

L.N. 81 of 2017

Waterworks (Amendment) Regulation 2017

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Waterworks (Amendment) Regulation 2017

(Made by the Chief Executive in Council under section 37 of the Waterworks Ordinance (Cap. 102))

1. Commencement

This Regulation comes into operation on 14 July 2017.

2. Waterworks Regulations amended

The Waterworks Regulations (Cap. 102 sub. leg. A) are amended as set out in sections 3 to 10.

3. Regulation 2 amended (interpretation)

(1) Regulation 2—

Renumber the regulation as regulation 2(1).

(2) Regulation 2(1), Chinese text, definition of 署長—

Repeal the semicolon

Substitute a full stop.

(3) Regulation 2(1)—

Repeal the definition of *BS*.

(4) After regulation 2(1)—

Add

“(2) A reference in these regulations to a number, or any combination of letters, numbers, symbols or punctuation marks, prefixed by the letters “BS” is a reference to a specification forming part of the British Standard issued by the British Standards Institution that bears the number or combination.

(3) A reference in these regulations to a number, or any combination of letters, numbers, symbols or

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punctuation marks, prefixed by the letters “BS EN” is a reference to a specification forming part of the European Standard issued by the British Standards Institution that bears the number or combination.

- (4) A reference in these regulations to a number, or any combination of letters, numbers, symbols or punctuation marks, prefixed by the letters “BS EN ISO” is a reference to a specification forming part of the International Standard issued by the British Standards Institution that bears the number or combination.
- (5) A reference in these regulations to a number, or any combination of letters, numbers, symbols or punctuation marks, prefixed by the letters “AS” is a reference to a specification forming part of the Australian Standard issued by the Standards Australia that bears the number or combination.
- (6) A reference in these regulations to a prescribed specification is a reference to a specification referred to in subregulation (2), (3), (4) or (5).”.

4. Regulation 11 amended (hosepipe not to be connected to an inside service)

Regulation 11(2)(a), English text—

Repeal

“storage”.

5. Regulation 19 amended (pipes and fittings)

Regulation 19(1), after “and (6)”—

Add

“and regulation 19A”.

6. Regulation 19A added

After regulation 19—

Add**“19A. Effect of amendments to this Part and Schedule 2 on pipes and fittings installed**

(1) If this Part or Schedule 2 is amended by a specified enactment, no person is required to alter or renew a pipe or fitting installed before the enactment comes into operation merely because, on the coming into operation of the enactment, the pipe or fitting does not comply with a requirement introduced by the enactment.

(2) In this regulation—

specified enactment (指明成文法則) means—

- (a) the Waterworks (Amendment) Regulation 2017;
or
- (b) any other enactment that comes into operation after the commencement date of the Waterworks (Amendment) Regulation 2017.”.

7. Regulation 20 amended (pipes and fittings to be of British Standard)

(1) Regulation 20, heading—

Repeal

“Pipes and fittings to be of British Standard”

Substitute

“Compliance with prescribed specification”.

(2) Regulation 20—

Repeal subregulations (1) and (2)

Substitute

- “(1) A requirement in Schedule 2 for a pipe or fitting to comply with a prescribed specification is a requirement to comply with the specification to the extent that the specification relates to the size, nature, materials, strength, test requirements and workmanship of the pipe or fitting.
- (2) A departure from a prescribed specification for a pipe or fitting does not amount to non-compliance with the specification for the pipe or fitting if the departure does not, in the opinion of the Water Authority, adversely affect—
- (a) the efficiency of the fire service or inside service in which the pipe or fitting is installed in providing a reliable and adequate supply of water; and
 - (b) the quality of the water.”.

(3) Regulation 20(3)—

Repeal

everything after “measure”

Substitute

“, inspect, examine or test a pipe or fitting to ascertain whether it complies with a prescribed specification.”.

8. Regulation 24 amended (other water using apparatus)

Regulation 24, English text—

Repeal

“storage”.

9. Regulation 25 amended (power to relax regulations)

Regulation 25—

Repeal subregulation (2)

Substitute

“(2) Despite a requirement in Schedule 2 for a pipe or fitting to comply with a prescribed specification, the Water Authority may approve the installation of a pipe or fitting that does not comply with the specification.”.

10. Schedule 2 amended

(1) Schedule 2—

Repeal

“[reg. 19]”

Substitute

“[regs. 19, 19A, 20 & 25]”.

