Brass Floor Flanges	
(1)	[F80–OH2.1]
2.2.10.2. Screws, Bolts, Nuts and Washers	
(1)	[F80–OH2.1,OH2.3]
2.2.10.3. Cleanout Fittings	
(1)	[F80–OH2.1,OH2.3] Applies to *drainage systems*. [F46–OH2.2] Applies to *water systems*.
(2)	[F80–OH2.1]
2.2.10.4. Mechanical Couplings	
(1)	[F80–OP5]
(2)	[F80–OH2.1,OH2.3]
2.2.10.5. Saddle Hubs	
(1)	[F81–OH2.1,OH2.3]
	[F81–OP5]
2.2.10.6. Supply and Waste Fittings	
<(1)>	<[F80–OP5]>
<(2)>	<[F80–OH2.1,OH2.3]>
2.2.10.7. Shower Valves	
(1)	[F80–OS3.2]
<(3)>	<(a) [F31–OS3.2]>
	<(b) [F30–OS3.1]>
(4)	[F31–OS3.2]
2.2.10.8. Direct Flush Valves	
(1)	(a) and (b) [F80,F81–OP5]
	(c) and (d) [F80–OH2.1][F81–OH2.4]
2.2.10.9. Drinking Fountain Bubblers	
(1)	[F40,F46–OH2.4]
(2)	[F41,F46–OH2.2]
(3)	[F41,F46–OH2.2]

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.2.10.10. Back-Siphonage Preventers and Backflow Preventers	
(1)	[F46–OH2.2]
(2)	[F46–OH2.2]
2.2.10.11. Relief Valves	
(1)	[F31–OP5]
	[F31–OS3.2]
2.2.10.12. Reducing Valves	
(1)	[F81–OP5]
2.2.10.13. Solar Domestic Hot Water	
(1)	[F46–OH2.2]
	[F80,F81–OP5]
	[F81–OS3.2]
2.2.10.14. Vent Pipe Flashing	
(1)	[F80,F81–OP5]
(2)	[F80,F81–OP5]
2.2.10.15. Water Hammer Arresters	
(1)	[F20,F80–OP5]
2.2.10.16. Air Admittance Valves	
(1)	[F81–OH1.1]
2.3.2.1. Caulked Lead Drainage Joints	
(1)	[F80–OH2.1,OH2.3]
(2)	[F80–OH2.1]
(3)	[F81–OH2.1]
(4)	[F81–OH2.1]
2.3.2.2. Wiped Joints	
(1)	[F80,F81–OH2.1]
	[F80,F81–OP5]
(2)	[F80,F81–OH2.1,OH2.2,OH2.3]
(3)	[F80,F81–OH2.1,OH2.2,OH2.3]
2.3.2.3. Screwed Joints	
(1)	[F80,F81–OH2.1,OH2.2,OH2.3]
(2)	[F70–OH2.2]
2.3.2.4. Soldered Joints	
(1)	[F20,F81–OH2.1,OH2.2,OH2.3]
2.3.2.5. Flared Joints	
(1)	[F20,F81–OH2.1,OH2.2,OH2.3]
	[F20,F81–OP5]
(2)	[F20,F81–OH2.1,OH2.2,OH2.3]
	[F20,F81–OP5]