(2) Schedule 2—

Repeal Parts 1 and 2

Substitute

“Part 1

Pipes and Fittings

1. Pipes for a fresh water fire service must be made of cast iron, ductile iron, steel, stainless steel or copper.
2. Pipes for a salt water fire service must be made of steel and internally lined with chlorinated polyvinyl chloride or of ductile iron.

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3. Pipes for a fresh water inside service must be made of cast iron, ductile iron, unplasticized polyvinyl chloride, polybutylene, steel, stainless steel, copper, polyethylene, crosslinked polyethylene or chlorinated polyvinyl chloride, but pipes made of unplasticized polyvinyl chloride or polyethylene must not be used for a hot fresh water inside service.
 4. Pipes for a salt water inside service must be made of cast iron, ductile iron, unplasticized polyvinyl chloride or polyethylene.
 5. A pipe must not be less than 20 mm in nominal diameter, except that a branch pipe may be of 15 mm or more in nominal diameter if its length is not longer than 3 m and it supplies only 1 draw-off point.
 6. A bend or curve must not be made in any pipe so as to diminish the waterway or alter the internal diameter of the pipe.
 7. Ductile iron pipes and fittings must be of a class appropriate to the duty required and comply with BS EN 545:2010.
 8. Steel pipes must—
 - (a) be galvanized;
 - (b) comply with the requirements for tubes in medium or heavy series in BS EN 10255:2004;
 - (c) for a cold fresh water inside service—be internally lined with unplasticized polyvinyl chloride, chlorinated polyvinyl chloride or polyethylene;

- (d) for a hot fresh water inside service—be internally lined with chlorinated polyvinyl chloride; and
 - (e) for a fresh water fire service—be internally lined with chlorinated polyvinyl chloride or without any lining.
- 9. Malleable cast iron fittings for use with steel pipes must be galvanized and comply with the relevant requirements in BS 143 and 1256:2000.
- 10. Fittings made of wrought iron or steel for use with steel pipes must be galvanized and comply with BS EN 10241:2000.
- 11. Unplasticized polyvinyl chloride pipes and fittings must comply with the requirements for Class D or superior pipes in BS 3505:1986 or the relevant requirements in BS EN ISO 1452-1:2009, BS EN ISO 1452-2:2009, BS EN ISO 1452-3:2010, BS EN ISO 1452-4:2009 and BS EN ISO 1452-5:2009.
- 12. Copper pipes incorporating screw joints must comply with BS EN 12449:2016. The screws of the pipes must comply with BS 61:1969.
- 13. Cast copper alloy fittings, for copper pipes screwed in accordance with Table 1 of BS 61:1969, must comply with the relevant requirements in BS 143 and 1256:2000.
- 14. Copper pipes to be jointed with mechanical joint fittings or capillary fittings or, by bronze or autogenous welding, must comply with BS EN 1057:2006+A1:2010.

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15. Mechanical joint fittings or capillary fittings made of copper or copper alloy must comply with the relevant requirements in BS EN 1254-1:1998, BS EN 1254-2:1998, BS EN 1254-4:1998, BS EN 1254-5:1998, BS EN 1254-6:2012, BS EN 1254-8:2012 and BS 8537:2010. Compression fittings made of copper or copper alloy for pipes laid underground must be of Type B. Soft soldering material must comply with BS EN ISO 9453:2014. Filler metal for brazing must comply with BS EN ISO 17672:2010.
 16. Polybutylene pipes and fittings must comply with BS 7291-1:2010 and BS 7291-2:2010.
 17. Polyethylene pipes and fittings must comply with BS EN 12201-1:2011, BS EN 12201-2:2011+A1:2013, BS EN 12201-3:2011+A1:2012, BS EN 12201-4:2012 and BS EN 12201-5:2011.
 18. Crosslinked polyethylene pipes and fittings must comply with BS 7291-1:2010 and BS 7291-3:2010.
 19. Chlorinated polyvinyl chloride pipes and fittings must comply with BS EN ISO 15877-1:2009+A1:2010, BS EN ISO 15877-2:2009+A1:2010 and BS EN ISO 15877-3:2009+A1:2010.
 20. Stainless steel pipes must be of grade 304 or better and comply with the relevant requirements in BS 6362:1990, BS EN 10217-7:2014 and BS EN 10312:2002. Stainless steel fittings must comply with AS 3688:2016.
 21. Pipe flanges made of steel must comply with BS EN 1092-1:2007+A1:2013. Pipe flanges made of cast iron or ductile iron must comply with BS EN 1092-2:1997.

22. Flexible pipe joints must comply with the hydraulic test requirements in BS EN 12266-1:2012.
23. Non-metallic materials and products for use in contact with water intended for human consumption must comply with the relevant requirements in BS 6920-1:2014, BS 6920-2.1:2014, BS 6920-2.2.1:2000+A3:2014, BS 6920-2.2.2:2000+A1:2014, BS 6920-2.2.3:2000+A2:2014, BS 6920-2.3:2000+A1:2014, BS 6920-2.4:2000+A1:2014, BS 6920-2.5:2000+A2:2014, BS 6920-2.6:2000+A2:2014 and BS 6920-3:2000.

Part 2

Taps and Valves

1. Draw-off taps and stop valves that are not of the ordinary screw-down pattern must be capable of resisting a pressure of at least 1 600 kPa. Valves, spindles and other internal parts of the draw-off taps and stop valves must be made of a corrosion-resisting material. If the nominal diameter of such a draw-off tap or stop valve does not exceed 50 mm, its body must be made of a corrosion-resisting material.
2. Cast iron or ductile iron waterworks gate valves or check valves of a nominal diameter of not less than 50 mm and with a pressure rating at PN 10 or above must comply with the relevant requirements in BS 5163-1:2004, BS 5163-2:2004, BS EN 1074-1:2000, BS EN 1074-2:2000 and BS EN 1074-3:2000. Gate valves for fire hydrant systems must comply with BS 5041-1:1987.
3. Ball float valves must comply with BS 1212-1:1990, BS 1212-2:1990, BS 1212-3:1990 or BS 1212-4:2016.

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4. For ball float valves of a nominal diameter not exceeding 50 mm, their valve bodies must be made of copper alloy or stainless steel. For ball float valves of a nominal diameter exceeding 50 mm, their valve bodies must be made of copper alloy, stainless steel, epoxy coated cast iron or epoxy coated ductile iron.
 5. Floats for use with fresh water must be made of copper alloy or stainless steel. Floats for use with salt water must be made of plastic or stainless steel.
 6. Copper floats or plastic floats must respectively comply with BS 1968:1953 or BS 2456:1990 if the nominal diameter of the floats does not exceed 300 mm.
 7. Ball float valves fitted to a cistern must have the size of the orifice, the size of the float and the length of the lever so proportioned to one another that, when the float is immersed to an extent not exceeding half its volume, the valve is watertight against the highest pressure at which the valve may be required to work.
 8. A ball float valve or float-operated valve fitted to a cistern must be securely fixed to the cistern above the waterline of the float of the valve, and must be supported independently of the inlet pipe (unless the inlet pipe is itself rigid and securely fixed to the cistern), in a position that no part of the body of the valve is submerged when the cistern is charged to the overflowing level.
 9. If a ball float valve or float-operated valve is provided with a pipe so arranged as to discharge water into a cistern below its overflowing level, an air hole must be provided in the outlet chamber of the valve above the

overflowing level. The air hole must be of a size sufficient to prevent siphonage of water back through the valve.

10. Ball float valves must not be fitted to a cistern that is used to contain heated water.
11. Except with the written permission of the Water Authority, fitting with a threaded outlet, or any device facilitating the connecting of rubber hose or another type of flexible hose, must not be used.
12. Draw-off taps, valves and valve floats for use with salt water must be made of a corrosion-resisting material and comply with the relevant requirements governing the use of fittings with fresh water.
13. The minimum flow rate requirement for taps in any prescribed specification does not apply to draw-off taps.
14. Draw-off taps must—
 - (a) for those of a single tap type—comply with BS EN 200:2008;
 - (b) for those of a combination tap type—comply with BS EN 200:2008, BS EN 1286:1999 or BS EN 1287:1999;
 - (c) for those of a self-closing tap type—comply with BS EN 816:1997; or
 - (d) for those of a sensor tap type—comply with BS EN 15091:2013.
15. Gate valves must—
 - (a) for those with a copper alloy body—comply with BS EN 12288:2010;

- (b) for those with a steel body—comply with BS EN 1984:2010; or
- (c) for those with a cast iron or ductile iron body and used for general purpose—comply with the relevant requirements in BS EN 1171:2015, BS 5163-1:2004, BS 5163-2:2004, BS EN 1074-1:2000 and BS EN 1074-2:2000.

16. Mixing valves must—

- (a) for those used for a basin or sink—comply with BS EN 200:2008 or BS EN 1286:1999;
- (b) for those used for a shower or bath—comply with BS EN 200:2008, BS EN 1286:1999 or BS EN 1287:1999; or
- (c) for those of a sensor type—comply with BS EN 15091:2013.