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.3.2.6. Mechanical Joints	
(1)	[F20–OH2.1,OH2.2,OH2.3]
	[F20–OP5]
2.3.2.7. Cold-Caulked Joints	
(1)	[F20,F81–OH1.1] Applies to bell and spigot joints in *venting systems*.
	[F20,F81–OH2.1,OH2.3] Applies to bell and spigot joints in *drainage systems* or *venting systems*.
	[F20,F81–OP5]
(2)	[F20,F81–OH1.1]
	[F20,F81–OH2.1,OH2.2,OH2.3]
	[F20,F81–OP5]
(3)	[F20–OH2.1,OH2.3]
<2.3.2.8. Stainless Steel Welded Joints	
(1)	[F20,F81–OH2.1, OH2.2, OH2.3]
(2)	[F20,F81–OH2.1, OH2.2, OH2.3]>
2.3.3.1. Drilled and Tapped Joints	
(1)	[F20,F81–OH2.2,OH2.3]
	[F81–OH1.1]
2.3.3.2. Extracted Tees	
(1)	[F20–OP5]
	[F81–OH2.1,OH2.3]
2.3.3.3. Prohibition of Welding of Pipes and Fittings	
(1)	[F20–OH1.1]
	[F20–OH2.1,OH2.2,OH2.3]
(2)	[F80–OH2.2]
	[F80–OP5]
2.3.3.4. Unions and Slip Joints	
(1)	[F81–OH1.1]
	[F81–OH2.1,OH2.3]
(2)	[F81–OH1.1]
	[F81–OH2.1,OH2.3]
2.3.3.5. Increaser or Reducer	
(1)	[F70,F80–OH2.2]
	[F81–OH1.1]
2.3.3.6. Dissimilar Materials	
(1)	[F80–OH1.1]
	[F80–OH2.1]
	[F80–OP5]
2.3.3.7. Connection of Roof Drain to Leader	
(1)	[F21,F81–OP5]

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.3.3.8. Connection of Floor Outlet Fixtures	
(1)	[F80–OH2.1,OH2.3]
(2)	[F80–OH2.1]
(4)	[F20–OH2.1]
	[F20–OS3.1]
(5)	[F81–OH2.1]
(6)	[F21–OH2.1]
2.3.3.9. Expansion and Contraction	
(1)	[F21–OH1.1]
	[F21–OH2.1]
	[F21–OP5]
2.3.3.10. Copper Tube	
(1)	[F20–OH1.1]
	[F20–OP5]
2.3.3.11. Indirect Connections	
(1)	[F81–OH2.2,OH2.4]
(2)	[F81–OH2.2,OH2.4]
2.3.3.12. Copper Joints Used Underground	
(1)	[F20,F80–OP5]
(2)	[F20,F80–OP5]
2.3.4.1. Capability of Support	
(1)	[F20–OH2.1,OH2.4]
	[F20–OP5]
	[F20–OS3.1]
(2)	[F20–OH2.1,OH2.3]
	[F20–OS3.1]
(3)	[F20–OH2.1,OH2.3]
	[F20–OS3.1]
2.3.4.2. Independence of Support	
(1)	[F20–OH2.1,OH2.3]
	[F20–OP5]
	[F20–OS3.1]
<2.3.4.3. Insulation of Support	
(1)	[F80–OH2.1,OH2.3]
	[F80–OP5]
	[F80–OS3.1]
(2)	[F80–OH2.1,OH2.3]
	[F80–OS3.1]
	[F80–OP5]>

Table 2.8.1.1.
Objectives and Functional Statements Attributed to the Acceptable Solutions in Part 2
Forming part of Sentence 2.8.1.1.(1)

Acceptable Solutions	Objectives and Functional Statements[1]
2.3.4.4. Support for Vertical Piping	
(1)	[F20–OH2.1]
	[F20–OS3.1]
(2)	[F20–OH2.1]
	[F20–OP5]
	[F20–OS3.1]
2.3.4.5. Support for Horizontal Piping	
(1)	[F20–OH2.1,OH2.3]
	[F20–OP5]
	[F20–OS3.1]
(2)	[F20–OH2.1]
	[F20–OP5]
	[F20–OS3.1]
(3)	[F20–OH2.1]
	[F20–OP5]
	[F20,F81–OS3.1]
(4)	[F81–OP5]
	[F81–OS3.1]
(5)	[F20–OH2.1]
	[F20–OS3.1]
	[F20,F21–OP5]
(6)	[F20–OH2.1]
	[F20–OP5]
	[F20–OS3.1]
2.3.4.6. Support for Underground Horizontal Piping	
(1)	[F20–OP5]
	[F81–OH2.1]
2.3.4.7. Support for Vent Pipe above a Roof	
(1)	[F81–OP5]
	[F81–OS3.1]
2.3.5.1. Backfilling of Pipe Trench	
(1)	[F81–OH2.1,OH2.3]
	[F81–OP5]
2.3.5.2. Protection of Non-Metallic Pipe	
(1)	[F81–OH2.1,OH2.3]

Appendix A
Explanatory Material

A-1.1.2.1.(1) Objectives and Functional Statements Attributed to Acceptable Solutions The objectives and functional statements attributed to each Code provision are shown in Table 2.8.1.1. at the end of Division B.