17. Globe valves must—

- (a) for those with a copper alloy body—comply with BS 5154:1991;
- (b) for those with a steel body—comply with BS EN 13709:2010; or
- (c) for those with a cast iron or ductile iron body—comply with BS EN 13789:2010.

18. Check valves must—

- (a) for those with a copper alloy body—comply with BS 5154:1991;
- (b) for those with a steel body—comply with BS EN 16767:2016; or

- (c) for those with a cast iron or ductile iron body—
comply with BS EN 12334:2001 or BS EN
16767:2016.

19. Ball valves must—

- (a) for those with a stainless steel body—comply
with BS EN 13828:2003; or
- (b) for those with a copper alloy body—comply
with the relevant requirements in BS EN
13547:2013 and BS EN 13828:2003.

20. Butterfly valves must comply with BS EN
593:2009+A1:2011.

21. Pressure reducing valves must comply with BS EN
1567:1999.”.

(3) Schedule 2, English text, Part 3, heading—

Repeal

“Storage”.

(4) Schedule 2, Part 3—

Repeal paragraph 2

Substitute

“2. A cistern must be watertight, of adequate strength,
properly supported and be made of concrete,
stainless steel or fibre glass.”.

(5) Schedule 2, Part 3—

Repeal paragraph 3.

(6) Schedule 2, Part 3—

Repeal paragraphs 4, 5, 6 and 7

Substitute

- “4. A cistern must be so located as to minimize the risk of contamination of stored water and be fitted with a suitable close fitting lockable cover that is not airtight. The cover must be so positioned as to facilitate inspection and cleaning.
5. If a cistern for non-potable water is placed adjoining to a cistern for potable water, a physical break must be provided between the cisterns, such that the walls and slabs of the cisterns are separated, however, tie beams linking the cisterns for structural requirements may be fitted and, if fitted, must be constructed in a way that cross contamination of the cisterns via the tie beams is not possible.
6. The inlet of a single cistern fed by a gravity supply must be fitted with a ball float valve and stop valve.
7. The inlet of a single cistern fed by a pumped supply must be fitted with an automatic control switch and without any stop valve.
- 7A. Each inlet of a twin cistern fed by a pumped supply must be fitted with an automatic control switch and a stop valve for temporary isolation purpose.
- 7B. A ball float valve or automatic control switch installed at the inlet of a cistern must shut off the supply when the water level is 25 mm below the invert of the overflow pipe or warning pipe. The invert of the inlet pipe or the outlet of the ball float

valve must not be less than 25 mm above the top of the overflow pipe.

7C. All overflow pipes and warning pipes of a potable water cistern must be made of a corrosion-resisting material.

7D. An overflow pipe of one commercial size larger than the inlet pipe, and in no case less than 25 mm in nominal diameter, must be fitted to a cistern and be extended to terminate in a conspicuous position. The overflow pipe must not be connected to a drain or sewer or to the overflow pipe from another cistern.

7E. A stop valve must be provided at the outlet of a cistern. Provisions must be made for a drain-off pipe to enable the cistern to be emptied.”.

(7) Schedule 2—

Repeal Part 4

Substitute

“Part 4

Hot Water Inside Services

1. Subject to paragraph 2, a water heater must be supplied with water from a cold water cistern.
2. With the written permission of the Water Authority, a water heater may be connected direct to a main if—

- (a) it has been tested satisfactorily at factory to a pressure at least 1.5 times the maximum static working pressure of the water heater; and
 - (b) it is of the following type—
 - (i) a non-pressure type water heater in which no restriction of flow can be effected beyond the inlet control valve;
 - (ii) a cistern type water heater;
 - (iii) an instantaneous water heater;
 - (iv) an unvented thermal storage type electric water heater that complies with the safety requirements under the Electrical Products (Safety) Regulation (Cap. 406 sub. leg. G).
- 3. If a water heater is connected direct to a main—
 - (a) every draw-off point of the water heater must not be less than 15 mm above the lowest part of the top edge of the receptacle supplied from the water heater; and
 - (b) if it is a gas water heater—the water heater must be constructed in a way that no leakage of gas into water can occur.
- 4. If mixing valves, water blenders or other combination of fittings are used with a water heater, the cold water supply to those fittings must be drawn from the same source that supplies the water heater in order to provide a balanced pressure and to obviate the risk of scalding if the water supply at the source fails or is restricted for any reason.
- 5. A thermal storage type water heater, other than a water heater of the type specified in paragraph 2(b)(iv), must be

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provided with an individual expansion pipe at its highest point and the pipe must continuously rise without obstruction until it discharges to atmosphere above the cistern at a sufficient height to prevent a constant outflow of hot water from the water heater via the pipe.