Many provisions in Division B serve as modifiers of or pointers to other provisions or serve other clarification or explanatory purposes. In most cases, no objectives and functional statements have been attributed to such provisions, which therefore do not appear in the above-mentioned table.

For provisions that serve as modifiers of or pointers to other referenced provisions and that do not have any objectives and functional statements attributed to them, the objectives and functional statements that should be used are those attributed to the provisions they reference.

A-1.3.1.2.(1) Referenced Documents Where documents are referenced in the Appendices of this Code, they shall be the editions designated in Table A-1.3.1.2.(1)

Table A-1.3.1.2.(1)
Documents Referenced in the Appendices of <Book II (Plumbing Systems) of the British Columbia Building Code 2012>

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<ASHRAE>	<2009>	<ASHRAE Handbook of Fundamentals>	<A-2.6.3.1.(2)>
<ASHRAE	2011	ASHRAE Handbook – HVAC Applications	A-2.6.3.1.(2)>
<ASME	B16.3-2011	Malleable-Iron Threaded Fittings: Classes 150 and 300	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASME	B16.4-2011	Gray Iron Threaded Fittings: Classes 125 and 250	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASME	B16.15-2011	Cast Copper Alloy Threaded Fittings: Classes 125 and 250	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASME	B16.18-2012	Cast Copper Alloy Solder Joint Pressure Fittings	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASME>	B16.22-2001	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	Table A-2.2.5., 2.2.6. and 2.2.7.
<ASME	B16.23-2011	Cast Copper Alloy Solder Joint Drainage Fittings: DWV	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASME>	B16.29-<2007>	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings – DWV	Table A-2.2.5., 2.2.6. and 2.2.7.
<ASPE	2010	ASPE Plumbing Engineering Design Handbook	A-2.6.3.1.(2)>
ASPE	<2008>	Data Book – Volume 4, Chapter 8, Grease Interceptors	A-2.4.4.3.(1)
<ASTM	A 53/A 53M-10	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASTM	A 269-10	Seamless and Welded Austenitic Stainless Steel Tubing for General Service	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASTM	A 312-11	Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASTM	B 42-10	Seamless Copper Pipe, Standard Sizes	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASTM	B 43-09	Seamless Red Brass Pipe, Standard Sizes	Table A-2.2.5., 2.2.6. and 2.2.7.>

Table A-1.3.1.2.(1)
Documents Referenced in the Appendices of <Book II (Plumbing Systems) of the British Columbia Building Code 2012>