- 6. Taps or other fittings for drawing off water (other than a screwed plug with a removable key for emptying the system for cleansing or repair) must not be connected to any part of the hot water system below the top of the hot water cylinder in such a way that the level of the water in the cylinder can be lowered.
- 7. A tap used for drawing hot water must not be fixed at a greater distance (measured along the axis of the pipe by which the tap is supplied) from a hot water fitting, or from a flow and return system, than the distance opposite to the largest nominal diameter of the pipe as shown in the following table—

Table

	Largest nominal diameter of pipe	Distance in metres
(a)	Not exceeding 22 mm	12
(b)	Exceeding 22 mm but not exceeding 28 mm	8
(c)	Exceeding 28 mm	3

- 8. A loose jumper type valve fitted with a loose valve plate stopping any backflow, or a similar backflow stopping device, must be fitted at the inlet of a water heater if the water heater is not fitted with a non-return valve. This requirement does not apply to unvented thermal storage type electric water heaters.

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9. Pipes used for conveying hot water must be made of steel and internally lined with chlorinated polyvinyl chloride, of copper or of a corrosion-resisting material. Cast iron pipes of not less than 50 mm in internal diameter may be used if suitable provision for their expansion is made.
 10. A hot water cylinder or tank of a capacity of not less than 100 L must—
 - (a) if made of mild steel—comply with the requirements for cylinders or tanks in BS 417-2:1987; or
 - (b) if made of copper—comply with the relevant requirements in BS 1566-1:2002+A1:2011 and BS 1566-2:1984.
 11. A system incorporating an unvented thermal storage type electric water heater must be provided with—
 - (a) a pipe that branches off from the supply pipe at a point above the top of the water heater, or some other devices that prevent water from draining down from the water heater if the water supply at the source fails;
 - (b) an anti-vacuum valve that complies with the relevant requirements in BS EN 13959:2004 and BS EN 14451:2005, or some other devices that prevent heated water from being syphoned back to the supply pipe; and
 - (c) a vessel that accommodates the expansion of heated water if that expansion is constrained by a non-return valve, or a similar device, incorporated at the inlet of the water heater.”.
- (8) Schedule 2, Part 5—

Repeal paragraphs 1 and 2**Substitute**

- “1. A flushing cistern must be fitted with a flushing device of the valveless syphonic or valve type. A stop valve must be fixed in a readily accessible position so as to control the water supply to the cistern.
 2. A flushing cistern for a water-closet fitment or slop sink must be capable of giving a flush of not more than 15 L of water on each occasion the fitment is used.”.
- (9) Schedule 2, Part 5—

Repeal paragraphs 5, 6 and 7**Substitute**

- “5. A flushing apparatus must be operated by mechanical means or a sensor. In the case of an automatic flushing apparatus, the method of control and the volume and frequency of the flushes must be designed to ensure adequate cleaning.
6. A flushing cistern operated by mechanical means or a sensor must be fitted with a ball float valve that is arranged to refill the cistern within 2 minutes.
7. A flushing cistern must in all cases be supplied from a cistern. Except with the written permission of the Water Authority, the cistern must not be used to supply any other apparatus, appliance or fitting. The cistern must be fitted with a suitable close fitting cover and provided with appropriate access to enable the cistern to be entered and cleaned.”.

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- (10) Schedule 2, Part 5—

Repeal paragraph 9

Substitute

- “9. A trough water-closet or urinal must be fitted with a flushing cistern.
10. A water-closet fitment or slop sink must be fitted with a flushing cistern. However, a pressure flushing valve may be installed for flushing without the provision of a flushing cistern if there is a suitable head of water.
11. Flushing valves must comply with the relevant requirements in BS EN 997:2012+A1:2015 and BS EN 15091:2013.”.

- (11) Schedule 2, English text, Part 6, paragraph 3(a) and (b)—

Repeal

“storage”.

Kinnie WONG

Clerk to the Executive Council

COUNCIL CHAMBER

28 March 2017

Explanatory Note

The applicable material standards for pipes or fittings installed in a fire service or inside service set out in the Waterworks Regulations (Cap. 102 sub. leg. A) are outdated or superseded by other standards. The main purpose of this Regulation is to revise the requirements relating to the material standards.