Issuing Agency	Document Number[1]	Title of Document[2]	Code Reference
<ASTM	B 88-09	Seamless Copper Water Tube	Table A-2.2.5., 2.2.6. and 2.2.7.>
<ASTM	B 306-09	Copper Drainage Tube (DWV)	Table A-2.2.5., 2.2.6. and 2.2.7.>
ASTM	D 2466<-06>	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	Table A-2.2.5., 2.2.6. and 2.2.7.
ASTM	D 2467<-06>	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	Table A-2.2.5., 2.2.6. and 2.2.7.
ASTM	D 3138<-04>	Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components	A-2.2.5.10. to 2.2.5.12.
ASTM	F 628<-08>	Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe With a Cellular Core	Table A-2.2.5., 2.2.6. and 2.2.7.
<ASTM	F 714-10	Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter	Table A-2.2.5., 2.2.6. and 2.2.7.>
AWWA	<M14->2004	<Recommended Practice for Backflow Prevention and Cross-Connection Control>	Table A-2.6.2.4.(2)
<AWWA	ANSI/AWWA C151/A21.51-2009	Ductile-Iron Pipe, Centrifugally Cast, for Water	Table A-2.2.5., 2.2.6. and 2.2.7.>
<BC>	<S.B.C. 2003, c. 53>	<Environmental Management Act>	<A-2.7.4.1.>
<CCBFC>	<NRCC 35951>	<Guidelines for Application of Part 3 of theNational Building Code of Canada to Existing Buildings>	<A-1.1.1.1.(1)>
<CCBFC>	<NRCC 40383>	<User's Guide – NBC 1995, Fire Protection, Occupant Safety and Accessibility (Part 3)>	<A-1.1.1.1.(1)>
<CCBFC>	<NRCC 43963>	<User's Guide – NBC 1995, Application of Part 9 to Existing Buildings>	<A-1.1.1.1.(1)>
<CCBFC>	<NRCC 53301>	<National Building Code of Canada 2010>	<Table A-2.2.5., 2.2.6. and 2.2.7. A-2.4.10. A-2.4.10.4.(1)>
<CCBFC>	<NRCC 53543>	<User's Guide – NBC 2010, Structural Commentaries (Part 4 of Division B)>	<A-1.1.1.1.(1)>
CGSB	CAN/CGSB-34.1-94	Asbestos-Cement Pressure Pipe	Table A-2.2.5., 2.2.6. and 2.2.7.
CGSB	CAN/CGSB-34.9-94	Asbestos-Cement Sewer Pipe	Table A-2.2.5., 2.2.6. and 2.2.7.
CGSB	CAN/CGSB-34.22-94	Asbestos-Cement Drain Pipe	Table A-2.2.5., 2.2.6. and 2.2.7.
CGSB	CAN/CGSB-34.23-94	Asbestos-Cement House Connection Sewer Pipe	Table A-2.2.5., 2.2.6. and 2.2.7.
CSA	A60.1-M1976	Vitrified Clay Pipe	Table A-2.2.5., 2.2.6. and 2.2.7.
<CSA	CAN/CSA-A257.1-09	Non-Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings	Table A-2.2.5., 2.2.6. and 2.2.7.>
<CSA	CAN/CSA-A257.2-09	Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings	Table A-2.2.5., 2.2.6. and 2.2.7.>

Table A-2.2.5., 2.2.6. and 2.2.7.
Summary of Pipe and Fitting Applications
Forming part of Appendix Note A-2.2.5., 2.2.6. and 2.2.7.

Types of Piping and Fittings	Standard References	<Code> References	Use of Piping and Fittings[1]								
			Drainage System			Venting System		Potable Water System			
								Above-ground		Underground	
			Above-ground inside building	Underground under building	Building sewer	Above-ground	Underground	Cold	Hot	Under building	Outside building
Polyolefin laboratory drainage systems	CAN/CSA-B181.3	2.2.8.1.	P[5][6]	P	P	P[5][6]	P	N	N	N	N
Cast-iron soil pipe	CSA B70	2.2.6.1.	P	P	P	P	P	N	N	N	N
Cast-iron water pipe	ANSI/AWWA C151/A21.51 (Ductile iron)	2.2.6.4.	P	P	P	P	P	P	P	P	P
Cast-iron screwed fittings	ASME B16.4 (Cast iron)	2.2.6.5.	N	N	N	N	N	P	P	P	P
	ASME B16.3 (Malleable iron)	2.2.6.6.	N	N	N	N	N	P	P	P	P
<Stainless steel pipe	ASTM A 312	2.2.6.10.	P	P	P	P	P	P	P	P	P>
<Stainless steel tube	ASTM A 269	2.2.6.14.	N	N	N	N	N	P	P	P	P>
Welded and seamless steel galvanized pipe	ASTM A 53/A 53M	2.2.6.7.	P	N	N	P	N	P[9]	P[9]	P[9]	P[9]
Corrugated steel galvanized pipe	CAN/CSA-G401	2.2.6.8.	N	N	P[10]	N	N	N	N	N	N
Sheet metal pipe[11]	—	2.2.6.9.	N	N	N	N	N	N	N	N	N
Copper and brass pipe	ASTM B 42 (Copper)	2.2.7.1.	P	P	P	P	P	P	P	P	P
	ASTM B 43 (Red brass)	2.2.7.1.	P	P	P	P	P	P	P	P	P
Brass or bronze threaded water fittings	ASME B16.15	2.2.7.3.	N	N	N	N	N	P	P	P	P
Copper tube											
Types K and L hard temper	ASTM B 88	2.2.7.4.	P	P	P	P	P	P	P	N	N
Types K and L soft temper	ASTM B 88	2.2.7.4.	N	N	N	N	N	P	P	P	P

Table A-2.2.5., 2.2.6. and 2.2.7.
Summary of Pipe and Fitting Applications
Forming part of Appendix Note A-2.2.5., 2.2.6. and 2.2.7.

Types of Piping and Fittings	Standard References	<Code> References	Use of Piping and Fittings[1]								
			Drainage System			Venting System		Potable Water System			
								Above-ground		Underground	
			Above-ground inside building	Underground under building	Building sewer	Above-ground	Underground	Cold	Hot	Under building	Outside building
Type M hard temper	ASTM B 88	2.2.7.4.	P	N	N	P	N	N	N	N	N
Type M soft temper	ASTM B 88	2.2.7.4.	N	N	N	N	N	N	N	N	N
Type DWV	ASTM B 306	2.2.7.4.	P[12]	N	N	P[12]	N	N	N	N	N
Solder-joint drainage fittings	ASME B16.23	2.2.7.5.	P	P	P	P	P	N	N	N	N
	ASME B16.29										
Solder-joint water fittings	ASME B16.18	2.2.7.6.	N	N	N	P	P	P	P	P	P
	ASME B16.22										
Lead waste pipe	—	2.2.7.8.	P[5][6]	P	N	P[5][6]	P	N	N	N	N
N = Not permitted P = Permitted											

Notes to Table A-2.2.5., 2.2.6. and 2.2.7.:
(1) Where fire stops are pierced by pipes, the integrity of the fire stop must be maintained.
(2) Cold water only.
(3) Gasketted joints required.
(4) Permitted only for water service pipe.
(5) Combustible piping in noncombustible construction is subject to the requirements of Sentence 3.1.5.16.(1) of Division B of <Book I (General) of this Code>.
(6) Combustible piping that penetrates a fire separation is subject to the requirements in Articles 3.1.9.1.,9.10.9.6. and 9.10.9.7. of Division B of <Book I (General) of this Code>.
(7) Not permitted in hot water systems.
(8) Not to exceed design temperature and design pressure stated in Sentence 2.2.5.9.(2).
(9) Permitted only in buildings of industrial occupancy as described in <Book I (General) of this Code>, or for the repair of existing galvanized steel piping systems.
(10) Permitted underground only in a storm drainage system.
(11) Permitted only for an external leader.
(12) Not permitted for the fixture drain or vent below the flood level rim of a flush-valve-operated urinal.

A-2.2.5.3.(3) Concrete Fittings Concrete fittings fabricated on the site from lengths of pipe may have proven acceptable on the basis of past performance in some localities and their acceptance under this Code may be warranted.

A-2.2.5.6.(1) Polyethylene Pipe Used Underground Joints within the high-density polyethylene pipe (HDPE) shall be heat-fused according to the manufacturer's instructions. Joints between HDPE pipes and other materials shall be made with a suitable hubless coupling.

A-2.2.5.7.(1) Crosslinked Polyethylene Pipe and Fittings There are some special installation requirements for the use of crosslinked polyethylene pipe and its associated fittings. Reference should, therefore, be made to the installation information in CAN/CSA-B137.5, "Crosslinked Polyethylene (PEX) Tubing Systems for Pressure Applications."

A-2.2.5.10. to 2.2.5.12. Solvent Cement The CSA standards CAN/CSA-B137.6, "Chlorinated Polyvinylchloride (CPVC) Pipe, Tubing, and Fittings for Hot- and Cold-Water Distribution Systems,"CAN/CSA-B181.1, "Acrylonitrile-Butadiene-Styrene (ABS) Drain, Waste, and Vent Pipe and Pipe Fittings," and CAN/CSA-B181.2, "Polyvinylchloride (PVC) and Chlorinated Polyvinylchloride (CPVC) Drain, Waste, and Vent Pipe and Pipe Fittings," reference ASTM standard D 3138, "Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components," which specifies the colour of the solvent cement. PVC cement shall be grey, ABS cement shall be yellow, CPVC cement shall be clear and transition cement shall be white. The standard colour allows Code users to readily determine if the correct solvent cement has been used. It should be noted that a transition cement is not an all-purpose cement.